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# ENERGY PARK

**volume 4 - 1 of 5**  
**technical appendices**



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# ENERGY PARK

volume 4 // appendix 5.1 // fluids tables - MCT

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Location of Fluid	Type of Fluid	Quantity
<b>Powertrain Gearbox</b>	BP Energol GR XP100	1000 Litres 500L each power train
<b>Gearbox seal</b>	Vickers 68 Hydrox Bio	50 Litres
<b>Powertrain brake</b>	Hydra 32 ISO 32 TEXACO	400 Litres
<b>Lift System, Crane</b>	Hydra 32 ISO 32 TEXACO	
<b>Pitch System gearbox</b>	BP Energol GR XP150	30 Litres
<b>Blade bearings</b>	Mobilith 460 grease	50 Litres
<b>Antifouling-Blades</b>	Internation Paints Intersleek 900	Dry coating
<b>anti corrosion</b>	Glass Flake Epoxy paint - International Interguard 505	Dry coating on Structure and powertrains
<b>Corrosion Protection Anodes</b>	Aluminium	100kg
<b>Impressed Current System-Corrosion protection</b>	Titanium Anodes/10 Kg	130mA/m2

# ENERGY PARK

volume 4 // appendix 5.2 // materials data sheets - MCT

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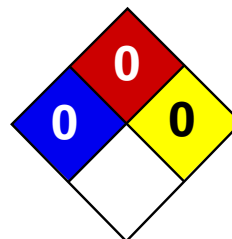


**BOOK 1**

<b>Index</b>	<b>Product</b>
<b>1</b>	Deironised Water
<b>2</b>	Electrolube - Airduster
<b>3</b>	Electrolube - cleaning solvent
<b>4</b>	Electrolube - ultralube
<b>5</b>	Energol GR-XP 100
<b>6</b>	Glycol
<b>7</b>	Hydrol HM 32
<b>8</b>	Hydrox Bio 68
<b>9</b>	Interseal 670 PtB
<b>10</b>	Interseal 670 White PtA
<b>11</b>	Interthane 990 PtB
<b>12</b>	Interthane 990 Red PtA
<b>13</b>	Interzone 1000 Grey PtA
<b>14</b>	Interzone 1000 PtB
<b>15</b>	Isopropyl Alcohol
<b>16</b>	Loctite 7200
<b>17</b>	Loctite 221
<b>18</b>	Loctite 243
<b>19</b>	Loctite 542
<b>20</b>	Loctite 5699
<b>21</b>	Loctite 5900
<b>22</b>	Loctite 7063
<b>23</b>	Loctite 7649
<b>24</b>	Loctite 128068
<b>25</b>	Mobilith SHC 460
<b>26</b>	Shell Naturelle Fluid HF-E 46
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<b>29</b>	White-Spirit

**BOOK 2**

<b>Index</b>	<b>Product</b>
1	Loctite 275
2	Loctite 7063
3	Loctite 7471
4	ROCOL (Lubricant for reaming, tapping and
5	drilling)
6	Midel 7131
7	
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Health	0
Fire	0
Reactivity	0
Personal Protection	A

## Material Safety Data Sheet Water, Deionized MSDS

### Section 1: Chemical Product and Company Identification

**Product Name:** Water, Deionized

**Catalog Codes:** SLW1015

**CAS#:** 7732-18-5

**RTECS:** ZC0110000

**TSCA:** TSCA 8(b) inventory: Water

**CI#:** Not available.

**Synonym:** Dihydrogen oxide

**Chemical Name:** Water

**Chemical Formula:** H<sub>2</sub>O

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Water	7732-18-5	100

**Toxicological Data on Ingredients:** Not applicable.

### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-irritating to the eyes. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. Non-irritant for lungs. Non-sensitizer for lungs. Non-corrosive to the eyes. Non-corrosive for lungs.

**Potential Chronic Health Effects:**

Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-irritating to the eyes. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. Non-irritant for lungs. Non-sensitizer for lungs. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available.

### Section 4: First Aid Measures

**Eye Contact:** Not applicable.



**Skin Contact:** Not applicable.

**Serious Skin Contact:** Not available.

**Inhalation:** Not applicable.

**Serious Inhalation:** Not available.

**Ingestion:** Not Applicable

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not applicable.

**Flash Points:** Not applicable.

**Flammable Limits:** Not applicable.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Not applicable.

**Explosion Hazards in Presence of Various Substances:** Not Applicable

**Fire Fighting Media and Instructions:** Not applicable.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

## Section 7: Handling and Storage

**Precautions:** No specific safety phrase has been found applicable for this product.

**Storage:** Not applicable.

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:** Not Applicable

**Personal Protection:** Safety glasses. Lab coat.

**Personal Protection in Case of a Large Spill:** Not Applicable

**Exposure Limits:** Not available.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Odorless.

**Taste:** Not available.

**Molecular Weight:** 18.02 g/mole

**Color:** Colorless.

**pH (1% soln/water):** 7 [Neutral.]

**Boiling Point:** 100°C (212°F)

**Melting Point:** Not available.

**Critical Temperature:** Not available.

**Specific Gravity:** 1 (Water = 1)

**Vapor Pressure:** 2.3 kPa (@ 20°C)

**Vapor Density:** 0.62 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not applicable

**Solubility:** Not Applicable

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Not available.

**Corrosivity:** Not available.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Eye contact.

**Toxicity to Animals:**

LD50: [Rat] - Route: oral; Dose: > 90 ml/kg LC50: Not available.

**Chronic Effects on Humans:** Not available.

**Other Toxic Effects on Humans:**

Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. Non-irritant for lungs. Non-sensitizer for lungs. Non-corrosive to the eyes. Non-corrosive for lungs.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:** Not available.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The product itself and its products of degradation are not toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** Not a DOT controlled material (United States).

**Identification:** Not applicable.

**Special Provisions for Transport:** Not applicable.

## Section 15: Other Regulatory Information

**Federal and State Regulations:** TSCA 8(b) inventory: Water

**Other Regulations:** EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**WHMIS (Canada):** Not controlled under WHMIS (Canada).

**DSCL (EEC):**

This product is not classified according to the EU regulations. Not applicable.

**HMIS (U.S.A.):**

**Health Hazard:** 0

**Fire Hazard:** 0

**Reactivity:** 0

**Personal Protection:** a

**National Fire Protection Association (U.S.A.):**

**Health:** 0

**Flammability:** 0

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Not applicable. Lab coat. Not applicable. Safety glasses.

**Section 16: Other Information**

**References:** Not available.

**Other Special Considerations:** Not available.

**Created:** 10/10/2005 08:33 PM

**Last Updated:** 11/01/2010 12:00 PM

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# Technical Data Sheet



<b>PRODUCT DESCRIPTION:</b>	<b>Electronic Cleaning Solvent Plus</b>	<b>DATE:</b>	<b>03/97</b>
<b>PRODUCT CODE:</b>	<b>ECSP</b>	<b>PAGES:</b>	<b>1</b>

## PRODUCT DESCRIPTION

**Electronic Cleaning Solvent Plus** is a fast-drying solvent specially formulated for the quick and efficient cleaning of electrical equipment. It replaces CFC solvents that were used in **Electrolube** products such as **ECS** which exhibited rapid cleaning and fast evaporation rates. ECSP is 100% Ozone Friendly.

A version is available with integral brush for removing stubborn deposits.

## PRODUCT USE

Electrical contacts, tape heads, PCB's, components in electronic and video equipment, computers, optical and precision instruments, cameras etc. Product contains **flammable solvent** so do not spray onto live electrical equipment or other sources of ignition. Immerse surface to be cleaned or spray onto surface to excess and allow to evaporate. A brush or foam tipped bud may be used to remove any stubborn deposits.

## FEATURES

- \* Non-CFC, non-halogenated cleaning solvent will not attack the Ozone Layer.
- \* Leaves a perfectly clean, dry surface - conventional solvents often leave greasy deposits which attract dust and dirt.
- \* Harmless to most plastics, rubbers, elastomers, and surface coatings.
- \* CO<sub>2</sub> propelled aerosol version available containing 20% more active cleaner, fitted with a 360 valve for use in any orientation.

## TYPICAL PROPERTIES

Specific Gravity @ 20°C:	0.79
Inhalation Toxicity:	500 ppm
Flash Point:	-48°C
Residue on Evaporation:	<1ppm
Evaporation Rate:	1.5 (ether = 1)
Boiling Point:	36°C

## PACKAGING

200ml Aerosol  
200ml Aerosol with brush  
400ml Aerosol  
5 Litre Bulk

## ORDER CODE

ECSP200D  
ECSP200DB  
ECSP400D  
ECSP05L

### **Copyright Electrolube 1997**

All information is given in good faith but without warranty. Properties are given as a guide only and should not be taken as a specification. Electrolube cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product.



## 1. Product and company identification

<b>Product name</b>	Energol GR-XP 100
<b>MSDS #</b>	401710
<b>Historic MSDS #:</b>	401710-US10
<b>Code</b>	401710-US31
<b>Product use</b>	Gear lubricant For specific application advice see appropriate Technical Data Sheet or consult our company representative.
<b>Manufacturer</b>	Castrol Industrial North America, Inc. 150 W. Warrenville Road Naperville, IL 60563
<b>Supplier</b>	Castrol Industrial North America, Inc. 150 W. Warrenville Road Naperville, IL 60563 Product Information: +1-877-641-1600
<b>EMERGENCY SPILL INFORMATION:</b>	1 (800) 424-9300 CHEMTREC (USA)

## 2. Hazards identification

<b>Physical state</b>	Liquid.
<b>Emergency overview</b>	CAUTION !  MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.  Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis. In accordance with good industrial hygiene and safety work practices, airborne exposures should be controlled to the lowest extent practicable. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
<b>Routes of entry</b>	<input checked="" type="checkbox"/> ermal contact. Eye contact. Inhalation.
<b>Potential health effects</b>	
<b>Eyes</b>	May cause eye irritation.
<b>Skin</b>	May cause skin irritation. Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis.
<b>Inhalation</b>	May cause respiratory tract irritation.
<b>Ingestion</b>	Ingestion may cause gastrointestinal irritation and diarrhea.
<a href="#">See toxicological information (Section 11)</a>	

## 3. Composition/information on ingredients

<b>Ingredient name</b>	<b>CAS #</b>	<b>%</b>
Base oil - highly refined	Varies	95 - 100

---

## 4. First aid measures

<b>Eye contact</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
<b>Skin contact</b>	Immediately wash exposed skin with soap and water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.
<b>Inhalation</b>	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
<b>Ingestion</b>	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If potentially dangerous quantities of this material have been swallowed, call a physician immediately. Get medical attention if symptoms occur.

---

## 5. Fire-fighting measures

<b>Flash point</b>	Closed cup: 220°C (428°F) [Pensky-Martens.]
<b>Fire/explosion hazards</b>	In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Extinguishing media</b>	
<b>Suitable</b>	Use an extinguishing agent suitable for the surrounding fire.
<b>Not suitable</b>	Do not use water jet.
<b>Fire-fighting procedures</b>	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
<b>Hazardous combustion products</b>	Combustion products may include the following: carbon oxides (CO, CO <sub>2</sub> ) (carbon monoxide, carbon dioxide) sulfur oxides (SO <sub>2</sub> , SO <sub>3</sub> etc.)
<b>Protective clothing (fire)</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

---

## 6. Accidental release measures

<b>Personal precautions</b>	No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. In accordance with good industrial hygiene and safety work practices, airborne exposures should be controlled to the lowest extent practicable. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
<b>Environmental precautions</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
<b>Methods for cleaning up</b>	
<b>Large spill</b>	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.
<b>Small spill</b>	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

---

## 7. Handling and storage

<b>Handling</b>	Put on appropriate personal protective equipment (see Section 8). Workers should wash hands and face before eating, drinking and smoking. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate.
-----------------	--

## Storage

Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

---

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### Ingredient name

Base oil - highly refined

#### Occupational exposure limits

##### ACGIH (United States).

TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Mineral oil, mist

##### OSHA (United States).

TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Mineral oil, mist

While specific OELs for certain components may be shown in this section, other components may be present in any mist, vapor or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

**Some states may enforce more stringent exposure limits.**

#### Control Measures

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

#### Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.

#### Personal protection

**Eyes** Avoid contact with eyes. Safety glasses with side shields or chemical goggles.

**Skin and body** Avoid contact with skin and clothing. Wear suitable protective clothing.

**Respiratory** Use adequate ventilation. In accordance with good industrial hygiene and safety work practices, airborne exposures should be controlled to the lowest extent practicable.

**Hands** The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Consult your supervisor or Standard Operating Procedure (S.O.P) for special handling instructions.

---

## 9. Physical and chemical properties

**Physical state** Liquid.

**Flash point** Closed cup: 220°C (428°F) [Pensky-Martens.]

**Density** 890 kg/m<sup>3</sup> (0.89 g/cm<sup>3</sup>) at 15°C

**Viscosity** Kinematic: 100 mm<sup>2</sup>/s (100 cSt) at 40°C  
Kinematic: 11.1 mm<sup>2</sup>/s (11.1 cSt) at 100°C

**Solubility** insoluble in water.

---

## 10. Stability and reactivity

**Stability and reactivity** The product is stable.

**Possibility of hazardous reactions** Under normal conditions of storage and use, hazardous reactions will not occur.

**Conditions to avoid** Avoid all possible sources of ignition (spark or flame).

**Incompatibility with various substances** Reactive or incompatible with the following materials: oxidizing materials.

**Product name** Energol GR-XP 100

**Product code** 401710-US31

**Page:** 3/5

**Version** 2 **Date of issue** 06/02/2012.

**Format** US

**Language** ENGLISH

(US)

(ENGLISH)



**Hazardous decomposition products**

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**Hazardous polymerization**

Under normal conditions of storage and use, hazardous polymerization will not occur.

## 11. Toxicological information

**Potential chronic health effects****Carcinogenicity**

No known significant effects or critical hazards.

## 12. Ecological information

**Ecotoxicity**

No testing has been performed by the manufacturer.

## 13. Disposal considerations

**Waste information**

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**NOTE: The generator of waste has the responsibility for proper waste identification (based on characteristic(s) or listing), transportation and disposal**

## 14. Transport information

Not classified as hazardous for transport (DOT, TDG, IMO/IMDG, IATA/ICAO)

## 15. Regulatory information

**U.S. Federal Regulations****United States inventory (TSCA 8b)**

All components are listed or exempted.

**SARA 302/304/311/312 extremely hazardous substances:** No products were found.**SARA 302/304 emergency planning and notification:** No products were found.**SARA 302/304/311/312 hazardous chemicals:** No products were found.**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:** Energol- GR-XP 100 - (Delta Petroleum-Louisiana) - Parent: Immediate (acute) health hazard**SARA 313****Form R - Reporting requirements**

This product does not contain any hazardous ingredients at or above regulated thresholds.

**Supplier notification**

This product does not contain any hazardous ingredients at or above regulated thresholds.

**CERCLA Sections 102a/103 Hazardous Substances (40 CFR Part 302.4):**

CERCLA: Hazardous substances.: Ethyl acrylate: 1000 lbs. (454 kg); Naphthalene: 100 lbs. (45.4 kg); Ethylene oxide: 10 lbs. (4.54 kg); Propylene oxide: 100 lbs. (45.4 kg); 1,4-dioxane: 100 lbs. (45.4 kg);

**State regulations****Massachusetts Substances**

None of the components are listed.

<b>Product name</b>	Energol GR-XP 100	<b>Product code</b>	401710-US31	<b>Page:</b> 4/5
<b>Version</b> 2	<b>Date of issue</b> 06/02/2012.	<b>Format</b> US	<b>Language</b> ENGLISH	
		(US)	(ENGLISH)	

**New Jersey Hazardous Substances**

The following components are listed: MINERAL OIL (UNTREATED and MILDLY TREATED)

**Pennsylvania RTK Hazardous Substances**

None of the components are listed.

**California Prop. 65**

**WARNING:** This product contains a chemical known to the State of California to cause cancer. Ethyl acrylate; Naphthalene; 1,4-dioxane; Propylene oxide

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. Ethylene oxide

**Other regulations**

**Canada inventory**

All components are listed or exempted.

**REACH Status**

For the REACH status of this product please consult your company contact, as identified in Section 1.

**Australia inventory (AICS)**

All components are listed or exempted.

**China inventory (IECSC)**

All components are listed or exempted.

**Japan inventory (ENCS)**

All components are listed or exempted.

**Korea inventory (KECI)**

All components are listed or exempted.

**Philippines inventory (PICCS)**

All components are listed or exempted.

**16. Other information**

**Label requirements**

CAUTION !

MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.

**HMIS® Rating :**

Health 1  
Flammability 1  
Physical Hazard 0  
Personal protection X

**National Fire Protection Association (U.S.A.)**



**History**

**Date of issue**

06/02/2012.

**Date of previous issue**

01/03/2012.

**Prepared by**

Product Stewardship

Indicates information that has changed from previously issued version.

**Notice to reader**

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.

<b>Product name</b> Energol GR-XP 100	<b>Product code</b> 401710-US31	<b>Page:</b> 5/5
<b>Version</b> 2	<b>Date of issue</b> 06/02/2012.	<b>Format</b> US (US)
		<b>Language</b> ENGLISH (ENGLISH)

**SAFETY DATA SHEET  
POLYETHYLENE GLYCOL 400****1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING**

PRODUCT NAME POLYETHYLENE GLYCOL 400  
PRODUCT NO. 1833  
APPLICATION General chemical reagent  
SUPPLIER Reagent Chemical Services  
18 Aston Fields Road  
Whitehouse Industrial Estate  
Runcorn  
Cheshire WA7 3DL  
T: 01928 716903  
F: 01928 716425  
E: info@reagent.co.uk

**2 COMPOSITION/INFORMATION ON INGREDIENTS**

EC (EINECS) NO. 203-473-3  
CAS-NO. 25322-68-3

**3 HAZARDS IDENTIFICATION**

CLASSIFICATION Not classified under current legislation.

**4 FIRST-AID MEASURES****INHALATION**

Remove victim immediately from source of exposure. Provide rest, warmth and fresh air. Get medical attention if any discomfort continues.

**INGESTION**

Do not induce vomiting. Rinse mouth thoroughly. If casualty has ingested large amounts or if discomfort continues obtain medical attention.

**SKIN CONTACT**

Immediately remove contaminated clothing. Wash the skin immediately with soap and water. Get medical attention if irritation persists after washing.

**EYE CONTACT**

Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

**5 FIRE-FIGHTING MEASURES****EXTINGUISHING MEDIA**

Combustible. Fire can be extinguished using: Water spray, foam, dry powder or carbon dioxide.

**6 ACCIDENTAL RELEASE MEASURES****PERSONAL PRECAUTIONS**

Wear protective clothing as described in Section 8 of this safety data sheet.

**SPILL CLEAN UP METHODS**

Small Spillages Absorb with sand or other inert absorbent. Large Spillages Dam and contain spillage with sand, earth or other inert material. Collect spillage in containers, seal securely and deliver for disposal according to local regulations. Flush area clean with lots of water. Be aware of potential for surfaces to become slippery. Wash thoroughly after dealing with a spillage.

**7 HANDLING AND STORAGE****USAGE PRECAUTIONS**

Avoid spilling, skin and eye contact.

**STORAGE PRECAUTIONS**

Store in tightly closed original container in a dry and cool place.

**POLYETHYLENE GLYCOL 400**

## STORAGE CLASS

Chemical storage.

**8 EXPOSURE CONTROLS/PERSONAL PROTECTION**

## ENGINEERING MEASURES

Provide adequate ventilation.

## HAND PROTECTION

Wear protective gloves made of rubber or plastic as general laboratory practice.

## EYE PROTECTION

Wear safety glasses. If risk of splashing, wear safety goggles or face shield.

## HYGIENE MEASURES

Wash at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes wet or contaminated. Promptly remove any clothing that becomes wet or contaminated. When using do not eat, drink or smoke.

**9 PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE	Liquid		
COLOUR	Colourless		
ODOUR	Odourless		
SOLUBILITY	Very soluble in: water.		
BOILING POINT (°C)	>250 760 mm Hg	MELTING POINT (°C)	3
RELATIVE DENSITY	1.13 20	pH-VALUE, DILUTED SOLUTION	4-7 100g/L
FLASH POINT (°C)	245	AUTO IGNITION TEMPERATURE (°C)	370

**10 STABILITY AND REACTIVITY**

## STABILITY

Stable under normal temperature conditions.

## MATERIALS TO AVOID

Strong oxidising substances.

**11 TOXICOLOGICAL INFORMATION**

TOXIC DOSE 1 - LD 50 30200 mg/kg (oral rat)

## HEALTH WARNINGS

Although not classified as hazardous, the product should be treated with the care and attention appropriate to chemicals.

**12 ECOLOGICAL INFORMATION**

## ECOTOXICITY

Although not classified as environmentally hazardous, harmful effects cannot be excluded in the event of improper handling or disposal.

**13 DISPOSAL CONSIDERATIONS**

## DISPOSAL METHODS

Dispose of waste and residues in accordance with local authority requirements.

**14 TRANSPORT INFORMATION**

## GENERAL

The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

No transport warning sign required.

**15 REGULATORY INFORMATION**

## RISK PHRASES

NC Not classified.

## SAFETY PHRASES

NC Not classified.

## POLYETHYLENE GLYCOL 400

### STATUTORY INSTRUMENTS

Chemicals (Hazard Information and Packaging) Regulations. Control of Substances Hazardous to Health.

### APPROVED CODE OF PRACTICE

Classification and Labelling of Substances and Preparations Dangerous for Supply. COSHH essentials: Easy steps to control chemicals. Control of Substances Hazardous to Health Regulations.

### GUIDANCE NOTES

Occupational Exposure Limits EH40. Introduction to Local Exhaust Ventilation HS(G)37.

### NATIONAL REGULATIONS

Control of Substances Hazardous to Health Regulations 2002 (as amended)

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## 16 OTHER INFORMATION

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### REVISION COMMENTS

This is first issue.

REVISION DATE                      08/10/2007

REV. NO./REPL. SDS GENERATED   1

SDS NO.                                20682

### SAFETY DATA SHEET STATUS

Approved.

# SAFETY DATA SHEET

MOL-LUB Ltd.

Trade name: **MOL Hydro HM 32 AL ashless hydraulic oil**

Version: 1

Latest revision:

Date of issue: 20. 06. 2007

Page: 1/(8)

## 1. Identification of the substance / preparation and of the company

Product name:

MOL Hydro HM 32 AL

Product type / recommended uses:

preparation / ashless hydraulic oil

Manufacturer / Supplier identification:

MOL-LUB Lubricant Production Trade and Service Limited Liability Company

H-2931 Almásfüzitő, Fő u. 21., Hungary

Phone / Fax: +36 34 526 330 / +36 34 526 391

Request SDS of:

MOL-LUB Lubricant Production Trade and Service Limited Liability Company

Customer Service Center

H-2931 Almásfüzitő, Fő u. 21., Hungary

Phone / Fax: +36 80 201 296 / +36 34 348 010

Responsible for SDS:

MOL-LUB Ltd. Csaba Horváth, head of HSE and QOP

Phone: +36 34 526 343; Mobile: +36 20 474 2644

e-mail: csahorvath@mol.hu

Technical information:

MOL-LUB Ltd. Product Development and Technical Service

H-1117 Budapest, Október huszonharmadika u. 18., Hungary

Phone/Fax: +36 80 201 296 or +36 1 464 0236 / +36 1 464 0304

Emergency telephone (07-15<sup>20</sup> h): +36 34 526 210

Health Toxicological Information Service (ETTSZ 1096 Budapest, Nagyvárad tér 2.)

Tel.: +36 1 476 6464, or +36 80 201 199

## 2. Hazards identification

Human health hazards: Danger symbol not required.

Note: Prolonged and/or repeated contact may cause irritation depending on individual sensitivity (see also Protective equipment).

Safety hazards: Danger symbol not required.

Environmental hazards: Danger symbol not required.

Note: Spills may form a film on water surfaces causing impaired oxygen transfer.

Trade name: **MOL Hydro HM 32 AL ashless hydraulic oil**

Version: 1

Latest revision:

Date of issue: 20. 06. 2007

Page: 2/(8)

### 3. Composition / information on ingredients

Chemical description: Mixture of refined mineral base oils containing additives.

Ingredients / Hazardous components:

Name	EINECS number	CAS number	Hazard symbol	Risk phrase	Conc. %(m/m)
Lubricating oils (petroleum), C17-C32*	309-875-6	101316-70-5	-	-	max. 99.5

\*: with exposure limit

The full text of each relevant R phrase see in Section 16.

### 4. First aid measures

General information: Never give anything by mouth to an unconscious person, or never induce vomiting.

Inhalation: Remove the affected person to fresh air. If rapid recovery does not occur, obtain medical attention.

Skin contact: Wash skin with large amounts of water, use soap. In case of persistent irritation, get medical attention.

Eye contact: Flush eyes with plenty of water for 10-15 minutes. In case of persistent irritation, get medical attention.

Ingestion: If swallowed, give water. Do not induce vomiting. Get medical attention.

Note to physician:

### 5. Fire-fighting measures

Fire hazards:

Moderately hazardous (see also Section 9 - flash point).

Suitable extinguishing media:

Foam, carbon dioxide, dry chemical powder.

Unsuitable extinguishing media:

Water jet.

Hazardous decomposition products:

On burning, carbon monoxide, carbon dioxide, various hydrocarbons and soot can be formed.

Trade name: **MOL Hydro HM 32 AL ashless hydraulic oil**

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Special protective equipment:

According to the existing fire-fighting regulations.

Further information:

-

## 6. Accidental release measures

Personal precautions:

See Section 8.

Environmental precautions:

Prevent spills from entering into natural water, soil and drains by containing the liquid. All kind of ignition sources should be remove. Notify relevant authority.

Clean-up procedures / recovery

On soil: Contain spilled liquid with sand, earth or other suitable absorbents. Recover free liquid by pumping. Dispose of according to local regulations.

On water: Confine the spillage. Remove from surface by skimming or suitable absorbents. Notify local authorities according to regulations.

## 7. Handling and storage

Handling:

Keep away from radiant heat and open flame.

Keep general measures applied for normal operations with lubricants. No special requirements.

When using do not eat, drink or smoke. Avoid splashing the product.

Handling temperature:

Storage:

Store in dry, well ventilated place in original, closed containers.

Keep away from radiant heat, open flame and strong oxidizing agents.

Storage temperature: max. 40°C

## 8. Exposure controls / personal protection

Engineering control measures:

Not required.

Exposure limits:

**Mineral oil mist:** TWA: **5 mg/m<sup>3</sup>**; STEL: 10 mg/m<sup>3</sup>, for oil mist, vapour excluded (ACGIH).

Method of testing, recommended: NIOSH 5026



Personal protection:

Respiratory protection:	Breathing apparatus not required.
Hand protection:	Oil resistant gloves (EN 374, Breakthrough time 480 min; Permeation performance level: 6) (e.g. nitrile rubber – minimal thickness 0.33 mm).
Eye protection:	Protective goggles not required.
Skin protection:	Protective clothing (oil resistant).
Other special:	

General protective measures / hygiene:

Avoid contact with skin and eyes. Avoid prolonged breathing of oil vapours or mists.  
Ensure washing facilities after working hours and before breaks. Take off contaminated or oil-soaked clothing, wash with warm water and soap.

## 9. Physical and chemical properties

Appearance:

Physical state:	liquid
Colour:	yellow, clear
Odour:	characteristic

Change in physical state:

Pour point (ISO 3016):	typ. -27°C
Boiling point:	

Others:

Flash point (COC) (EN ISO 2592):	typ. 225°C
Ignition point (EN ISO 2592):	not available
Autoignition temperature:	not available
Explosive properties:	not explosive
Oxidizing properties:	
Vapour pressure at 20°C:	negligible
Density at 15°C (EN ISO 12185):	typ. 0.873 g/cm <sup>3</sup>
Solubility in water:	practically insoluble in water
Solubility in other solvents:	gasoline, kerosene, toluene, etc.
n-Octanol/water partition coefficient:	not available
Vapour density:	not available
Evaporation rate:	not available
Heating value:	inf. 38 000 kJ/kg
Kinematic viscosity at 40°C (EN ISO 3104):	typ. 32.8 mm <sup>2</sup> /s
Kinematic viscosity at 100°C (EN ISO 3104):	typ. 5.45 mm <sup>2</sup> /s
pH:	not applicable

Trade name: **MOL Hydro HM 32 AL ashless hydraulic oil**

Version: 1

Latest revision:

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## 10. Stability and reactivity

Stability: No decomposition if stored and handled properly.

Conditions to avoid: Direct heat or ignition sources.

Materials to avoid: Strong oxidizing agents.

Hazardous decomposition products: On burning, carbon monoxide, carbon dioxide, various hydrocarbons and soot can be formed.  
Under normal conditions no dangerous decomposition products are formed.

Notes:

## 11. Toxicological information

Acute toxicity:

Oral:	LD <sub>50</sub> (rat)	> 2000	mg/kg	(based on components)
Dermal:	LD <sub>50</sub> (rabbit)	> 2000	mg/kg	(based on components)

Acute toxicity: irritation

Skin: not irritant (based on components)

Eye: not irritant (based on components)

Note: Prolonged and/or repeated contact may cause irritation, depending on individual sensitivity.

Sensitization: not sensitising (based on components)

Chronic toxicity: not known

Other information, specific effects:

The product does not contain PCBs, PCTs, and other chlorine compounds, and heavy metals, barium compounds.

The base oil(s) contain(s) less than 3% DMSO extract (IP 346), therefore not classified as carcinogenic material according to 67/548/EEC NOTE L.

Carcinogen effect: not known, resp. not carcinogen (based on components)

Mutagen effect: not known, resp. not mutagen (based on components)

Reproduction-damaging effect: not known, resp. no reproduction-damaging effect (based on components)

## 12. Ecological information

Mobility:	Floats on water. Absorbs on soil.
Degradability / persistence:	
Biodegradability:	
Bioaccumulative potential:	
Ecotoxicity:	Not available.
Aquatic organisms:	
Soil organisms:	
Plants:	
Biological oxygen demand:	
Chemical oxygen demand:	
Heavy metal content:	None.
PCT, PCB and other chlorinated hydrocarbons:	None.
Environmental effects:	Spills may form a film on water surfaces causing impaired oxygen transfer.
Water hazard class (German):	

## 13. Disposal considerations

### Product disposal:

Wastes of the product or used oil should be treated as hazardous waste.

EWC cod: 13 01 10\* or 13 02 05\*

Mineral based non-chlorinated hydraulic oils. or

Mineral-based non-chlorinated engine, gear and lubricating oils.

Disposal must be in compliance with national and local regulations.

### Packaging disposal:

Containers with product residue should also be treated as hazardous waste according to national and local disposal regulations.

EWC cod: 15 01 10\*

Packaging containing residues of or contaminated by dangerous substances.

Disposal must be in compliance with national and local regulations.

### Wastewater:

Quality of wastewater emitted to natural water must comply with national and local regulations.

Care should be taken in any case to ensure compliance with EC, national and local regulations. It is the responsibility of the user to know all relevant national and local regulations.

Trade name: **MOL Hydro HM 32 AL ashless hydraulic oil**

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#### 14. Transport information

Land transport:

Road/ Railway

ADR/RID:

Not classified.

Waterways:

Inland waterways/ Sea transport ADN/IMDG:

Not classified.

Air transport: ICAO / IATA:

Not classified.

#### 15. Regulatory information

Classification and labelling according to EU directives [67/548/EEC and 88/379/EEC, 1999/45/EC (existing versions)] and to Hungarian regulation [44/2000. (XII. 27.) EüM rendelet (existing version)] for hazardous substances and hazardous preparations:

Danger symbol(s) and indication(s):

*Not required.*

Hazardous substance(s):

-

The packaging must bear the inscription:

-

R-phrases: Not required.

S-phrases:

S 60

This material and its container must be disposed of as hazardous waste

S 61

Avoid release to the environment. Refer to special instructions/Safety data sheets

Tactile warning of danger:

Not required.

#### 16. Other information

Recommended application / restrictions:

See product sheets.

The information given in this data sheet is based on our best knowledge at the time of publication. The information is related only to this product and is intended to assist its safe transport, handling and use. The given physical and chemical parameters describe the product only for the purpose of safety requirements and therefore should not be construed as guaranteeing any specific property of the product or as being part of a product specification or any contract.

The manufacturer or supplier shall not take responsibility for any damages from the use other than recommended or other misuse of the product. It is the responsibility of the user to keep regulatory precautions and observe recommendations for safe use of the product.

Trade name: **MOL Hydro HM 32 AL ashless hydraulic oil**

Version: 1

Latest revision:

Date of issue: 20. 06. 2007

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This safety data sheet has been prepared according to Regulation (EC) No 1907/2006, Directives 88/379/EEC and 1999/45/EC.

Source of data presented in this material safety data sheet:

Test results of this product

Material safety data sheets of product's components

Hungarian and EU lists of dangerous substances

Relevant Hungarian regulation and EU directives

CONCAWE database

*The full text of each relevant R phrase in Section 3.:*

-

Revision Indicators:

Section	Subject of change	Date	Version

# product data

## HYDROX BIO 68

**Description:**

A **Readily Biodegradable** lubricant, based on natural fatty oils.

**Use:**

**Hydrox Bio 68** is designed specifically as a sterntube lubricant. Designed primarily for use where rubber lip type seals and modern circulatory oil feed systems are fitted. Particularly recommended for use where there is the potential for sea water or fresh water to contaminate the lubrication system

**Characteristics:**

Appearance	Pale yellow oil
Viscosity @ 40°C	Approx. 70 cSts
Viscosity Index	> 220
Density @ 15°C	Approx. 0.920 kg / ltr
Pour point	Approx. -24°C
Cloud point	<0°C
Flashpoint	Above 180°C
Shelf life	Expected indefinite in original sealed containers.

**Performance Data:**

1. Designed specifically for sterntube lubrication. Provides a very high standard of lubrication under both the boundary and hydrodynamic lubricating conditions encountered in a sterntube.
2. **Hydrox Bio 68** has been tested by independent laboratories and has been confirmed as being Readily Biodegradable in seawater, as assessed by the test methods **OECD 301B** and **OECD 306**.
3. **Hydrox Bio 68** has been independently tested for environmental toxicity relative to the marine environment. It has been found to be of low toxicity to the organisms listed:

<b>Fish</b>	tested to OECD 203
<b>Daphnia</b>	tested to OECD 202
<b>Shrimp</b>	tested to AFNOR NFT 90-349
<b>Algae</b>	tested to OECD 201
4. **Hydrox Bio 68** has been evaluated for 'water hazard class' using the WGK system, being given a rating of WGK 1.
5. **Hydrox Bio 68** is compatible with the metals commonly used in sterntube systems and provides excellent corrosion protection.
6. The oil will absorb any sea water or fresh water entering the sterntube to form a fluid and stable emulsion and thereby reducing the risk of free water being present in the sterntube. The emulsion itself maintains a very high standard of lubrication and corrosion protection properties.
7. The oil will absorb a very high amount of water, however a maximum of 20% water content is recommended as a guideline, for regular running in the sterntube. Above this water content, it is recommended that some of the emulsion is drained from the system and fresh oil is introduced.
8. **Hydrox Bio 68** can be burned under safe controlled conditions.

**Notes:**

This product should only be used for the applications specified. The supplier cannot accept responsibility if it is used in any other applications.

H.S.T.N.: 340399  
REF: DM12/06B



the quality touch

Registered Office

Benj<sup>n</sup> R. Vickers & Sons Ltd

Airedale Mills, 6 Clarence Road, Leeds LS10 1ND, England  
Phone: +44 (0) 113 386 7654 Fax: +44 (0) 113 386 7676  
Email: techserv@vickers-oil.com Website: www.vickers-oil.com



The above information is given for guidance only and does not constitute a specification. It is given in good faith but without warranty.

**Safety Data Sheet****EGA247 INTERSEAL 670HS PART B****Version No. 4 Date Last Revised 02/11/11**

Conforms to the requirements of Regulation (EC) No.1907/2006 (REACH), Annex II and Regulation (EC) No.1272/2008

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier** INTERSEAL 670HS PART B

Product Code EGA247

Registration Number

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Intended use See Technical Data Sheet.

Application Method See Technical Data Sheet.

**1.3. Details of the supplier of the safety data sheet****Manufacturer** International Paint Ltd.  
Stoneygate Lane  
Felling Gateshead  
Tyne and Wear  
NE10 0JY UK**Telephone No.** +44 (0)191 469 6111**Fax No.** +44 (0)191 438 3711**1.4. Emergency telephone number****Manufacturer** +44 (0)191 469 6111 24hr**Official Advisory Body Telephone No.:**  
**Advice for Doctors and Hospitals**

+44 (0)844 892 0111

**Email** sdsfellinguk@akzonobel.com**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Mixture NOT yet classified according to Regulation (EC) No. 1272/2008****Classification according to 67/548/EEC or 1999/45/EC.**

C Corrosive.

R10 Flammable.

R20/21 Harmful by inhalation and in contact with skin.

R34 Causes burns.

R43 May cause sensitisation by skin contact.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 2.2. Label elements

According to 1999/45/EC



Corrosive

**Contains:** Tetraethylenepentamine, 4-aminopropylmorpholine,

R10 Flammable.

R20/21 Harmful by inhalation and in contact with skin.

R34 Causes burns.

R43 May cause sensitisation by skin contact.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S23 Do not breathe vapour/spray.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S51 Use only in well-ventilated areas.

### P. Phrases;

## 2.3. Other hazards

This product contains no PBT/vPvB chemicals.

## SECTION 3: Composition/information on ingredients

If the product contains substances that present a health hazard within the meaning of the Dangerous Substances Directive 67/548/EC, or have occupational exposure limits detailed in EH40, these substances are listed below.

Ingredient/Chemical Designations	Weight %	67/548/EEC Classification	EC No. 1272/2008 Classification	Notes
Benzyl alcohol CAS Number: 0000100-51-6 EC No. 202-859-9 Index No.: 603-057-00-5 REACH Reg. No.: 01-2119492630-38-xxxx	10 - < 25	Xn;R20/22	Acute Tox. 4;H332 Acute Tox. 4;H302	[1]
4-aminopropylmorpholine CAS Number: 0000123-00-2 EC No. 204-590-2 Index No.: REACH Reg. No.:	10 - < 25	Xn;R21 C;R34	Acute Tox. 4;H312 Skin Corr. 1;H314	[1]
Xylene CAS Number: 0001330-20-7 EC No. 215-535-7 Index No.: 601-022-00-9 REACH Reg. No.:	2.5 - < 10	R10 Xn;R20/21 Xi;R38	Flam. Liq. 3;H226 Acute Tox. 4;H332 Acute Tox. 4;H312 Skin Irrit. 2;H315	C [1][2]
Tetraethylenepentamine CAS Number: 0000112-57-2 EC No. 203-986-2 Index No.: 612-060-00-0 REACH Reg. No.:	2.5 - < 10	C;R34 Xn;R21/22 R43 N;R51-53	Acute Tox. 4;H312 Acute Tox. 4;H302 Skin Corr. 1B;H314 Skin Sens. 1;H317 Aquatic Chronic 2;H411	[1]



[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

\*The full texts of the phrases are shown in Section 16.

## **SECTION 4: First aid measures**

### **4.1. Description of first aid measures**

#### **General**

In all cases of doubt, or when symptoms persist, seek medical attention.

Never give anything by mouth to an unconscious person.

#### **Inhalation**

Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

#### **Skin**

Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognised skin cleanser. Do NOT use solvents or thinners.

#### **Eye**

Irrigate copiously with clean fresh water for at least 10 minutes, holding the eyelids apart and seek medical attention.

#### **Ingestion**

If accidentally swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

### **4.2. Most important symptoms and effects, both acute and delayed**

No data available

### **4.3. Indication of any immediate medical attention and special treatment needed**

No data available

## **SECTION 5: Fire-fighting measures**

### **5.1. Extinguishing media**

Recommended extinguishing media; alcohol resistant foam, CO<sup>2</sup>. powder, water spray.

Do not use; water jet.

### **5.2. Special hazards arising from the substance or mixture**

Fire will produce dense black smoke. Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Avoid exposure and use breathing apparatus as appropriate.

### **5.3. Advice for fire-fighters**

Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or water courses.

## **SECTION 6: Accidental release measures**

### **6.1. Personal precautions, protective equipment and emergency procedures**

Remove sources of ignition, do not turn lights or unprotected electrical equipment on or off. In case of a major spill or spillage in a confined space evacuate the area and check that solvent vapour levels are below the Lower Explosive Limit before re-entering.

## **6.2. Environmental precautions**

Do not allow spills to enter drains or watercourses.

## **6.3. Methods and material for containment and cleaning up**

Ventilate the area and avoid breathing vapours. Take the personal protective measures listed in section 8.

Contain and absorb spillage with non-combustible materials e.g. sand, earth, vermiculite. Place in closed containers outside buildings and dispose of according to the Waste Regulations. (See section 13).

Clean, preferably with a detergent. Do not use solvents.

Do not allow spills to enter drains or watercourses.

If drains, sewers, streams or lakes are contaminated, inform the local water company immediately. In the case of contamination of rivers, streams or lakes the Environmental Protection Agency should also be informed.

# **SECTION 7: Handling and storage**

## **7.1. Precautions for safe handling**

### **Handling**

This coating contains solvents. Solvent vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air. Areas of storage, preparation and application should be ventilated to prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentrations higher than the occupational exposure limits.

### **In Storage**

Handle containers carefully to prevent damage and spillage.

Naked flames and smoking should not be permitted in storage areas. It is recommended that fork lift trucks and electrical equipment are protected to the appropriate standard.

## **7.2. Conditions for safe storage, including any incompatibilities**

Keep away from the following materials: oxidising agents, strong alkalis, strong acids.

Avoid skin and eye contact. Avoid inhalation of vapours and spray mists. Observe label precautions. Use personal protection as shown in section 8.

Smoking, eating and drinking should be prohibited in all preparation and application areas.

Never use pressure to empty a container; containers are not pressure vessels.

Store in a well ventilated, dry place away from sources of heat and direct sunlight.

Store on concrete or other impervious floor, preferably with bunding to contain any spillage. Do not stack more than 3 pallets high.

Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in the original container or one of the same material.

Prevent unauthorised access.

## **7.3. Specific end use(s)**

There are no exposure scenarios, see details in section 1.

# **SECTION 8: Exposure controls/personal protection**

## **8.1. Control parameters**

The following workplace exposure limits have been established by the Health and Safety Executive as published in EH40.

Material	Short term (15 min. ave)		Long term (8hr TWA)		Comments
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	
Xylene	100	441	50	220	+

For Key to entries in 'Comments' column see Section 16

### DNEL/PNEC values

No Data Available

### 8.2. Exposure controls

Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapour below occupational exposure limits suitable respiratory protection must be worn.

### Eye/face protection

Wear safety eyewear, e.g. safety spectacles, goggles or visors to protect against the splash of liquids. Eyewear should meet the requirements of standard EN 166.

### Skin protection

For prolonged or repeated handling, use the following type of gloves:

Recommended: foil.

Not recommended: butyl rubber, PVC.

Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.

The recommendation for the type or types of glove to use when handling this product is based on information from the following source: [www.esig.org](http://www.esig.org)

The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

### Other

Overalls which cover the body, arms and legs should be worn. Skin should not be exposed. Barrier creams may help to protect areas which are difficult to cover such as the face and neck. They should however not be applied once exposure has occurred. Petroleum jelly based types such as Vaseline should not be used. All parts of the body should be washed after contact.

### Respiratory protection

If workers are exposed to concentrations above the exposure limit they must use the appropriate, certified respirators. For maximum protection when spraying this product it is recommended that a multi layer combination type filter, such as ABEK1, is used. In confined spaces use compressed air or fresh air respiratory equipment.

### Thermal hazards

No Data Available

## SECTION 9: Physical and chemical properties

Appearance	Light Coloured Liquid
Odour	Smell of Solvent
Odour threshold	Not Measured

<b>pH</b>	Not Measured
<b>Melting point / freezing point (°C)</b>	Not Measured
<b>Initial boiling point and boiling range (°C)</b>	137
<b>Flash point (°C)</b>	38
<b>Evaporation rate (Ether = 1)</b>	Not Measured
<b>Flammability (solid, gas)</b>	Not Applicable
<b>Upper/lower flammability or explosive limits</b>	Lower Explosive Limit: Not Measured Upper Explosive Limit: Not Measured
<b>Vapour pressure (Pa)</b>	Not Measured
<b>Vapour density</b>	Heavier than air.
<b>Relative density</b>	0.98
<b>Solubility(ies)</b>	Immiscible
<b>Partition coefficient n-octanol/water (Log Kow)</b>	Not Measured
<b>Auto-ignition temperature (°C)</b>	Not Measured
<b>Decomposition temperature (°C)</b>	Not Measured
<b>Viscosity (cSt)</b>	250

## 9.2. Other information

No further information

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No data available

### 10.2. Chemical stability

Stable under recommended storage and handling conditions (see section 7). When exposed to high temperatures may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

Keep away from oxidising agents, strongly alkaline and strongly acid materials in order to avoid possible exothermic reactions.

### 10.3. Possibility of hazardous reactions

May react exothermically with: oxidising agents, strong alkalis, strong acids.

### 10.4. Conditions to avoid

Stable under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Keep away from the following materials: oxidising agents, strong alkalis, strong acids.

### 10.6. Hazardous decomposition products

Fire will produce dense black smoke. Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Avoid exposure and use breathing apparatus as appropriate.

## SECTION 11: Toxicological information

### Acute toxicity

Exposure to solvent vapour concentrations from the component solvents in excess of the stated occupational exposure limits may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms include headache, nausea, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.

Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in dryness, irritation and possible non-allergic contact dermatitis. Solvents may also be absorbed through the skin. Splashes of liquid in the eyes may cause irritation and soreness with possible reversible

damage.

Amine based materials may cause skin irritation and sensitisation.

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapour LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr
4-aminopropylmorpholine - (123-00-2)	3,560.00, Rat	1,214.00, Rabbit	Not Available	Not Available
Benzyl alcohol - (100-51-6)	1,230.00, Rat	2,000.00, Rabbit	4.178, Rat	Not Available
Tetraethylenepentamine - (112-57-2)	2,140.00, Rat	Not Available	Not Available	Not Available
Xylene - (1330-20-7)	4,299.00, Rat	1,700.00, Rabbit	21.00, Rat	Not Available

## SECTION 12: Ecological information

### 12.1. Toxicity

The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and is classified for eco-toxicological properties accordingly. See Sections 2 and 3 for details.

There are no data available on the product itself.

The product should not be allowed to enter drains or water courses.

### Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Benzyl alcohol - (100-51-6)	10.00, <i>Lepomis macrochirus</i>	55.00, <i>Daphnia magna</i>	700.00 (72 hr), Algae
4-aminopropylmorpholine - (123-00-2)	Not Available	Not Available	Not Available
Xylene - (1330-20-7)	3.30, <i>Oncorhynchus mykiss</i>	8.50, <i>Palaemonetes pugio</i>	100.00 (72 hr), Chlorococcales
Tetraethylenepentamine - (112-57-2)	420.00, <i>Poecilia reticulata</i>	24.00, <i>Daphnia magna</i>	2.00 (72 hr), <i>Pseudokirchneriella subcapitata</i>

### 12.2. Persistence and degradability

There is no data available on the preparation itself.

### 12.3. Bioaccumulative potential

Not Measured

### 12.4. Mobility in soil

No data available

### 12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

### 12.6. Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Do not allow into drains or water courses. Wastes and emptied containers should be disposed of in accordance with regulations made under the Control of Pollution Act and the Environmental Protection Act.

Using information provided in this data sheet advice should be obtained from the Waste Regulation Authority, whether the special waste regulations apply.

The European Waste Catalogue Classification of this product, when disposed of as waste is 08 01 11 Waste paint and varnish containing organic solvents or other dangerous substances. If mixed with other wastes this code may no longer apply and the appropriate code should be assigned. For further information contact your local waste authority.

## SECTION 14: Transport information

<b>14.1. UN number</b>	3470	
<b>14.2. UN proper shipping name</b>	PAINT, CORROSIVE, FLAMMABLE	
<b>14.3. Transport hazard class(es)</b>		
<b>ADR/RID/ADN</b>	UN3470 PAINT, CORROSIVE, FLAMMABLE, 8 (3), II	
<b>IMDG</b>	<b>class/div 8</b>	<b>Sub Class 3</b>
	<b>Segregation Group</b>	Alkalis
	<b>EmS</b>	F-E,S-C
<b>ICAO/IATA</b>	<b>Air class 8</b>	<b>Sub Class 3</b>
<b>14.4. Packing group</b>	II	
<b>14.5. Environmental hazards</b>		
<b>ADR/RID/ADN</b>	Environmentally Hazardous: No	
<b>IMDG</b>	Marine Pollutant: No	
<b>14.6. Special precautions for user</b>	No further information	
<b>14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not Applicable	

## SECTION 15: Regulatory information

### EU Legislation

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

### National Legislation

UKSI 2009 No. 716 CHEMICALS (HAZARD INFORMATION AND PACKAGING FOR SUPPLY)

**SECTION 16: Other information**

**IMPORTANT NOTE:** the information contained in this data sheet (as may be amended from time to time) is not intended to be exhaustive and is presented in good faith and believed to be correct as of the date on which it is prepared. It is the user's responsibility to verify that this data sheet is current prior to using the product to which it relates.

Persons using the information must make their own determinations as to the suitability of the relevant product for their purposes prior to use. Where those purposes are other than as specifically recommended in this safety data sheet, then the user uses the product at their own risk.

**MANUFACTURER'S DISCLAIMER:** the conditions, methods and factors affecting the handling, storage, application, use and disposal of the product are not under the control and knowledge of the manufacturer. Therefore the manufacturer does not assume responsibility for any adverse events which may occur in the handling, storage, application, use, misuse or disposal of the product and, so far as permitted by applicable law, the manufacturer expressly disclaims liability for any and all loss, damages and/or expenses arising out of or in any way connected to the storage, handling, use or disposal of the product. Safe handling, storage, use and disposal are the responsibility of the users. Users must comply with all applicable health and safety laws.

Unless we have agreed to the contrary, all products are supplied by us subject to our standard terms and conditions of business, which include limitations of liability. Please make sure to refer to these and / or the relevant agreement which you have with AkzoNobel (or its affiliate, as the case may be).

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The information in this Health & Safety Data Sheet is required pursuant to EC Regulation 1907(2006) and the Chemicals (Hazard Information & Packaging for Supply) Regulations 2009.

Key to 'Comments' column in Section 8.

- (+) There is a risk of absorption through unbroken skin.
- (C) Capable of causing cancer and/or heritable genetic damage.
- (R) Suppliers recommended limit.
- (S) Capable of causing occupational asthma.

The full text of the R, H & EUH phrases appearing in section 3 is:

- H226 Flammable liquid and vapour.
- H302 Harmful if swallowed.
- H312 Harmful in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H332 Harmful if inhaled.
- H411 Toxic to aquatic life with long lasting effects.
- R10 Flammable.
- R20/21 Harmful by inhalation and in contact with skin.
- R20/22 Harmful by inhalation and if swallowed.
- R21 Harmful in contact with skin.
- R21/22 Harmful in contact with skin and if swallowed.
- R34 Causes burns.
- R38 Irritating to skin.
- R43 May cause sensitisation by skin contact.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**The following sections have changed since the previous revision.**

SECTION 11: Toxicological information

End of document



Your attention is drawn to the disclaimer on the Product Data Sheet which with this Safety Data Sheet and the package labelling comprise an integral information system about this product. Copies of the Product Data Sheet are available from International Paint on request or from our Internet sites : [www.yachtpaint.com](http://www.yachtpaint.com) , [www.international-marine.com](http://www.international-marine.com), [www.international-pc.com](http://www.international-pc.com)



**Safety Data Sheet****EGB000 INTERSEAL 670HS WHITE PART A****Version No. 1 Date Last Revised 18/08/11**

Conforms to the requirements of Regulation (EC) No.1907/2006 (REACH), Annex II and Regulation (EC) No.1272/2008

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier** INTERSEAL 670HS WHITE PART A

Product Code EGB000

Registration Number

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Intended use See Technical Data Sheet.

Application Method See Technical Data Sheet.

**1.3. Details of the supplier of the safety data sheet****Manufacturer** International Paint Ltd.  
Stoneygate Lane  
Felling Gateshead  
Tyne and Wear  
NE10 0JY UK**Telephone No.** +44 (0)191 469 6111**Fax No.** +44 (0)191 438 3711**1.4. Emergency telephone number****Manufacturer** +44 (0)191 469 6111 24hr**Official Advisory Body Telephone No.:**  
**Advice for Doctors and Hospitals**

+44 (0)844 892 0111

**Email** sdsfellinguk@akzonobel.com**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Mixture NOT yet classified according to Regulation (EC) No. 1272/2008****Classification according to 67/548/EEC or 1999/45/EC.**

Xi Irritant.

R10 Flammable.

R36/38 Irritating to eyes and skin.

R43 May cause sensitisation by skin contact.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**2.2. Label elements**



Irritant

**Contains:** Epoxy resin (av.mol.wt.<700), Epoxy resin (av.mol.wt. 700-1100),

R10 Flammable.

R36/38 Irritating to eyes and skin.

R43 May cause sensitisation by skin contact.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S23 Do not breathe vapour/spray.

S24 Avoid contact with skin.

S37 Wear suitable gloves.

S51 Use only in well-ventilated areas.

### P. Phrases;

Contains epoxy constituents. See information supplied by the manufacturer.

### 2.3. Other hazards

This product contains no PBT/vPvB chemicals.

## SECTION 3: Composition/information on ingredients

If the product contains substances that present a health hazard within the meaning of the Dangerous Substances Directive 67/548/EC, or have occupational exposure limits detailed in EH40, these substances are listed below.

Ingredient/Chemical Designations	Weight %	67/548/EEC Classification	EC No. 1272/2008 Classification	Notes
Epoxy resin (av.mol.wt.<700) CAS Number: 0025068-38-6 EC No. 500-033-5 Index No.: 603-074-00-8 REACH Reg. No.: 01-2119456619-26-xxxx	10 - < 25	R43 Xi;R36/38 N;R51-53	Eye Irrit. 2;H319 Skin Irrit. 2;H315 Skin Sens. 1;H317 Aquatic Chronic 2;H411	[1]
Xylene CAS Number: 0001330-20-7 EC No. 215-535-7 Index No.: 601-022-00-9 REACH Reg. No.:	2.5 - < 10	R10 Xn;R20/21 Xi;R38	Flam. Liq. 3;H226 Acute Tox. 4;H332 Acute Tox. 4;H312 Skin Irrit. 2;H315	C [1][2]
Epoxy resin (av.mol.wt. 700-1100) CAS Number: 0025068-38-6 EC No. 500-033-5 Index No.: 603-074-00-8 REACH Reg. No.:	2.5 - < 10	R43 Xi;R36/38	Eye Irrit. 2;H319 Skin Irrit. 2;H315 Skin Sens. 1;H317	[1]
1-methoxypropan-2-ol CAS Number: 0000107-98-2 EC No. 203-539-1 Index No.: 603-064-00-3 REACH Reg. No.:	1 - < 2.5	R10 R67	Flam. Liq. 3;H226 STOT SE 3;H336	[1][2]
Ethylbenzene CAS Number: 0000100-41-4 EC No. 202-849-4 Index No.: 601-023-00-4 REACH Reg. No.:	1 - < 2.5	F;R11 Xn;R20	Flam. Liq. 2;H225 Acute Tox. 4;H332	[1][2]

Solvent naphtha (petroleum), light aromatic CAS Number: 0064742-95-6 EC No. 265-199-0 Index No.: 649-356-00-4 REACH Reg. No.:	0 - < 1	Xn;R65	Asp. Tox. 1;H304	H; P [1]
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[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

\*The full texts of the phrases are shown in Section 16.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General

In all cases of doubt, or when symptoms persist, seek medical attention.

Never give anything by mouth to an unconscious person.

#### Inhalation

Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

#### Skin

Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognised skin cleanser. Do NOT use solvents or thinners.

#### Eye

Irrigate copiously with clean fresh water for at least 10 minutes, holding the eyelids apart and seek medical attention.

#### Ingestion

If accidentally swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

### 4.2. Most important symptoms and effects, both acute and delayed

No data available

### 4.3. Indication of any immediate medical attention and special treatment needed

No data available

## SECTION 5: Fire-fighting measures

### 5.1. Extinguishing media

Recommended extinguishing media; alcohol resistant foam, CO<sup>2</sup>. powder, water spray.

Do not use; water jet.

### 5.2. Special hazards arising from the substance or mixture

Fire will produce dense black smoke. Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Avoid exposure and use breathing apparatus as appropriate.

### 5.3. Advice for fire-fighters

Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or water courses.

## SECTION 6: Accidental release measures

## **6.1. Personal precautions, protective equipment and emergency procedures**

Remove sources of ignition, do not turn lights or unprotected electrical equipment on or off. In case of a major spill or spillage in a confined space evacuate the area and check that solvent vapour levels are below the Lower Explosive Limit before re-entering.

## **6.2. Environmental precautions**

Do not allow spills to enter drains or watercourses.

## **6.3. Methods and material for containment and cleaning up**

Ventilate the area and avoid breathing vapours. Take the personal protective measures listed in section 8.

Contain and absorb spillage with non-combustible materials e.g. sand, earth, vermiculite. Place in closed containers outside buildings and dispose of according to the Waste Regulations. (See section 13).

Clean, preferably with a detergent. Do not use solvents.

Do not allow spills to enter drains or watercourses.

If drains, sewers, streams or lakes are contaminated, inform the local water company immediately. In the case of contamination of rivers, streams or lakes the Environmental Protection Agency should also be informed.

# **SECTION 7: Handling and storage**

## **7.1. Precautions for safe handling**

### **Handling**

This coating contains solvents. Solvent vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air. Areas of storage, preparation and application should be ventilated to prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentrations higher than the occupational exposure limits.

### **In Storage**

Handle containers carefully to prevent damage and spillage.

Naked flames and smoking should not be permitted in storage areas. It is recommended that fork lift trucks and electrical equipment are protected to the appropriate standard.

## **7.2. Conditions for safe storage, including any incompatibilities**

Keep away from the following materials: oxidising agents, strong alkalis, strong acids.

Avoid skin and eye contact. Avoid inhalation of vapours and spray mists. Observe label precautions. Use personal protection as shown in section 8.

Smoking, eating and drinking should be prohibited in all preparation and application areas.

Never use pressure to empty a container; containers are not pressure vessels.

Store in a well ventilated, dry place away from sources of heat and direct sunlight.

Store on concrete or other impervious floor, preferably with bunding to contain any spillage. Do not stack more than 3 pallets high.

Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in the original container or one of the same material.

Prevent unauthorised access.

Activities such as sanding, burning off etc. of paint films may generate dust and/or fumes hazardous to the skin and lungs. Sanding dust may contain levels of unreacted hazardous materials which may cause irritation and sensitization; these are highest in the first 24/48 hours after application. Work in well ventilated areas. Use local exhaust ventilation and personal skin and respiratory protective equipment as appropriate.

### 7.3. Specific end use(s)

There are no exposure scenarios, see details in section 1.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

The following workplace exposure limits have been established by the Health and Safety Executive as published in EH40.

Material	Short term (15 min. ave)		Long term (8hr TWA)		Comments
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	
1-methoxypropan-2-ol	150	560	100	375	
Ethylbenzene	125	552	100	441	
Xylene	100	441	50	220	

For Key to entries in 'Comments' column see Section 16

### DNEL/PNEC values

No Data Available

### 8.2. Exposure controls

Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapour below occupational exposure limits suitable respiratory protection must be worn.

#### Eye/face protection

Wear safety eyewear, e.g. safety spectacles, goggles or visors to protect against the splash of liquids. Eyewear should meet the requirements of standard EN 166.

#### Skin protection

For prolonged or repeated handling, use the following type of gloves:

Recommended: foil.

Not recommended: butyl rubber, PVC.

Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.

The recommendation for the type or types of glove to use when handling this product is based on information from the following source: [www.esig.org](http://www.esig.org)

The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

#### Other

Overalls which cover the body, arms and legs should be worn. Skin should not be exposed. Barrier creams may help to protect areas which are difficult to cover such as the face and neck. They should however not be applied once exposure has occurred. Petroleum jelly based types such as Vaseline should not be used. All parts of the body should be washed after contact.

#### Respiratory protection

If workers are exposed to concentrations above the exposure limit they must use the appropriate, certified respirators. For maximum protection when spraying this product it is recommended that a multi layer

combination type filter, such as ABEK1, is used. In confined spaces use compressed air or fresh air respiratory equipment.

### Thermal hazards

No Data Available

## SECTION 9: Physical and chemical properties

<b>Appearance</b>	White Liquid
<b>Odour</b>	Smell of Solvent
<b>Odour threshold</b>	Not Measured
<b>pH</b>	Not Measured
<b>Melting point / freezing point (°C)</b>	Not Measured
<b>Initial boiling point and boiling range (°C)</b>	110
<b>Flash point (°C)</b>	35
<b>Evaporation rate (Ether = 1)</b>	Not Measured
<b>Flammability (solid, gas)</b>	Not Applicable
<b>Upper/lower flammability or explosive limits</b>	Lower Explosive Limit: .8 Not Measured Upper Explosive Limit: 11.3 Not Measured
<b>Vapour pressure (Pa)</b>	Not Measured
<b>Vapour density</b>	Heavier than air.
<b>Relative density</b>	1.74
<b>Solubility(ies)</b>	Immiscible
<b>Partition coefficient n-octanol/water (Log Kow)</b>	Not Measured
<b>Auto-ignition temperature (°C)</b>	Not Measured
<b>Decomposition temperature</b>	Not Measured
<b>Viscosity (cSt)</b>	Not Measured

### 9.2. Other information

No further information

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No data available

### 10.2. Chemical stability

Stable under recommended storage and handling conditions (see section 7).When exposed to high temperatures may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

Keep away from oxidising agents, strongly alkaline and strongly acid materials in order to avoid possible exothermic reactions.

### 10.3. Possibility of hazardous reactions

May react exothermically with: oxidising agents, strong alkalis, strong acids.

### 10.4. Conditions to avoid

Stable under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Keep away from the following materials: oxidising agents, strong alkalis, strong acids.

### 10.6. Hazardous decomposition products

Fire will produce dense black smoke. Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Avoid exposure and use breathing apparatus as appropriate.

## SECTION 11: Toxicological information

### Acute toxicity

Exposure to solvent vapour concentrations from the component solvents in excess of the stated occupational exposure limits may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms include headache, nausea, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.

Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in dryness, irritation and possible non-allergic contact dermatitis. Solvents may also be absorbed through the skin. Splashes of liquid in the eyes may cause irritation and soreness with possible reversible damage.

Based on the properties of the epoxy constituents and considering toxicological data on similar preparations this preparation may be an irritant and a skin and respiratory sensitizer. Low molecular weight epoxy constituents are irritating to eyes, mucous membranes and skin. Repeated skin contact may lead to irritation and sensitisation, possibly with cross-sensitisation to other epoxies. Skin contact with the preparation and exposure to spray mist and vapour should be avoided.

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapour LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr
1-methoxypropan-2-ol - (107-98-2)	5,000.00, Rat	13,000.00, Rabbit	Not Available	Not Available
Epoxy resin (av.mol.wt. 700-1100) - (25068-38-6)	Not Available	Not Available	Not Available	Not Available
Epoxy resin (av.mol.wt.<700) - (25068-38-6)	2,000.00, Rat	2,000.00, Rabbit	Not Available	Not Available
Ethylbenzene - (100-41-4)	3,500.00, Rat	15,433.00, Rabbit	17.20, Rat	Not Available
Solvent naphtha (petroleum), light aromatic - (64742-95-6)	6,800.00, Rat	3,400.00, Rabbit	Not Available	Not Available
Xylene - (1330-20-7)	4,299.00, Rat	1,700.00, Rabbit	21.00, Rat	Not Available

## SECTION 12: Ecological information

### 12.1. Toxicity

The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and is classified for eco-toxicological properties accordingly. See Sections 2 and 3 for details.

There are no data available on the product itself.

The product should not be allowed to enter drains or water courses.

### Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Epoxy resin (av.mol.wt.<700) - (25068-38-6)	3.10, Pimephales promelas	1.40, Daphnia magna	Not Available
Xylene - (1330-20-7)	3.30, Oncorhynchus mykiss	8.50, Palaemonetes pugio	100.00 (72 hr), Chlorococcales
Epoxy resin (av.mol.wt. 700-1100) - (25068-38-6)	Not Available	Not Available	0.00 ( hr),

1-methoxypropan-2-ol - (107-98-2)	1,000.00, Oncorhynchus mykiss	500.00, Daphnia magna	1,000.00 (96 hr), Selenastrum capricornutum
Ethylbenzene - (100-41-4)	4.20, Oncorhynchus mykiss	2.93, Daphnia magna	3.60 (96 hr), Pseudokirchneriella subcapitata
Solvent naphtha (petroleum), light aromatic - (64742-95-6)	9.22, Oncorhynchus mykiss	6.14, Daphnia magna	19.00 (72 hr), Selenastrum capricornutum

## 12.2. Persistence and degradability

There is no data available on the preparation itself.

## 12.3. Bioaccumulative potential

Not Measured

## 12.4. Mobility in soil

No data available

## 12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

## 12.6. Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Do not allow into drains or water courses. Wastes and emptied containers should be disposed of in accordance with regulations made under the Control of Pollution Act and the Environmental Protection Act.

Using information provided in this data sheet advice should be obtained from the Waste Regulation Authority, whether the special waste regulations apply.

The European Waste Catalogue Classification of this product, when disposed of as waste is 08 01 11 Waste paint and varnish containing organic solvents or other dangerous substances. If mixed with other wastes this code may no longer apply and the appropriate code should be assigned. For further information contact your local waste authority.

## SECTION 14: Transport information

**14.1. UN number** 1263

**14.2. UN proper shipping name** PAINT

**14.3. Transport hazard class(es)**

**ADR/RID/ADN** UN1263 Paint, 3, III

**IMDG** class/div 3 **Sub Class** -  
**Segregation Group** No segregation group appropriate

**EmS** F-E,S-E

**ICAO/IATA** Air class 3 **Sub Class** -

**14.4. Packing group** III

### 14.5. Environmental hazards

**ADR/RID/ADN** Environmentally Hazardous: No



**IMDG** Marine Pollutant: No

**14.6. Special precautions for user**

No further information

**14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not Applicable

**SECTION 15: Regulatory information**

**EU Legislation**

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

**National Legislation**

UKSI 2009 No. 716 CHEMICALS (HAZARD INFORMATION AND PACKAGING FOR SUPPLY) REGULATIONS 2009.

**SECTION 16: Other information**

**IMPORTANT NOTE:** the information contained in this data sheet (as may be amended from time to time) is not intended to be exhaustive and is presented in good faith and believed to be correct as of the date on which it is prepared. It is the user's responsibility to verify that this data sheet is current prior to using the product to which it relates.

Persons using the information must make their own determinations as to the suitability of the relevant product for their purposes prior to use. Where those purposes are other than as specifically recommended in this safety data sheet, then the user uses the product at their own risk.

**MANUFACTURER'S DISCLAIMER:** the conditions, methods and factors affecting the handling, storage, application, use and disposal of the product are not under the control and knowledge of the manufacturer. Therefore the manufacturer does not assume responsibility for any adverse events which may occur in the handling, storage, application, use, misuse or disposal of the product and, so far as permitted by applicable law, the manufacturer expressly disclaims liability for any and all loss, damages and/or expenses arising out of or in any way connected to the storage, handling, use or disposal of the product. Safe handling, storage, use and disposal are the responsibility of the users. Users must comply with all applicable health and safety laws.

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The information in this Health & Safety Data Sheet is required pursuant to EC Regulation 1907(2006) and the Chemicals (Hazard Information & Packaging for Supply) Regulations 2009.

Key to 'Comments' column in Section 8.

- (+) There is a risk of absorption through unbroken skin.
- (C) Capable of causing cancer and/or heritable genetic damage.
- (R) Suppliers recommended limit.
- (S) Capable of causing occupational asthma.

The full text of the R, H & EUH phrases appearing in section 3 is:

H225 Highly flammable liquid and vapour.

H226 Flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H336 May cause drowsiness and dizziness.

H411 Toxic to aquatic life with long lasting effects.

R10 Flammable.

R11 Highly flammable.

R20 Harmful by inhalation.

R20/21 Harmful by inhalation and in contact with skin.

R36/38 Irritating to eyes and skin.

R38 Irritating to skin.

R43 May cause sensitisation by skin contact.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R65 Harmful: may cause lung damage if swallowed.

R67 Vapours may cause drowsiness and dizziness.

**This is the first revision of this SDS format, changes from previous revision not applicable.**

End of document



Your attention is drawn to the disclaimer on the Product Data Sheet which with this Safety Data Sheet and the package labelling comprise an integral information system about this product. Copies of the Product Data Sheet are available from International Paint on request or from our Internet sites : [www.yachtpaint.com](http://www.yachtpaint.com) , [www.international-marine.com](http://www.international-marine.com), [www.international-pc.com](http://www.international-pc.com)

# Intersleek®900

## Fluoropolymer foul release coating

### Product Description

Intersleek®900 is a fluoropolymer foul release coating designed for all vessel types. Intersleek®900 is suitable for use at Maintenance & Repair or Newbuilding.

### Features

Ultra smooth, glossy surface with excellent foul release properties

Biocides are not used to control fouling

Can be applied over existing antifouling systems in good condition (via Intersleek® Linkcoat)

Excellent long term fouling resistance

Flexible with good resistance to mechanical damage

Excellent colour retention

Good hold-up with reduced overspray

### Benefits

Control of fuel efficiency and subsequent emissions (up to 9% saving\*).

Freedom from biocide restrictions  
Control of treatment and disposal costs for wash water/blasting abrasive at subsequent drydockings

Control of conversion costs to the Intersleek®900 system

Flexibility in drydocking schedule

Hull roughness control

Vessel appearance

Remove the need for double application, reduces yard rework and clean-up

\* Depending on in service conditions

### Product Information

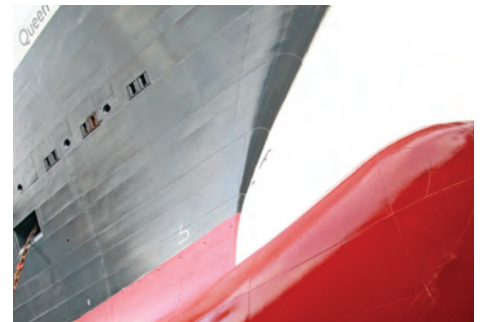
<b>Colour</b>	FXA970 White, FXA971 Grey, FXA972 Blue, FXA977 Red, FXA979 Black
<b>Surface preparation</b>	Intersleek®900 must be applied over Intersleek®737 or Intersleek®731
<b>Volume solids</b>	74% ±2% (ISO 3233:1998)
<b>Typical film thickness</b>	150 microns
<b>Hard dry</b>	20 hours @ 25°C
<b>Minimum application temperature</b>	0°C
<b>Method of application</b>	Airless Spray, Brush, Roller

For each of our products the relevant Product Data Sheet, Material Safety Data Sheet and package labelling comprise an integral information system about the product in question. Copies of our Product Data Sheets and Material Safety Data Sheets are available on request or from our website.

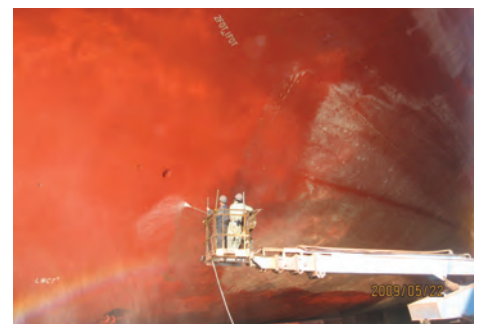
### In Service Performance



'Ikuna' achieved a 10% increase in speed with no increase in fuel consumption, effectively meaning one free trip for every ten trips undertaken



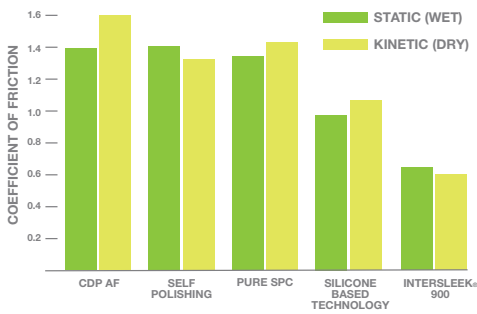
Queen Mary II achieved operational speed using less power compared to previous SPC system



Corona Ace after 31 months in service. Excellent condition, 8% fuel saving reported

# Intersleek®900

## Drag Reduction



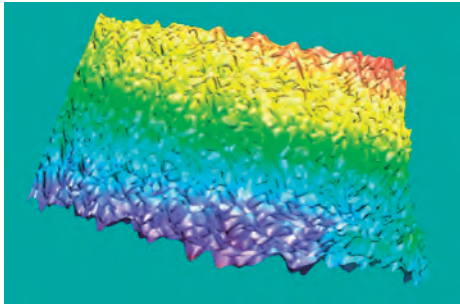
Intersleek®900 gives a significant reduction in coefficient of friction when compared to silicone based technology and more conventional Self Polishing Copolymer (SPC), Self Polishing Antifouling and Controlled Depletion Polymer (CDP) antifoulings. This relates to the amount of drag experienced by the vessel; lower coefficient of friction results in reduced energy requirements to propel the vessel.

Measured coefficient of friction

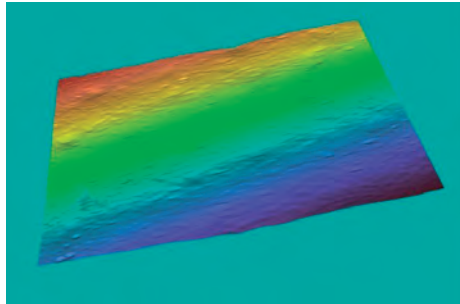
\*Reference: ASTM D1894-06 'Static and Kinetic Coefficient of Friction'

## Smoother Surface

Intersleek®900 - shows superior smoothness compared to Self Polishing Copolymer (SPC). Average Hull Roughness (AHR) is reduced.



Typical condition of SPC after 2 years in-service. AHR 160-180 microns



Typical condition of Intersleek®900. AHR around 70 microns

## Improved Slime Resistance

Test patches of Intersleek®900 show significantly improved resistance to slime build-up compared to silicone foul release technology over long service intervals.



Intersleek 900 test patch on LNG after 30 months

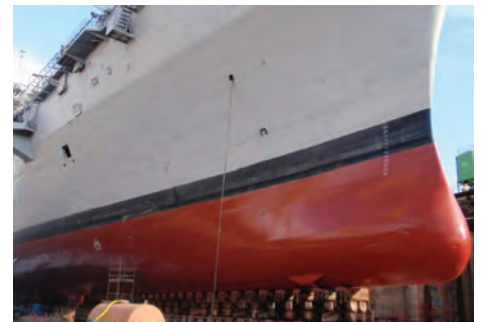


Intersleek 900 test patch on VLCC after 59 months

## In Service Performance



Mercator Lines report 9% fuel savings with subsequent greenhouse gas emission reductions



Principe de Asturias reported a speed increase of 3 knots after Intersleek®900 application



Seismic research vessel after 44 months in the Gulf of Mexico showing excellent antifouling performance



Research vessel after 31 months in service off West Africa and 5 weeks static in Walvis Bay, before washing

Unless otherwise agreed in writing, all products supplied and technical advice or recommendations given are subject to the Conditions of Sale of our supplying company and the provisions of the relevant product data sheet.

To find out more visit: [www.international-marine.com](http://www.international-marine.com)

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International Paint Ltd, Stonegate Lane, Felling, Gateshead NE10 0JY. Tel: +44 (0)191 469 6111 Fax: +44 (0)191 495 2003



August 2010

**Safety Data Sheet****PHA046 INTERTHANE 990 PART B****Version No. 3 Date Last Revised 04/12/11**

Conforms to the requirements of Regulation (EC) No.1907/2006 (REACH), Annex II and Regulation (EC) No.1272/2008

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier** INTERTHANE 990 PART B

Product Code PHA046

Registration Number

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Intended use See Technical Data Sheet.

Application Method See Technical Data Sheet.

**1.3. Details of the supplier of the safety data sheet****Manufacturer** International Paint Ltd.  
Stoneygate Lane  
Felling Gateshead  
Tyne and Wear  
NE10 0JY UK**Telephone No.** +44 (0)191 469 6111**Fax No.** +44 (0)191 438 3711**1.4. Emergency telephone number****Manufacturer** +44 (0)191 469 6111 24hr**Official Advisory Body Telephone No.:**  
**Advice for Doctors and Hospitals**

+44 (0)844 892 0111

**Email** sdsfellinguk@akzonobel.com**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Mixture NOT yet classified according to Regulation (EC) No. 1272/2008****Classification according to 67/548/EEC or 1999/45/EC.**Xn Harmful.  
N Dangerous for the environment.R10 Flammable.  
R42/43 May cause sensitization by inhalation and skin contact.  
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.**2.2. Label elements**



Harmful



Dangerous for the environment

**Contains:** Hdi homopolymer,

R10 Flammable.

R42/43 May cause sensitization by inhalation and skin contact.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S23 Do not breathe vapour/spray.

S24 Avoid contact with skin.

S37/39 Wear suitable gloves and eye/face protection.

S42 During spraying wear suitable respiratory equipment.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S51 Use only in well-ventilated areas.

#### P. Phrases;

Contains isocyanates. See information supplied by the manufacturer.

#### 2.3. Other hazards

This product contains no PBT/vPvB chemicals.

### SECTION 3: Composition/information on ingredients

If the product contains substances that present a health hazard within the meaning of the Dangerous Substances Directive 67/548/EC, or have occupational exposure limits detailed in EH40, these substances are listed below.

Ingredient/Chemical Designations	Weight %	67/548/EEC Classification	EC No. 1272/2008 Classification	Notes
Hdi homopolymer CAS Number: 0028182-81-2 EC No. 500-060-2 Index No.: REACH Reg. No.: 01-2119485796-17-xxxx	50 - 100	Xn; R42/43	Skin Sens. 1;H317 Resp. Sens. 1;H334	[1]
Solvent naphtha (petroleum), light aromatic CAS Number: 0064742-95-6 EC No. 265-199-0 Index No.: 649-356-00-4 REACH Reg. No.:	10 - < 25	Xn;R65	Asp. Tox. 1;H304	H; P [1]
1,2,4-trimethylbenzene CAS Number: 0000095-63-6 EC No. 202-436-9 Index No.: 601-043-00-3 REACH Reg. No.:	2.5 - < 10	R10 Xn;R20 Xi;R36/37/38 N;R51-53	Flam. Liq. 3;H226 Acute Tox. 4;H332 Eye Irrit. 2;H319 STOT SE 3;H335 Skin Irrit. 2;H315 Aquatic Chronic 2;H411	[1][2]
1,3,5-trimethylbenzene CAS Number: 0000108-67-8 EC No. 203-604-4 Index No.: 601-025-00-5 REACH Reg. No.:	1 - < 2.5	R10 Xi;R37 N;R51-53	Flam. Liq. 3;H226 STOT SE 3;H335 Aquatic Chronic 2;H411	[1]

Hexamethylene-1,6-diisocyanate CAS Number: 0000822-06-0 EC No. 212-485-8 Index No.: 615-011-00-1 REACH Reg. No.:	0 - < 1	T;R23 R42/43 Xi;R36/37/38	Acute Tox. 3;H331 Eye Irrit. 2;H319 STOT SE 3;H335 Skin Irrit. 2;H315 Resp. Sens. 1;H334 Skin Sens. 1;H317	2 [1][2]
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[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

\*The full texts of the phrases are shown in Section 16.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General

In all cases of doubt, or when symptoms persist, seek medical attention.

Never give anything by mouth to an unconscious person.

#### Inhalation

Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

#### Skin

Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognised skin cleanser. Do NOT use solvents or thinners.

#### Eye

Irrigate copiously with clean fresh water for at least 10 minutes, holding the eyelids apart and seek medical attention.

#### Ingestion

If accidentally swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

### 4.2. Most important symptoms and effects, both acute and delayed

No data available

### 4.3. Indication of any immediate medical attention and special treatment needed

No data available

## SECTION 5: Fire-fighting measures

### 5.1. Extinguishing media

Recommended extinguishing media; alcohol resistant foam, CO<sup>2</sup>. powder, water spray.

Do not use; water jet.

### 5.2. Special hazards arising from the substance or mixture

Fire will produce dense black smoke. Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Avoid exposure and use breathing apparatus as appropriate.

### 5.3. Advice for fire-fighters

Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or water courses.

## SECTION 6: Accidental release measures

## **6.1. Personal precautions, protective equipment and emergency procedures**

Remove sources of ignition, do not turn lights or unprotected electrical equipment on or off. In case of a major spill or spillage in a confined space evacuate the area and check that solvent vapour levels are below the Lower Explosive Limit before re-entering.

## **6.2. Environmental precautions**

Do not allow spills to enter drains or watercourses.

## **6.3. Methods and material for containment and cleaning up**

Ventilate the area and avoid breathing vapours. Take the personal protective measures listed in section 8. Contain and absorb spillage with non-combustible materials e.g. sand, earth, vermiculite. Place in a suitable container. The contaminated area should be cleaned up immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises (by volume): water (45 parts), ethanol or isopropyl alcohol (50 parts), concentrated (d:0,880) ammonia solution (5 parts). A non-flammable alternative is sodium carbonate (5 parts), water (95 parts). Add the same decontaminant to any residues and allow to stand for several days in a non-sealed container until no further reaction occurs. Once this stage is reached, close container and dispose of in accordance with the waste regulations (see section 13). Do not allow spills to enter drains or watercourses. If drains or sewers are contaminated, inform the local water company immediately. In the case of contamination of rivers, streams or lakes the Environmental Protection Agency should also be informed.

# **SECTION 7: Handling and storage**

## **7.1. Precautions for safe handling**

### **Handling**

Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this preparation is used.

Examination of lung function should be carried out on a regular basis on persons spraying this preparation.

### **In Storage**

Handle containers carefully to prevent damage and spillage.

Naked flames and smoking should not be permitted in storage areas. It is recommended that fork lift trucks and electrical equipment are protected to the appropriate standard.

Precautions should be taken to minimise exposure to atmospheric humidity or water as carbon dioxide may be formed which, in closed containers can result in pressurisation. Care should be taken when re-opening partly used containers.

## **7.2. Conditions for safe storage, including any incompatibilities**

Keep away from the following materials: oxidising agents, strong alkalis, strong acids.

Avoid skin and eye contact. Avoid inhalation of vapours and spray mists. Observe label precautions. Use personal protection as shown in section 8.

Smoking, eating and drinking should be prohibited in all preparation and application areas.

Never use pressure to empty a container; containers are not pressure vessels.

Store in a well ventilated, dry place away from sources of heat and direct sunlight.

Store on concrete or other impervious floor, preferably with bunding to contain any spillage. Do not stack more than 3 pallets high.

Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in the original container or one of the same material.

Prevent unauthorised access.

## **7.3. Specific end use(s)**



There are no exposure scenarios, see details in section 1.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

The following workplace exposure limits have been established by the Health and Safety Executive as published in EH40.

Material	Short term (15 min. ave)		Long term (8hr TWA)		Comments
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	
1,2,4-trimethylbenzene			25	125	
1,3,5-trimethylbenzene			25	125	
Hexamethylene-1,6-diisocyanate	-	0.07	-	0.02 (as-NCO)	S

For Key to entries in 'Comments' column see Section 16

### DNEL/PNEC values

No Data Available

### 8.2. Exposure controls

Provide adequate ventilation. This should be achieved by the use of local exhaust ventilation and good general extraction. Air-fed protective respiratory equipment must be worn by spray operators even when good ventilation is provided. In other operations, if local exhaust ventilation and good general extraction are not sufficient to maintain concentrations of particulates and solvent vapour below the WEL, suitable respiratory protection must be worn. (See Personal Protection)

Persons with a history of asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this preparation is used.

Examination of lung function should be carried out on a regular basis on persons spraying this preparation.

#### Eye/face protection

Wear safety eyewear, e.g. safety spectacles, goggles or visors to protect against the splash of liquids. Eyewear should meet the requirements of standard EN 166.

#### Skin protection

For prolonged or repeated contact use protective gloves. Barrier creams may help to protect the exposed areas of skin, they should however not be applied once exposure has occurred. Skin should be washed after contact.

Use chemical resistant gloves classified under Standard EN 374: Protective gloves against chemicals and micro-organisms. Recommended gloves: Viton® or Nitrile  
Breakthrough Time: 480 min

When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to EN 374) is recommended.

NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

### Other

Overalls which cover the body, arms and legs should be worn. Skin should not be exposed. Barrier creams may help to protect areas which are difficult to cover such as the face and neck. They should however not be applied once exposure has occurred. Petroleum jelly based types such as Vaseline should not be used. All parts of the body should be washed after contact.

### Respiratory protection

By spraying: air fed respirator

By other operations than spraying: In well ventilated areas, air-fed respirators could be replaced by a combination of charcoal filter and particulate filter mask

### Thermal hazards

No Data Available

## SECTION 9: Physical and chemical properties

<b>Appearance</b>	White Liquid
<b>Odour</b>	No smell
<b>Odour threshold</b>	Not Measured
<b>pH</b>	Not Measured
<b>Melting point / freezing point (°C)</b>	Not Measured
<b>Initial boiling point and boiling range (°C)</b>	158
<b>Flash point (°C)</b>	50
<b>Evaporation rate (Ether = 1)</b>	Not Measured
<b>Flammability (solid, gas)</b>	Not Applicable
<b>Upper/lower flammability or explosive limits</b>	Lower Explosive Limit: Not Measured Upper Explosive Limit: Not Measured
<b>Vapour pressure (Pa)</b>	Not Measured
<b>Vapour density</b>	Heavier than air.
<b>Relative density</b>	1.07
<b>Solubility(ies)</b>	Immiscible
<b>Partition coefficient n-octanol/water (Log Kow)</b>	Not Measured
<b>Auto-ignition temperature (°C)</b>	Not Measured
<b>Decomposition temperature (°C)</b>	Not Measured
<b>Viscosity (cSt)</b>	50

### 9.2. Other information

No further information

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No data available

### 10.2. Chemical stability

Stable under recommended storage and handling conditions (see section 7). In a fire, hazardous decomposition products such as smoke, carbon monoxide, carbon dioxide, oxides of nitrogen, hydrogen cyanide may be produced.

Keep away from oxidising agents, strongly alkaline and strongly acid materials, amines, alcohols and

water. Uncontrolled exothermic reactions occur with amines and alcohols. The product reacts slowly with water resulting in evolution of carbon dioxide. In closed containers, pressure build up could result in distortion, blowing and in extreme cases bursting of the container.

### 10.3. Possibility of hazardous reactions

May react exothermically with: oxidising agents, strong alkalis, strong acids.

### 10.4. Conditions to avoid

Stable under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Keep away from the following materials: oxidising agents, strong alkalis, strong acids.

### 10.6. Hazardous decomposition products

Fire will produce dense black smoke. Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Avoid exposure and use breathing apparatus as appropriate.

## SECTION 11: Toxicological information

### Acute toxicity

Exposure to solvent vapour concentrations from the component solvents in excess of the stated occupational exposure limits may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms include headache, nausea, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.

Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in dryness, irritation and possible non-allergic contact dermatitis. Solvents may also be absorbed through the skin. Splashes of liquid in the eyes may cause irritation and soreness with possible reversible damage.

Based on the properties of the isocyanate content of this product, respiratory exposure may cause acute irritation and/or sensitisation of the respiratory system resulting in asthmatic symptoms, wheezing and a tightness of the chest. Sensitised persons may subsequently show asthmatic symptoms when exposed to airborne concentrations of isocyanates well below the occupational exposure limit. Repeated exposure may lead to permanent respiratory disability.

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapour LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr
1,2,4-trimethylbenzene - (95-63-6)	3,400.00, Rat	3,160.00, Rabbit	18.00, Rat	Not Available
1,3,5-trimethylbenzene - (108-67-8)	Not Available	Not Available	24.00, Rat	Not Available
Hdi homopolymer - (28182-81-2)	5,000.00, Rat	Not Available	Not Available	Not Available
Hexamethylene-1,6-diisocyanate - (822-06-0)	Not Available	Not Available	Not Available	Not Available
Solvent naphtha (petroleum), light aromatic - (64742-95-6)	6,800.00, Rat	3,400.00, Rabbit	Not Available	Not Available

## SECTION 12: Ecological information

### 12.1. Toxicity

The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and is classified for eco-toxicological properties accordingly. See Sections 2 and 3 for details.

There are no data available on the product itself.

The product should not be allowed to enter drains or water courses.

## Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Hdi homopolymer - (28182-81-2)	100.00, Danio rerio	100.00, Daphnia magna	100.00 (72 hr), Scenedesmus subspicatus
Solvent naphtha (petroleum), light aromatic - (64742-95-6)	9.22, Oncorhynchus mykiss	6.14, Daphnia magna	19.00 (72 hr), Selenastrum capricornutum
1,2,4-trimethylbenzene - (95-63-6)	7.72, Pimephales promelas	3.60, Daphnia magna	Not Available
1,3,5-trimethylbenzene - (108-67-8)	12.52, Carassius auratus	6.00, Daphnia magna	25.00 (48 hr), Scenedesmus subspicatus
Hexamethylene-1,6-diisocyanate - (822-06-0)	82.80, Danio rerio	89.10, Daphnia magna	77.40 (72 hr), Desmodesmus subspicatus

### 12.2. Persistence and degradability

There is no data available on the preparation itself.

### 12.3. Bioaccumulative potential

Not Measured

### 12.4. Mobility in soil

No data available

### 12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

### 12.6. Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Do not allow into drains or water courses. Residues in empty containers should be neutralised with decontaminant (See section 6).

Wastes and empty containers should be disposed of in accordance with regulations made under the Control of Pollution Act and the Environmental Protection Act.

Using information provided in this data sheet advice should be obtained from the Waste Regulation Authority, whether the special waste regulations apply.

The European Waste Catalogue Classification of this product, when disposed of as waste is 08 01 11 Waste paint and varnish containing organic solvents or other dangerous substances. If mixed with other wastes this code may no longer apply and the appropriate code should be assigned. For further information contact your local waste authority.

## SECTION 14: Transport information

### 14.1. UN number

1263

### 14.2. UN proper shipping name

PAINT

### 14.3. Transport hazard class(es)

### ADR/RID/ADN

UN1263 Paint, 3, III

### IMDG

class/div 3

Sub Class -

**Segregation Group** No segregation group appropriate

**EmS** F-E,S-E

**ICAO/IATA Air class 3 Sub Class -**

**14.4. Packing group** III

#### 14.5. Environmental hazards

**ADR/RID/ADN** Environmentally Hazardous: Yes

**IMDG** Marine Pollutant: Yes ( Solvent naphtha (petroleum), light aromatic )

#### 14.6. Special precautions for user

No further information

#### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not Applicable

### SECTION 15: Regulatory information

#### EU Legislation

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

#### National Legislation

UKSI 2009 No. 716 CHEMICALS (HAZARD INFORMATION AND PACKAGING FOR SUPPLY) REGULATIONS 2009.

### SECTION 16: Other information

**IMPORTANT NOTE:** the information contained in this data sheet (as may be amended from time to time) is not intended to be exhaustive and is presented in good faith and believed to be correct as of the date on which it is prepared. It is the user's responsibility to verify that this data sheet is current prior to using the product to which it relates.

Persons using the information must make their own determinations as to the suitability of the relevant product for their purposes prior to use. Where those purposes are other than as specifically recommended in this safety data sheet, then the user uses the product at their own risk.

**MANUFACTURER'S DISCLAIMER:** the conditions, methods and factors affecting the handling, storage, application, use and disposal of the product are not under the control and knowledge of the manufacturer. Therefore the manufacturer does not assume responsibility for any adverse events which may occur in the handling, storage, application, use, misuse or disposal of the product and, so far as permitted by applicable law, the manufacturer expressly disclaims liability for any and all loss, damages and/or expenses arising out of or in any way connected to the storage, handling, use or disposal of the product. Safe handling, storage, use and disposal are the responsibility of the users. Users must comply with all applicable health and safety laws.

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The information in this Health & Safety Data Sheet is required pursuant to EC Regulation 1907(2006) and the Chemicals (Hazard Information & Packaging for Supply) Regulations 2009.

Key to 'Comments' column in Section 8.

- (+) There is a risk of absorption through unbroken skin.
- (C) Capable of causing cancer and/or heritable genetic damage.
- (R) Suppliers recommended limit.
- (S) Capable of causing occupational asthma.

The full text of the R, H & EUH phrases appearing in section 3 is:

H226 Flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H331 Toxic if inhaled.

H332 Harmful if inhaled.

H334 May cause allergic or asthmatic symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

H411 Toxic to aquatic life with long lasting effects.

R10 Flammable.

R20 Harmful by inhalation.

R23 Toxic by inhalation.

R36/37/38 Irritating to eyes, respiratory system and skin.

R37 Irritating to respiratory system.

R42/43 May cause sensitization by inhalation and skin contact.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R65 Harmful: may cause lung damage if swallowed.

**The following sections have changed since the previous revision.**

SECTION 11: Toxicological information

SECTION 12: Ecological information

End of document



Your attention is drawn to the disclaimer on the Product Data Sheet which with this Safety Data Sheet and the package labelling comprise an integral information system about this product. Copies of the Product Data Sheet are available from International Paint on request or from our Internet sites : [www.yachtpaint.com](http://www.yachtpaint.com) , [www.international-marine.com](http://www.international-marine.com), [www.international-pc.com](http://www.international-pc.com)

**Safety Data Sheet****PHL274 Interthane 990 Red Part A****Version No. 2 Date Last Revised 05/12/11**

Conforms to the requirements of Regulation (EC) No.1907/2006 (REACH), Annex II and Regulation (EC) No.1272/2008

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier** Interthane 990 Red Part A

Product Code PHL274

Registration Number

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Intended use See Technical Data Sheet.

For professional use only.

Application Method See Technical Data Sheet.

**1.3. Details of the supplier of the safety data sheet****Manufacturer** International Paint Ltd.

Stoneygate Lane

Felling Gateshead

Tyne and Wear

NE10 0JY UK

**Telephone No.** +44 (0)191 469 6111**Fax No.** +44 (0)191 438 3711**1.4. Emergency telephone number****Manufacturer** +44 (0)191 469 6111 24hr**Official Advisory Body Telephone No.:  
Advice for Doctors and Hospitals**

+44 (0)844 892 0111

**Email** sdsfellinguk@akzonobel.com**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Mixture NOT yet classified according to Regulation (EC) No. 1272/2008****Classification according to 67/548/EEC or 1999/45/EC.**

Xn Harmful.

R10 Flammable.

R20 Harmful by inhalation.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**2.2. Label elements**



Harmful

**Contains:**

R10 Flammable.

R20 Harmful by inhalation.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S23 Do not breathe vapour/spray.

S24 Avoid contact with skin.

S39 Wear eye/face protection.

S51 Use only in well-ventilated areas.

**P. Phrases;****2.3. Other hazards**

This product contains no PBT/vPvB chemicals.

<b>SECTION 3: Composition/information on ingredients</b>
--

If the product contains substances that present a health hazard within the meaning of the Dangerous Substances Directive 67/548/EC, or have occupational exposure limits detailed in EH40, these substances are listed below.

Ingredient/Chemical Designations	Weight %	67/548/EEC Classification	EC No. 1272/2008 Classification	Notes
Solvent naphtha (petroleum), light aromatic CAS Number: 0064742-95-6 EC No. 265-199-0 Index No.: 649-356-00-4 REACH Reg. No.:	10 - < 25	Xn;R65	Asp. Tox. 1;H304	H; P [1]
Xylene CAS Number: 0001330-20-7 EC No. 215-535-7 Index No.: 601-022-00-9 REACH Reg. No.:	10 - < 25	R10 Xn;R20/21 Xi;R38	Flam. Liq. 3;H226 Acute Tox. 4;H332 Acute Tox. 4;H312 Skin Irrit. 2;H315	C [1][2]
1,2,4-trimethylbenzene CAS Number: 0000095-63-6 EC No. 202-436-9 Index No.: 601-043-00-3 REACH Reg. No.:	2.5 - < 10	R10 Xn;R20 Xi;R36/37/38 N;R51-53	Flam. Liq. 3;H226 Acute Tox. 4;H332 Eye Irrit. 2;H319 STOT SE 3;H335 Skin Irrit. 2;H315 Aquatic Chronic 2;H411	[1][2]
Ethylbenzene CAS Number: 0000100-41-4 EC No. 202-849-4 Index No.: 601-023-00-4 REACH Reg. No.:	2.5 - < 10	F;R11 Xn;R20	Flam. Liq. 2;H225 Acute Tox. 4;H332	[1][2]
1-Methoxy-2-propyl acetate CAS Number: 0000108-65-6 EC No. 203-603-9 Index No.: 607-195-00-7 REACH Reg. No.:	2.5 - < 10	R10	Flam. Liq. 3;H226	[1]



<b>1,3,5-trimethylbenzene</b> CAS Number: 0000108-67-8 EC No. 203-604-4 Index No.: 601-025-00-5 REACH Reg. No.:	1 - < 2.5	R10 Xi;R37 N;R51-53	Flam. Liq. 3;H226 STOT SE 3;H335 Aquatic Chronic 2;H411	[1]
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- [1] Substance classified with a health or environmental hazard.  
[2] Substance with a workplace exposure limit.  
[3] PBT-substance or vPvB-substance.

\*The full texts of the phrases are shown in Section 16.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General

In all cases of doubt, or when symptoms persist, seek medical attention.

Never give anything by mouth to an unconscious person.

#### Inhalation

Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

#### Skin

Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognised skin cleanser. Do NOT use solvents or thinners.

#### Eye

Irrigate copiously with clean fresh water for at least 10 minutes, holding the eyelids apart and seek medical attention.

#### Ingestion

If accidentally swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

### 4.2. Most important symptoms and effects, both acute and delayed

No data available

### 4.3. Indication of any immediate medical attention and special treatment needed

No data available

## SECTION 5: Fire-fighting measures

### 5.1. Extinguishing media

Recommended extinguishing media; alcohol resistant foam, CO<sup>2</sup>. powder, water spray.

Do not use; water jet.

### 5.2. Special hazards arising from the substance or mixture

Fire will produce dense black smoke. Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Avoid exposure and use breathing apparatus as appropriate.

### 5.3. Advice for fire-fighters

Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or water courses.

## SECTION 6: Accidental release measures

### **6.1. Personal precautions, protective equipment and emergency procedures**

Remove sources of ignition, do not turn lights or unprotected electrical equipment on or off. In case of a major spill or spillage in a confined space evacuate the area and check that solvent vapour levels are below the Lower Explosive Limit before re-entering.

### **6.2. Environmental precautions**

Do not allow spills to enter drains or watercourses.

### **6.3. Methods and material for containment and cleaning up**

Ventilate the area and avoid breathing vapours. Take the personal protective measures listed in section 8.

Contain and absorb spillage with non-combustible materials e.g. sand, earth, vermiculite. Place in closed containers outside buildings and dispose of according to the Waste Regulations. (See section 13).

Clean, preferably with a detergent. Do not use solvents.

Do not allow spills to enter drains or watercourses.

If drains, sewers, streams or lakes are contaminated, inform the local water company immediately. In the case of contamination of rivers, streams or lakes the Environmental Protection Agency should also be informed.

## **SECTION 7: Handling and storage**

### **7.1. Precautions for safe handling**

#### **Handling**

This coating contains solvents. Solvent vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air. Areas of storage, preparation and application should be ventilated to prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentrations higher than the occupational exposure limits.

#### **In Storage**

Handle containers carefully to prevent damage and spillage.

Naked flames and smoking should not be permitted in storage areas. It is recommended that fork lift trucks and electrical equipment are protected to the appropriate standard.

### **7.2. Conditions for safe storage, including any incompatibilities**

Keep away from the following materials: oxidising agents, strong alkalis, strong acids.

Avoid skin and eye contact. Avoid inhalation of vapours and spray mists. Observe label precautions. Use personal protection as shown in section 8.

Smoking, eating and drinking should be prohibited in all preparation and application areas.

Never use pressure to empty a container; containers are not pressure vessels.

Store in a well ventilated, dry place away from sources of heat and direct sunlight.

Store on concrete or other impervious floor, preferably with bunding to contain any spillage. Do not stack more than 3 pallets high.

Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in the original container or one of the same material.

Prevent unauthorised access.

### **7.3. Specific end use(s)**

There are no exposure scenarios, see details in section 1.

## **SECTION 8: Exposure controls/personal protection**

## 8.1. Control parameters

The following workplace exposure limits have been established by the Health and Safety Executive as published in EH40.

Material	Short term (15 min. ave)		Long term (8hr TWA)		Comments
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	
1,2,4-trimethylbenzene			25	125	
1,3,5-trimethylbenzene			25	125	
1-Methoxy-2-propyl acetate	100	548	50	274	+
Ethylbenzene	125	552	100	441	+
Xylene	100	441	50	220	+

For Key to entries in 'Comments' column see Section 16

## DNEL/PNEC values

No Data Available

## 8.2. Exposure controls

Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapour below occupational exposure limits suitable respiratory protection must be worn.

### Eye/face protection

Wear safety eyewear, e.g. safety spectacles, goggles or visors to protect against the splash of liquids. Eyewear should meet the requirements of standard EN 166.

### Skin protection

For prolonged or repeated contact use protective gloves. Barrier creams may help to protect the exposed areas of skin, they should however not be applied once exposure has occurred. Skin should be washed after contact.

Use chemical resistant gloves classified under Standard EN 374: Protective gloves against chemicals and micro-organisms. Recommended gloves: Viton® or Nitrile  
Breakthrough Time: 480 min

When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to EN 374) is recommended.

NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

### Other

Overalls which cover the body, arms and legs should be worn. Skin should not be exposed. Barrier creams may help to protect areas which are difficult to cover such as the face and neck. They should however not be applied once exposure has occurred. Petroleum jelly based types such as Vaseline should not be used. All parts of the body should be washed after contact.

## Respiratory protection

If workers are exposed to concentrations above the exposure limit they must use the appropriate, certified respirators. For maximum protection when spraying this product it is recommended that a multi layer combination type filter, such as ABEK1, is used. In confined spaces use compressed air or fresh air respiratory equipment.

## Thermal hazards

No Data Available

## SECTION 9: Physical and chemical properties

<b>Appearance</b>	Red Liquid
<b>Odour</b>	Smell of Solvent
<b>Odour threshold</b>	Not Measured
<b>pH</b>	Not Measured
<b>Melting point / freezing point (°C)</b>	Not Measured
<b>Initial boiling point and boiling range (°C)</b>	108
<b>Flash point (°C)</b>	34
<b>Evaporation rate (Ether = 1)</b>	Not Measured
<b>Flammability (solid, gas)</b>	Not Applicable
<b>Upper/lower flammability or explosive limits</b>	Lower Explosive Limit: Not Measured Upper Explosive Limit: Not Measured
<b>Vapour pressure (Pa)</b>	Not Measured
<b>Vapour density</b>	Heavier than air.
<b>Relative density</b>	1.22
<b>Solubility(ies)</b>	Immiscible
<b>Partition coefficient n-octanol/water (Log Kow)</b>	Not Measured
<b>Auto-ignition temperature (°C)</b>	Not Measured
<b>Decomposition temperature (°C)</b>	Not Measured
<b>Viscosity (cSt)</b>	Not Measured

### 9.2. Other information

No further information

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No data available

### 10.2. Chemical stability

Stable under recommended storage and handling conditions (see section 7). When exposed to high temperatures may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

Keep away from oxidising agents, strongly alkaline and strongly acid materials in order to avoid possible exothermic reactions.

### 10.3. Possibility of hazardous reactions

May react exothermically with: oxidising agents, strong alkalis, strong acids.

### 10.4. Conditions to avoid

Stable under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Keep away from the following materials: oxidising agents, strong alkalis, strong acids.

### 10.6. Hazardous decomposition products

Fire will produce dense black smoke. Decomposition products may include the following materials: carbon

monoxide, carbon dioxide, smoke, oxides of nitrogen.  
Avoid exposure and use breathing apparatus as appropriate.

## SECTION 11: Toxicological information

### Acute toxicity

Exposure to solvent vapour concentrations from the component solvents in excess of the stated occupational exposure limits may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms include headache, nausea, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.

Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in dryness, irritation and possible non-allergic contact dermatitis. Solvents may also be absorbed through the skin. Splashes of liquid in the eyes may cause irritation and soreness with possible reversible damage.

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapour LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr
1,2,4-trimethylbenzene - (95-63-6)	3,400.00, Rat	3,160.00, Rabbit	18.00, Rat	Not Available
1,3,5-trimethylbenzene - (108-67-8)	Not Available	Not Available	24.00, Rat	Not Available
1-Methoxy-2-propyl acetate - (108-65-6)	8,532.00, Rat	5,000.00, Rabbit	Not Available	Not Available
Ethylbenzene - (100-41-4)	3,500.00, Rat	15,433.00, Rabbit	17.20, Rat	Not Available
Solvent naphtha (petroleum), light aromatic - (64742-95-6)	6,800.00, Rat	3,400.00, Rabbit	Not Available	Not Available
Xylene - (1330-20-7)	4,299.00, Rat	1,548.00, Rabbit	20.00, Rat	Not Available

## SECTION 12: Ecological information

### 12.1. Toxicity

The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and is classified for eco-toxicological properties accordingly. See Sections 2 and 3 for details.

There are no data available on the product itself.

The product should not be allowed to enter drains or water courses.

### Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Solvent naphtha (petroleum), light aromatic - (64742-95-6)	9.22, <i>Oncorhynchus mykiss</i>	6.14, <i>Daphnia magna</i>	19.00 (72 hr), <i>Selenastrum capricornutum</i>
Xylene - (1330-20-7)	3.30, <i>Oncorhynchus mykiss</i>	8.50, <i>Palaemonetes pugio</i>	100.00 (72 hr), Chlorococcales
1,2,4-trimethylbenzene - (95-63-6)	7.72, <i>Pimephales promelas</i>	3.60, <i>Daphnia magna</i>	Not Available
Ethylbenzene - (100-41-4)	4.20, <i>Oncorhynchus mykiss</i>	2.93, <i>Daphnia magna</i>	3.60 (96 hr), <i>Pseudokirchneriella subcapitata</i>

1-Methoxy-2-propyl acetate - (108-65-6)	100.00, Salmo gairdneri	500.00, Daphnia magna	Not Available
1,3,5-trimethylbenzene - (108-67-8)	12.52, Carassius auratus	6.00, Daphnia magna	25.00 (48 hr), Scenedesmus subspicatus

### 12.2. Persistence and degradability

There is no data available on the preparation itself.

### 12.3. Bioaccumulative potential

Not Measured

### 12.4. Mobility in soil

No data available

### 12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

### 12.6. Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Do not allow into drains or water courses. Wastes and emptied containers should be disposed of in accordance with regulations made under the Control of Pollution Act and the Environmental Protection Act.

Using information provided in this data sheet advice should be obtained from the Waste Regulation Authority, whether the special waste regulations apply.

The European Waste Catalogue Classification of this product, when disposed of as waste is 08 01 11 Waste paint and varnish containing organic solvents or other dangerous substances. If mixed with other wastes this code may no longer apply and the appropriate code should be assigned. For further information contact your local waste authority.

## SECTION 14: Transport information

**14.1. UN number** 1263

**14.2. UN proper shipping name** PAINT

**14.3. Transport hazard class(es)**

**ADR/RID/ADN** UN1263 Paint, 3, III

**IMDG class/div 3** **Sub Class** -  
**Segregation Group** No segregation group appropriate

**EmS** F-E,S-E

**ICAO/IATA Air class 3** **Sub Class** -

**14.4. Packing group** III

### 14.5. Environmental hazards

**ADR/RID/ADN** Environmentally Hazardous: No

**IMDG** Marine Pollutant: No

#### 14.6. Special precautions for user

No further information

#### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not Applicable

### SECTION 15: Regulatory information

#### EU Legislation

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### SECTION 16: Other information

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Unless we have agreed to the contrary, all products are supplied by us subject to our standard terms and conditions of business, which include limitations of liability. Please make sure to refer to these and / or the relevant agreement which you have with AkzoNobel (or its affiliate, as the case may be).

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The information in this Health & Safety Data Sheet is required pursuant to EC Regulation 1907(2006) and the Chemicals (Hazard Information & Packaging for Supply) Regulations 2009.

Key to 'Comments' column in Section 8.

- (+) There is a risk of absorption through unbroken skin.
- (C) Capable of causing cancer and/or heritable genetic damage.
- (R) Suppliers recommended limit.
- (S) Capable of causing occupational asthma.

The full text of the R, H & EUH phrases appearing in section 3 is:

H225 Highly flammable liquid and vapour.  
H226 Flammable liquid and vapour.  
H304 May be fatal if swallowed and enters airways.  
H312 Harmful in contact with skin.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.  
H335 May cause respiratory irritation.  
H411 Toxic to aquatic life with long lasting effects.  
R10 Flammable.  
R11 Highly flammable.  
R20 Harmful by inhalation.  
R20/21 Harmful by inhalation and in contact with skin.  
R36/37/38 Irritating to eyes, respiratory system and skin.  
R37 Irritating to respiratory system.  
R38 Irritating to skin.  
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
R65 Harmful: may cause lung damage if swallowed.

**The following sections have changed since the previous revision.**

End of document



Your attention is drawn to the disclaimer on the Product Data Sheet which with this Safety Data Sheet and the package labelling comprise an integral information system about this product. Copies of the Product Data Sheet are available from International Paint on request or from our Internet sites : [www.yachtpaint.com](http://www.yachtpaint.com) , [www.international-marine.com](http://www.international-marine.com), [www.international-pc.com](http://www.international-pc.com)



**Safety Data Sheet****EPA490 Interzone 1000 Grey Part A****Version No. 2 Date Last Revised 30/11/11**

Conforms to the requirements of Regulation (EC) No.1907/2006 (REACH), Annex II and Regulation (EC) No.1272/2008

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier** Interzone 1000 Grey Part A

Product Code EPA490

Registration Number

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Intended use See Technical Data Sheet.

Application Method See Technical Data Sheet.

**1.3. Details of the supplier of the safety data sheet****Manufacturer** International Paint Ltd.  
Stoneygate Lane  
Felling Gateshead  
Tyne and Wear  
NE10 0JY UK**Telephone No.** +44 (0)191 469 6111**Fax No.** +44 (0)191 438 3711**1.4. Emergency telephone number****Manufacturer** +44 (0)191 469 6111 24hr**Official Advisory Body Telephone No.:**  
**Advice for Doctors and Hospitals**

+44 (0)844 892 0111

**Email** sdsfellinguk@akzonobel.com**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Mixture NOT yet classified according to Regulation (EC) No. 1272/2008****Classification according to 67/548/EEC or 1999/45/EC.**Xi Irritant.  
N Dangerous for the environment.R10 Flammable.  
R36/38 Irritating to eyes and skin.  
R43 May cause sensitisation by skin contact.  
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## 2.2. Label elements

According to 1999/45/EC



Irritant



Dangerous for the environment

**Contains:** Epoxy resin (av.mol.wt.<700), Alkyl(C10-C16) glycidyl ether,

R10 Flammable.

R36/38 Irritating to eyes and skin.

R43 May cause sensitisation by skin contact.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S23 Do not breathe vapour/spray.

S24 Avoid contact with skin.

S37 Wear suitable gloves.

S51 Use only in well-ventilated areas.

### P. Phrases;

Contains epoxy constituents. See information supplied by the manufacturer.

### 2.3. Other hazards

This product contains no PBT/vPvB chemicals.

## SECTION 3: Composition/information on ingredients

If the product contains substances that present a health hazard within the meaning of the Dangerous Substances Directive 67/548/EC, or have occupational exposure limits detailed in EH40, these substances are listed below.

Ingredient/Chemical Designations	Weight %	67/548/EEC Classification	EC No. 1272/2008 Classification	Notes
Epoxy resin (av.mol.wt.<700) CAS Number: 0025068-38-6 EC No. 500-033-5 Index No.: 603-074-00-8 REACH Reg. No.: 01-2119456619-26-xxxx	25 - < 50	R43 Xi;R36/38 N;R51-53	Eye Irrit. 2;H319 Skin Irrit. 2;H315 Skin Sens. 1;H317 Aquatic Chronic 2;H411	[1]
Xylene CAS Number: 0001330-20-7 EC No. 215-535-7 Index No.: 601-022-00-9 REACH Reg. No.:	2.5 - < 10	R10 Xn;R20/21 Xi;R38	Flam. Liq. 3;H226 Acute Tox. 4;H332 Acute Tox. 4;H312 Skin Irrit. 2;H315	C [1][2]
Alkyl(C10-C16) glycidyl ether CAS Number: 0068081-84-5 EC No. 268-358-2 Index No.: REACH Reg. No.:	2.5 - < 10	Xi;R36/38 Xi;R43 N;R51/53	Skin Irrit. 2;H315 Eye Irrit. 2;H319 Skin Sens. 1;H317 Aquatic Chronic 2;H411	[1]
Ethylbenzene CAS Number: 0000100-41-4 EC No. 202-849-4 Index No.: 601-023-00-4 REACH Reg. No.:	1 - < 2.5	F;R11 Xn;R20	Flam. Liq. 2;H225 Acute Tox. 4;H332	[1][2]

[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

\*The full texts of the phrases are shown in Section 16.

## **SECTION 4: First aid measures**

### **4.1. Description of first aid measures**

#### **General**

In all cases of doubt, or when symptoms persist, seek medical attention.

Never give anything by mouth to an unconscious person.

#### **Inhalation**

Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

#### **Skin**

Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognised skin cleanser. Do NOT use solvents or thinners.

#### **Eye**

Irrigate copiously with clean fresh water for at least 10 minutes, holding the eyelids apart and seek medical attention.

#### **Ingestion**

If accidentally swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

### **4.2. Most important symptoms and effects, both acute and delayed**

No data available

### **4.3. Indication of any immediate medical attention and special treatment needed**

No data available

## **SECTION 5: Fire-fighting measures**

### **5.1. Extinguishing media**

Recommended extinguishing media; alcohol resistant foam, CO<sup>2</sup>. powder, water spray.

Do not use; water jet.

### **5.2. Special hazards arising from the substance or mixture**

Fire will produce dense black smoke. Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Avoid exposure and use breathing apparatus as appropriate.

### **5.3. Advice for fire-fighters**

Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or water courses.

## **SECTION 6: Accidental release measures**

### **6.1. Personal precautions, protective equipment and emergency procedures**

Remove sources of ignition, do not turn lights or unprotected electrical equipment on or off. In case of a major spill or spillage in a confined space evacuate the area and check that solvent vapour levels are below the Lower Explosive Limit before re-entering.

### **6.2. Environmental precautions**

Do not allow spills to enter drains or watercourses.

### **6.3. Methods and material for containment and cleaning up**

Ventilate the area and avoid breathing vapours. Take the personal protective measures listed in section 8.

Contain and absorb spillage with non-combustible materials e.g. sand, earth, vermiculite. Place in closed containers outside buildings and dispose of according to the Waste Regulations. (See section 13).

Clean, preferably with a detergent. Do not use solvents.

Do not allow spills to enter drains or watercourses.

If drains, sewers, streams or lakes are contaminated, inform the local water company immediately. In the case of contamination of rivers, streams or lakes the Environmental Protection Agency should also be informed.

## **SECTION 7: Handling and storage**

### **7.1. Precautions for safe handling**

#### **Handling**

This coating contains solvents. Solvent vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air. Areas of storage, preparation and application should be ventilated to prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentrations higher than the occupational exposure limits.

#### **In Storage**

Handle containers carefully to prevent damage and spillage.

Naked flames and smoking should not be permitted in storage areas. It is recommended that fork lift trucks and electrical equipment are protected to the appropriate standard.

### **7.2. Conditions for safe storage, including any incompatibilities**

Keep away from the following materials: oxidising agents, strong alkalis, strong acids.

Avoid skin and eye contact. Avoid inhalation of vapours and spray mists. Observe label precautions. Use personal protection as shown in section 8.

Smoking, eating and drinking should be prohibited in all preparation and application areas.

Never use pressure to empty a container; containers are not pressure vessels.

Store in a well ventilated, dry place away from sources of heat and direct sunlight.

Store on concrete or other impervious floor, preferably with bunding to contain any spillage. Do not stack more than 3 pallets high.

Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in the original container or one of the same material.

Prevent unauthorised access.

Activities such as sanding, burning off etc. of paint films may generate dust and/or fumes hazardous to the skin and lungs. Sanding dust may contain levels of unreacted hazardous materials which may cause irritation and sensitization; these are highest in the first 24/48 hours after application. Work in well ventilated areas. Use local exhaust ventilation and personal skin and respiratory protective equipment as appropriate.

### **7.3. Specific end use(s)**

There are no exposure scenarios, see details in section 1.

## **SECTION 8: Exposure controls/personal protection**

### **8.1. Control parameters**

The following workplace exposure limits have been established by the Health and Safety Executive as published in EH40.

Material	Short term (15 min. ave)		Long term (8hr TWA)		Comments
	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	
Ethylbenzene	125	552	100	441	+
Xylene	100	441	50	220	+

For Key to entries in 'Comments' column see Section 16

### DNEL/PNEC values

No Data Available

## 8.2. Exposure controls

Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapour below occupational exposure limits suitable respiratory protection must be worn.

### Eye/face protection

Wear safety eyewear, e.g. safety spectacles, goggles or visors to protect against the splash of liquids. Eyewear should meet the requirements of standard EN 166.

### Skin protection

For prolonged or repeated contact use protective gloves. Barrier creams may help to protect the exposed areas of skin, they should however not be applied once exposure has occurred. Skin should be washed after contact.

Use chemical resistant gloves classified under Standard EN 374: Protective gloves against chemicals and micro-organisms. Recommended gloves: Viton® or Nitrile  
Breakthrough Time: 480 min

When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to EN 374) is recommended.

NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

### Other

Overalls which cover the body, arms and legs should be worn. Skin should not be exposed. Barrier creams may help to protect areas which are difficult to cover such as the face and neck. They should however not be applied once exposure has occurred. Petroleum jelly based types such as Vaseline should not be used. All parts of the body should be washed after contact.

### Respiratory protection

If workers are exposed to concentrations above the exposure limit they must use the appropriate, certified respirators. For maximum protection when spraying this product it is recommended that a multi layer combination type filter, such as ABEK1, is used. In confined spaces use compressed air or fresh air respiratory equipment.

## Thermal hazards

No Data Available

## SECTION 9: Physical and chemical properties

Appearance	Grey Liquid
Odour	Smell of Solvent
Odour threshold	Not Measured
pH	Not Measured
Melting point / freezing point (°C)	Not Measured
Initial boiling point and boiling range (°C)	110
Flash point (°C)	49
Evaporation rate (Ether = 1)	Not Measured
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: Not Measured Upper Explosive Limit: Not Measured
Vapour pressure (Pa)	Not Measured
Vapour density	Heavier than air.
Relative density	1.48
Solubility(ies)	Immiscible
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature (°C)	Not Measured
Decomposition temperature (°C)	Not Measured
Viscosity (cSt)	2505

### 9.2. Other information

No further information

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No data available

### 10.2. Chemical stability

Stable under recommended storage and handling conditions (see section 7).When exposed to high temperatures may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

Keep away from oxidising agents, strongly alkaline and strongly acid materials in order to avoid possible exothermic reactions.

### 10.3. Possibility of hazardous reactions

May react exothermically with: oxidising agents, strong alkalis, strong acids.

### 10.4. Conditions to avoid

Stable under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Keep away from the following materials: oxidising agents, strong alkalis, strong acids.

### 10.6. Hazardous decomposition products

Fire will produce dense black smoke. Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Avoid exposure and use breathing apparatus as appropriate.

## SECTION 11: Toxicological information

## Acute toxicity

Exposure to solvent vapour concentrations from the component solvents in excess of the stated occupational exposure limits may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms include headache, nausea, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.

Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in dryness, irritation and possible non-allergic contact dermatitis. Solvents may also be absorbed through the skin. Splashes of liquid in the eyes may cause irritation and soreness with possible reversible damage.

Based on the properties of the epoxy constituents and considering toxicological data on similar preparations this preparation may be an irritant and a skin and respiratory sensitizer. Low molecular weight epoxy constituents are irritating to eyes, mucous membranes and skin. Repeated skin contact may lead to irritation and sensitisation, possibly with cross-sensitisation to other epoxies. Skin contact with the preparation and exposure to spray mist and vapour should be avoided.

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapour LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr
Alkyl(C10-C16) glycidyl ether - (68081-84-5)	5,000.00, Rat	Not Available	Not Available	Not Available
Epoxy resin (av.mol.wt.<700) - (25068-38-6)	2,000.00, Rat	2,000.00, Rabbit	Not Available	Not Available
Ethylbenzene - (100-41-4)	3,500.00, Rat	15,433.00, Rabbit	17.20, Rat	Not Available
Xylene - (1330-20-7)	4,299.00, Rat	1,548.00, Rabbit	20.00, Rat	Not Available

## SECTION 12: Ecological information

### 12.1. Toxicity

The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and is classified for eco-toxicological properties accordingly. See Sections 2 and 3 for details.

There are no data available on the product itself.

The product should not be allowed to enter drains or water courses.

### Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Epoxy resin (av.mol.wt.<700) - (25068-38-6)	3.10, Pimephales promelas	1.40, Daphnia magna	Not Available
Xylene - (1330-20-7)	3.30, Oncorhynchus mykiss	8.50, Palaemonetes pugio	100.00 (72 hr), Chlorococcales
Alkyl(C10-C16) glycidyl ether - (68081-84-5)	Not Available	Not Available	Not Available
Ethylbenzene - (100-41-4)	4.20, Oncorhynchus mykiss	2.93, Daphnia magna	3.60 (96 hr), Pseudokirchneriella subcapitata

### 12.2. Persistence and degradability

There is no data available on the preparation itself.

### 12.3. Bioaccumulative potential

Not Measured

### 12.4. Mobility in soil

No data available

### 12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

### 12.6. Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Do not allow into drains or water courses. Wastes and emptied containers should be disposed of in accordance with regulations made under the Control of Pollution Act and the Environmental Protection Act.

Using information provided in this data sheet advice should be obtained from the Waste Regulation Authority, whether the special waste regulations apply.

The European Waste Catalogue Classification of this product, when disposed of as waste is 08 01 11 Waste paint and varnish containing organic solvents or other dangerous substances. If mixed with other wastes this code may no longer apply and the appropriate code should be assigned. For further information contact your local waste authority.

## SECTION 14: Transport information

14.1. UN number 1263

14.2. UN proper shipping name PAINT

14.3. Transport hazard class(es)

ADR/RID/ADN UN1263 Paint, 3, III

IMDG class/div 3 Sub Class -  
Segregation Group No segregation group appropriate

EmS F-E,S-E

ICAO/IATA Air class 3 Sub Class -

14.4. Packing group III

### 14.5. Environmental hazards

ADR/RID/ADN Environmentally Hazardous: Yes

IMDG Marine Pollutant: Yes ( Epoxy resin (av.mol.wt.<700) )

### 14.6. Special precautions for user

No further information

### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not Applicable

## SECTION 15: Regulatory information



## EU Legislation

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

## National Legislation

UKSI 2009 No. 716 CHEMICALS (HAZARD INFORMATION AND PACKAGING FOR SUPPLY) REGULATIONS 2009.

## SECTION 16: Other information

IMPORTANT NOTE: the information contained in this data sheet (as may be amended from time to time) is not intended to be exhaustive and is presented in good faith and believed to be correct as of the date on which it is prepared. It is the user's responsibility to verify that this data sheet is current prior to using the product to which it relates.

Persons using the information must make their own determinations as to the suitability of the relevant product for their purposes prior to use. Where those purposes are other than as specifically recommended in this safety data sheet, then the user uses the product at their own risk.

MANUFACTURER'S DISCLAIMER: the conditions, methods and factors affecting the handling, storage, application, use and disposal of the product are not under the control and knowledge of the manufacturer. Therefore the manufacturer does not assume responsibility for any adverse events which may occur in the handling, storage, application, use, misuse or disposal of the product and, so far as permitted by applicable law, the manufacturer expressly disclaims liability for any and all loss, damages and/or expenses arising out of or in any way connected to the storage, handling, use or disposal of the product. Safe handling, storage, use and disposal are the responsibility of the users. Users must comply with all applicable health and safety laws.

Unless we have agreed to the contrary, all products are supplied by us subject to our standard terms and conditions of business, which include limitations of liability. Please make sure to refer to these and / or the relevant agreement which you have with AkzoNobel (or its affiliate, as the case may be).

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The information in this Health & Safety Data Sheet is required pursuant to EC Regulation 1907(2006) and the Chemicals (Hazard Information & Packaging for Supply) Regulations 2009.

Key to 'Comments' column in Section 8.

- (+) There is a risk of absorption through unbroken skin.
- (C) Capable of causing cancer and/or heritable genetic damage.
- (R) Suppliers recommended limit.
- (S) Capable of causing occupational asthma.

The full text of the R, H & EUH phrases appearing in section 3 is:

H225 Highly flammable liquid and vapour.

H226 Flammable liquid and vapour.

H312 Harmful in contact with skin.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H411 Toxic to aquatic life with long lasting effects.

R10 Flammable.

R11 Highly flammable.

R20 Harmful by inhalation.

R20/21 Harmful by inhalation and in contact with skin.

R36/38 Irritating to eyes and skin.

R38 Irritating to skin.

R43 May cause sensitisation by skin contact.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**The following sections have changed since the previous revision.**

SECTION 11: Toxicological information

End of document



Your attention is drawn to the disclaimer on the Product Data Sheet which with this Safety Data Sheet and the package labelling comprise an integral information system about this product. Copies of the Product Data Sheet are available from International Paint on request or from our Internet sites : [www.yachtpaint.com](http://www.yachtpaint.com) , [www.international-marine.com](http://www.international-marine.com), [www.international-pc.com](http://www.international-pc.com)

**Safety Data Sheet****EPA489 Interzone 1000 Part B****Version No. 5 Date Last Revised 29/05/12**

Conforms to the requirements of Regulation (EC) No.1907/2006 (REACH), Annex II and Regulation (EC) No.1272/2008

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier** Interzone 1000 Part B

Product Code EPA489

Registration Number

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Intended use See Technical Data Sheet.

For professional use only.

Application Method See Technical Data Sheet.

**1.3. Details of the supplier of the safety data sheet****Manufacturer** International Paint Ltd.

Stoneygate Lane

Felling Gateshead

Tyne and Wear

NE10 0JY UK

**Telephone No.** +44 (0)191 469 6111**Fax No.** +44 (0)191 438 3711**1.4. Emergency telephone number****Manufacturer** +44 (0)191 469 6111 24hr**Official Advisory Body Telephone No.:**  
**Advice for Doctors and Hospitals**

+44 (0)844 892 0111

**Email** sdsfellinguk@akzonobel.com**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Mixture NOT yet classified according to Regulation (EC) No. 1272/2008****Classification according to 67/548/EEC or 1999/45/EC.**

C Corrosive.

N Dangerous for the environment.

R34 Causes burns.

R43 May cause sensitisation by skin contact.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**2.2. Label elements**



Corrosive



Dangerous for the environment

**Contains:** Tetraethylenepentamine,

R34 Causes burns.

R43 May cause sensitisation by skin contact.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S23 Do not breathe vapour/spray.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S51 Use only in well-ventilated areas.

## P. Phrases;

### 2.3. Other hazards

This product contains no PBT/vPvB chemicals.

## SECTION 3: Composition/information on ingredients

If the product contains substances that present a health hazard within the meaning of the Dangerous Substances Directive 67/548/EC, or have occupational exposure limits detailed in EH40, these substances are listed below.

Ingredient/Chemical Designations	Weight %	67/548/EEC Classification	EC No. 1272/2008 Classification	Notes
TOFA, reaction product with TEPA CAS Number: 0068953-36-6 EC No. 273-201-6 Index No.: REACH Reg. No.:	50 - 100	Xi;R41 N;R51/53	Eye Dam. 1;H318 Aquatic Chronic 2;H411	[1]
Tetraethylenepentamine CAS Number: 0000112-57-2 EC No. 203-986-2 Index No.: 612-060-00-0 REACH Reg. No.:	10 - < 25	C;R34 Xn;R21/22 R43 N;R51-53	Acute Tox. 4;H312 Acute Tox. 4;H302 Skin Corr. 1B;H314 Skin Sens. 1;H317 Aquatic Chronic 2;H411	[1]
2,4,6-Tris(dimethylaminomethyl) phenol CAS Number: 0000090-72-2 EC No. 202-013-9 Index No.: 603-069-00-0 REACH Reg. No.: 01-2119560597-27-xxxx	10 - < 25	Xn;R22 Xi;R36/38	Acute Tox. 4;H302 Eye Irrit. 2;H319 Skin Irrit. 2;H315	[1]

[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

\*The full texts of the phrases are shown in Section 16.

## SECTION 4: First aid measures

#### **4.1. Description of first aid measures**

##### **General**

In all cases of doubt, or when symptoms persist, seek medical attention.

Never give anything by mouth to an unconscious person.

##### **Inhalation**

Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

##### **Skin**

Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognised skin cleanser. Do NOT use solvents or thinners.

##### **Eye**

Irrigate copiously with clean fresh water for at least 10 minutes, holding the eyelids apart and seek medical attention.

##### **Ingestion**

If accidentally swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

#### **4.2. Most important symptoms and effects, both acute and delayed**

No data available

#### **4.3. Indication of any immediate medical attention and special treatment needed**

No data available

### **SECTION 5: Fire-fighting measures**

#### **5.1. Extinguishing media**

Recommended extinguishing media; alcohol resistant foam, CO<sup>2</sup>. powder, water spray.

Do not use; water jet.

#### **5.2. Special hazards arising from the substance or mixture**

Fire will produce dense black smoke. Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Avoid exposure and use breathing apparatus as appropriate.

#### **5.3. Advice for fire-fighters**

Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or water courses.

### **SECTION 6: Accidental release measures**

#### **6.1. Personal precautions, protective equipment and emergency procedures**

Remove sources of ignition, do not turn lights or unprotected electrical equipment on or off. In case of a major spill or spillage in a confined space evacuate the area and check that solvent vapour levels are below the Lower Explosive Limit before re-entering.

#### **6.2. Environmental precautions**

Do not allow spills to enter drains or watercourses.

#### **6.3. Methods and material for containment and cleaning up**

Ventilate the area and avoid breathing vapours. Take the personal protective measures listed in section 8.

Contain and absorb spillage with non-combustible materials e.g. sand, earth, vermiculite. Place in closed containers outside buildings and dispose of according to the Waste Regulations. (See section 13).

Clean, preferably with a detergent. Do not use solvents.

Do not allow spills to enter drains or watercourses.

If drains, sewers, streams or lakes are contaminated, inform the local water company immediately. In the case of contamination of rivers, streams or lakes the Environmental Protection Agency should also be informed.

## **SECTION 7: Handling and storage**

### **7.1. Precautions for safe handling**

#### **Handling**

This coating contains solvents. Solvent vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air. Areas of storage, preparation and application should be ventilated to prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentrations higher than the occupational exposure limits.

#### **In Storage**

Handle containers carefully to prevent damage and spillage.

Naked flames and smoking should not be permitted in storage areas. It is recommended that fork lift trucks and electrical equipment are protected to the appropriate standard.

### **7.2. Conditions for safe storage, including any incompatibilities**

Keep away from the following materials: oxidising agents, strong alkalis, strong acids.

Avoid skin and eye contact. Avoid inhalation of vapours and spray mists. Observe label precautions. Use personal protection as shown in section 8.

Smoking, eating and drinking should be prohibited in all preparation and application areas.

Never use pressure to empty a container; containers are not pressure vessels.

Store in a well ventilated, dry place away from sources of heat and direct sunlight.

Store on concrete or other impervious floor, preferably with bunding to contain any spillage. Do not stack more than 3 pallets high.

Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in the original container or one of the same material.

Prevent unauthorised access.

### **7.3. Specific end use(s)**

There are no exposure scenarios, see details in section 1.

## **SECTION 8: Exposure controls/personal protection**

### **8.1. Control parameters**

The following workplace exposure limits have been established by the Health and Safety Executive as published in EH40.

<b>Material</b>	<b>Short term (15 min. ave)</b>		<b>Long term (8hr TWA)</b>		<b>Comments</b>
	<b>ppm</b>	<b>mg/m<sup>3</sup></b>	<b>ppm</b>	<b>mg/m<sup>3</sup></b>	

For Key to entries in 'Comments' column see Section 16

### **DNEL/PNEC values**

No Data Available

## 8.2. Exposure controls

Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapour below occupational exposure limits suitable respiratory protection must be worn.

### Eye/face protection

Wear safety eyewear, e.g. safety spectacles, goggles or visors to protect against the splash of liquids. Eyewear should meet the requirements of standard EN 166.

### Skin protection

For prolonged or repeated contact use protective gloves. Barrier creams may help to protect the exposed areas of skin, they should however not be applied once exposure has occurred. Skin should be washed after contact.

Use chemical resistant gloves classified under Standard EN 374: Protective gloves against chemicals and micro-organisms. Recommended gloves: Viton® or Nitrile  
Breakthrough Time: 480 min

When prolonged or frequently repeated contact may occur, a glove with a protection class of 6 (breakthrough time greater than 480 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes according to EN 374) is recommended.

NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

### Other

Overalls which cover the body, arms and legs should be worn. Skin should not be exposed. Barrier creams may help to protect areas which are difficult to cover such as the face and neck. They should however not be applied once exposure has occurred. Petroleum jelly based types such as Vaseline should not be used. All parts of the body should be washed after contact.

### Respiratory protection

If workers are exposed to concentrations above the exposure limit they must use the appropriate, certified respirators. For maximum protection when spraying this product it is recommended that a multi layer combination type filter, such as ABEK1, is used. In confined spaces use compressed air or fresh air respiratory equipment.

### Thermal hazards

No Data Available

## SECTION 9: Physical and chemical properties

<b>Appearance</b>	Colourless Liquid
<b>Odour</b>	Smell of Amine
<b>Odour threshold</b>	Not Measured

<b>pH</b>	Not Measured
<b>Melting point / freezing point (°C)</b>	Not Measured
<b>Initial boiling point and boiling range (°C)</b>	130
<b>Flash point (°C)</b>	101
<b>Evaporation rate (Ether = 1)</b>	Not Measured
<b>Flammability (solid, gas)</b>	Not Applicable
<b>Upper/lower flammability or explosive limits</b>	Lower Explosive Limit: Not Measured Upper Explosive Limit: Not Measured
<b>Vapour pressure (Pa)</b>	Not Measured
<b>Vapour density</b>	Heavier than air.
<b>Relative density</b>	0.95
<b>Solubility(ies)</b>	Immiscible
<b>Partition coefficient n-octanol/water (Log Kow)</b>	Not Measured
<b>Auto-ignition temperature (°C)</b>	Not Measured
<b>Decomposition temperature (°C)</b>	Not Measured
<b>Viscosity (cSt)</b>	100

## 9.2. Other information

No further information

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No data available

### 10.2. Chemical stability

Stable under recommended storage and handling conditions (see section 7). When exposed to high temperatures may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

Keep away from oxidising agents, strongly alkaline and strongly acid materials in order to avoid possible exothermic reactions.

### 10.3. Possibility of hazardous reactions

May react exothermically with: oxidising agents, strong alkalis, strong acids.

### 10.4. Conditions to avoid

Stable under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Keep away from the following materials: oxidising agents, strong alkalis, strong acids.

### 10.6. Hazardous decomposition products

Fire will produce dense black smoke. Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Avoid exposure and use breathing apparatus as appropriate.

## SECTION 11: Toxicological information

### Acute toxicity

Exposure to solvent vapour concentrations from the component solvents in excess of the stated occupational exposure limits may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms include headache, nausea, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.

Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in dryness, irritation and possible non-allergic contact dermatitis. Solvents may also be absorbed through the skin. Splashes of liquid in the eyes may cause irritation and soreness with possible reversible



damage.

Amine based materials may cause skin irritation and sensitisation.

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapour LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr
2,4,6-Tris(dimethylaminomethyl)phenol - (90-72-2)	1,200.00, Rat	1,280.00, Rat	Not Available	Not Available
Tetraethylenepentamine - (112-57-2)	2,140.00, Rat	Not Available	Not Available	Not Available
TOFA, reaction product with TEPA - (68953-36-6)	2,000.00, Rat	Not Available	Not Available	Not Available

## SECTION 12: Ecological information

### 12.1. Toxicity

The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and is classified for eco-toxicological properties accordingly. See Sections 2 and 3 for details.

There are no data available on the product itself.

The product should not be allowed to enter drains or water courses.

### Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
TOFA, reaction product with TEPA - (68953-36-6)	9.00, Fish (Piscis)	9.00, Daphnia magna	9.00 (72 hr), Algae
Tetraethylenepentamine - (112-57-2)	420.00, Poecilia reticulata	24.00, Daphnia magna	2.00 (72 hr), Pseudokirchneriella subcapitata
2,4,6-Tris(dimethylaminomethyl)phenol - (90-72-2)	Not Available	Not Available	Not Available

### 12.2. Persistence and degradability

There is no data available on the preparation itself.

### 12.3. Bioaccumulative potential

Not Measured

### 12.4. Mobility in soil

No data available

### 12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

### 12.6. Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Do not allow into drains or water courses. Wastes and emptied containers should be disposed of in accordance with regulations made under the Control of Pollution Act and the Environmental Protection Act.

Using information provided in this data sheet advice should be obtained from the Waste Regulation Authority, whether the special waste regulations apply.

European Waste Catalogue Classification: 08 01 12 Waste paint other than those mentioned in 08 01 11

## SECTION 14: Transport information

<b>14.1. UN number</b>	3066	
<b>14.2. UN proper shipping name</b>	PAINT	
<b>14.3. Transport hazard class(es)</b>		
<b>ADR/RID/ADN</b>	UN3066 Paint, 8, III	
<b>IMDG</b>	<b>class/div 8</b>	<b>Sub Class -</b>
	<b>Segregation Group</b>	No segregation group appropriate
	<b>EmS</b>	F-A,S-B
<b>ICAO/IATA</b>	<b>Air class 8</b>	<b>Sub Class -</b>
<b>14.4. Packing group</b>	III	
<b>14.5. Environmental hazards</b>		
<b>ADR/RID/ADN</b>	Environmentally Hazardous: Yes	
<b>IMDG</b>	Marine Pollutant: Yes ( TOFA, reaction product with TEPA )	
<b>14.6. Special precautions for user</b>	No further information	
<b>14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not Applicable	

## SECTION 15: Regulatory information

### EU Legislation

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

### National Legislation

UKSI 2009 No. 716 CHEMICALS (HAZARD INFORMATION AND PACKAGING FOR SUPPLY) REGULATIONS 2009.

## SECTION 16: Other information

**IMPORTANT NOTE:** the information contained in this data sheet (as may be amended from time to time) is not intended to be exhaustive and is presented in good faith and believed to be correct as of the date on which it is prepared. It is the user's responsibility to verify that this data sheet is current prior to using the product to which it relates.

Persons using the information must make their own determinations as to the suitability of the relevant product for their purposes prior to use. Where those purposes are other than as specifically recommended in this safety data sheet, then the user uses the product at their own risk.

**MANUFACTURER'S DISCLAIMER:** the conditions, methods and factors affecting the handling, storage, application, use and disposal of the product are not under the control and knowledge of the manufacturer. Therefore the manufacturer does not assume responsibility for any adverse events which may occur in the handling, storage, application, use, misuse or disposal of the product and, so far as permitted by applicable law, the manufacturer expressly disclaims liability for any and all loss, damages and/or expenses arising out of or in any way connected to the storage, handling, use or disposal of the product. Safe handling, storage, use and disposal are the responsibility of the users. Users must comply with all applicable health and safety laws.

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The information in this Health & Safety Data Sheet is required pursuant to EC Regulation 1907(2006) and the Chemicals (Hazard Information & Packaging for Supply) Regulations 2009.

Key to 'Comments' column in Section 8.

- (+) There is a risk of absorption through unbroken skin.
- (C) Capable of causing cancer and/or heritable genetic damage.
- (R) Suppliers recommended limit.
- (S) Capable of causing occupational asthma.

The full text of the R, H & EUH phrases appearing in section 3 is:

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H411 Toxic to aquatic life with long lasting effects.

R21/22 Harmful in contact with skin and if swallowed.

R22 Harmful if swallowed.

R34 Causes burns.

R36/38 Irritating to eyes and skin.

R41 Risk of serious damage to eyes.

R43 May cause sensitisation by skin contact.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**The following sections have changed since the previous revision.**

SECTION 2: Hazards identification

SECTION 9: Physical and chemical properties

SECTION 11: Toxicological information

SECTION 12: Ecological information

End of document



Your attention is drawn to the disclaimer on the Product Data Sheet which with this Safety Data Sheet and the package labelling comprise an integral information system about this product. Copies of the Product Data Sheet are available from International Paint on request or from our Internet sites : [www.yachtpaint.com](http://www.yachtpaint.com) , [www.international-marine.com](http://www.international-marine.com), [www.international-pc.com](http://www.international-pc.com)

# SAFETY DATA SHEET

## ISOPROPYL ALCOHOL

### 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT NAME ISOPROPYL ALCOHOL  
PRODUCT NO. PAT536  
SYNONYMS, TRADE NAMES DIMETHYL CARBINOL, IPA, ISOPROPANOL, PROPAN-2-OL  
SUPPLIER FLINT HIRE & SUPPLY LTD  
QUEENS ROW  
LONDON  
SE17 2PX  
Tel. 020 7703 9786  
Fax. 020 7708 4189  
Email. sales@flints.co.uk  
EMERGENCY TELEPHONE 020 7703 9786

### 2 HAZARDS IDENTIFICATION

Highly flammable. Irritating to eyes. Vapours may cause drowsiness and dizziness.

CLASSIFICATION Xi;R36. F;R11. R67.

### 3 COMPOSITION/INFORMATION ON INGREDIENTS

Name	EC No.	CAS-No.	Content	Classification
PROPAN-2-OL	200-661-7	67-63-0	95-100 %	F;R11 Xi;R36 R67

The Full Text for all R-Phrases are Displayed in Section 16

EU INDEX NO. 603-117-00-0

CAS-No. 67-63-0

### 4 FIRST-AID MEASURES

#### GENERAL INFORMATION

Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

#### INHALATION

Move the exposed person to fresh air at once. Perform artificial respiration if breathing has stopped. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Keep the affected person warm and at rest. Get prompt medical attention.

#### INGESTION

NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Drink plenty of water. DO NOT induce vomiting. Get medical attention immediately.

#### SKIN CONTACT

Remove affected person from source of contamination. Promptly wash contaminated skin with soap or mild detergent and water. Promptly remove clothing if soaked through and wash as above. Get medical attention immediately.

#### EYE CONTACT

Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.

### 5 FIRE-FIGHTING MEASURES

#### EXTINGUISHING MEDIA

Use: Water spray, fog or mist. Alcohol resistant foam. Carbon dioxide (CO<sub>2</sub>). Dry chemicals, sand, dolomite etc.

#### SPECIAL FIRE FIGHTING PROCEDURES

Move container from fire area if it can be done without risk. Containers close to fire should be removed or cooled with water. Cool containers exposed to flames with water until well after the fire is out. Keep run-off water out of sewers and water sources. Dike for water control. If risk of water pollution occurs, notify appropriate authorities. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

# ISOPROPYL ALCOHOL

## UNUSUAL FIRE & EXPLOSION HAZARDS

Heat may cause the containers to explode. Solvent vapours may form explosive mixtures with air. May travel considerable distance to source of ignition and flash back. May ignite at high temperature. Vapours are heavier than air and may spread near ground to sources of ignition.

## SPECIFIC HAZARDS

Fire creates: Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## 6 ACCIDENTAL RELEASE MEASURES

### PERSONAL PRECAUTIONS

Wear protective clothing as described in Section 8 of this safety data sheet. Avoid inhalation of vapours and contact with skin and eyes.

### ENVIRONMENTAL PRECAUTIONS

Do not allow to enter drains, sewers or watercourses. Avoid release to the environment. To prevent release, place container with damaged side up. Contain spillages with sand, earth or any suitable adsorbent material.

### SPILL CLEAN UP METHODS

Ventilate well, stop flow of gas or liquid if possible. Remove ignition sources. Do not allow chemical to enter confined spaces such as sewers due to explosion risk. Sewers designed to preclude formation of explosive concentrations of vapour may be permitted. Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Remove sources of ignition. Stop leak if possible without risk. Let evaporate. Keep out of confined spaces because of explosion risk. Provide ventilation and confine spill. Do not allow runoff to sewer. Should be prevented from entering drains. Do not contaminate water sources or sewer. Inform Authorities if large amounts are involved. Dike far ahead of larger spills for later disposal. Absorb in vermiculite, dry sand or earth and place into containers. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Avoid contact with skin or inhalation of spillage, dust or vapour. Clean-up personnel should use respiratory and/or liquid contact protection.

## 7 HANDLING AND STORAGE

### USAGE PRECAUTIONS

Keep away from heat, sparks and open flame. Avoid spilling, skin and eye contact. Ventilate well, avoid breathing vapours. Use approved respirator if air contamination is above accepted level. Avoid acids, moisture, and combustible materials. Wear full protective clothing for prolonged exposure and/or high concentrations. Do not use in confined spaces without adequate ventilation and/or respirator. Static electricity and formation of sparks must be prevented. Storage tanks and other containers must be grounded. Use explosion proof electric equipment. Do not handle broken packages without protective equipment.

### STORAGE PRECAUTIONS

Flammable/combustible - Keep away from oxidisers, heat and flames. May attack some plastics, rubber and coatings. Ground container and transfer equipment to eliminate static electric sparks. Take precautionary measures against static discharges. Do not store near heat sources or expose to high temperatures. Unsuitable containers: aluminium. Keep away from food, drink and animal feeding stuffs.

### STORAGE CLASS

Flammable liquid storage.

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	Std	LT - ppm	LT - mg/m <sup>3</sup>	ST - ppm	ST - mg/m <sup>3</sup>
PROPAN-2-OL	OES	400 ppm	999 mg/m <sup>3</sup>	500 ppm	1250 mg/m <sup>3</sup>

### INGREDIENT COMMENTS

WEL = Workplace Exposure Limits

### PROTECTIVE EQUIPMENT

### ENGINEERING MEASURES

Provide adequate general and local exhaust ventilation. Must not be handled in confined space without sufficient ventilation. Provide sufficient ventilation during operations which cause vapour formation.

### RESPIRATORY EQUIPMENT

No specific recommendation made, but respiratory protection must be used if the general level exceeds the Recommended Workplace Exposure Limit. Respiratory protection must be used if air contamination exceeds acceptable level. If ventilation is insufficient, suitable respiratory protection must be provided. Gas cartridge suitable for organic substances.

### HAND PROTECTION

Use suitable protective gloves if risk of skin contact. Use protective gloves made of: Butyl rubber. P.T.F.E (Teflon). Viton rubber (fluor rubber). Nitrile. The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

# ISOPROPYL ALCOHOL

## EYE PROTECTION

Wear approved chemical safety goggles where eye exposure is reasonably probable.

## OTHER PROTECTION

Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapour contact. Provide eyewash station.

## HYGIENE MEASURES

DO NOT SMOKE IN WORK AREA! Wash at the end of each work shift and before eating, smoking and using the toilet. Promptly remove any clothing that becomes contaminated. When using do not eat, drink or smoke.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Liquid		
COLOUR	Colourless		
ODOUR	Characteristic Odour of alcohol		
SOLUBILITY	Miscible with water. Miscible with Organic solvents		
MOL. WEIGHT	60.1	BOILING POINT (°C)	82 - 83 760 mm Hg
RELATIVE DENSITY	0.785 20	VAPOUR DENSITY (air=1)	2.08
VAPOUR PRESSURE	4100 Pa 20	EVAPORATION RATE	1.5 BuAc=1
VOLATILE BY VOL. (%)	100	VISCOSITY	2.43 mPas 20
ODOUR THRESHOLD, LOWER	30 ppm	ODOUR THRESHOLD, UPPER	@30 ppm
FLASH POINT (°C)	12 CC (Closed cup).	AUTO IGNITION TEMPERATURE (°C)	425
FLAMMABILITY LIMIT - LOWER(%)	2	FLAMMABILITY LIMIT - UPPER(%)	12
PARTITION COEFFICIENT (N-Octanol/Water)	0.05		

## 10 STABILITY AND REACTIVITY

### STABILITY

Stable under normal temperature conditions and recommended use.

### CONDITIONS TO AVOID

Avoid heat, flames and other sources of ignition. Avoid exposure to high temperatures or direct sunlight. Avoid contact with acids and oxidising substances.

### MATERIALS TO AVOID

Strong oxidising substances. Strong acids. Alkali metals.

### HAZARDOUS DECOMPOSITION PRODUCTS

Toxic gases/vapours/fumes of: Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## 11 TOXICOLOGICAL INFORMATION

TOXIC DOSE 1 - LD 50 5840 mg/kg (oral rat)

### INHALATION

Vapours may irritate the respiratory system and cause coughing, asthmatic breathing and breathlessness. Prolonged inhalation of high concentrations may damage respiratory system. Central nervous system depression. Vapours may cause headache, fatigue, dizziness and nausea.

### INGESTION

Swallowing concentrated chemical may cause severe internal injury. May cause nausea, headache, dizziness and intoxication. Ingestion of large amounts may cause unconsciousness. Nausea, vomiting. Headache. Drowsiness, dizziness, disorientation, vertigo. Narcotic effect. Harmful: danger of serious damage to health by prolonged exposure if swallowed.

### SKIN CONTACT

Repeated exposure may cause skin dryness or cracking. Acts as a defatting agent on skin. May cause cracking of skin, and eczema.

### EYE CONTACT

Extreme irritation of eyes and mucous membranes, including burning and tearing. Risk of corneal damage.

### ROUTE OF ENTRY

Inhalation. Ingestion. Skin and/or eye contact.

### TARGET ORGANS

Central nervous system. Eyes. Gastro-intestinal tract. Skin.

### MEDICAL SYMPTOMS

Extreme irritation of eyes and mucous membranes, including burning and tearing. Visual disturbances, incl. blurred vision. Nausea, vomiting. Headache.

**ISOPROPYL ALCOHOL****12 ECOLOGICAL INFORMATION**

LC 50, 96 Hrs, FISH mg/l 9600

EC 50, 48 Hrs, DAPHNIA, mg/l 4600

**MOBILITY**

This product will dissolve rapidly in water. If released to soil it will evaporate at a rapid rate. Dissolves in water. Lost within a day by evaporation and dissolution.

**BIOACCUMULATION**

Does not bioaccumulate significantly

**DEGRADABILITY**

Readily biodegradable meeting the 10 day criterion. Expected to degrade under anaerobic conditions. Oxidises rapidly by photo-chemical reaction in air. Integrated environmental half-life expected to be 1 - < 10 days. Dominant loss process - biodegradation. Poses a significant risk of oxygen depletion in aquatic systems.

**ACUTE FISH TOXICITY**

Practically non toxic

**13 DISPOSAL CONSIDERATIONS****GENERAL INFORMATION**

Waste is classified as hazardous waste. Disposal to licensed waste disposal site in accordance with the local Waste Disposal Authority. Contaminated packages must be completely emptied before sending away for laundering and re-use.

**DISPOSAL METHODS**

Dispose of waste and residues in accordance with local authority requirements. Confirm disposal procedures with environmental engineer and local regulations. Do not allow runoff to sewer, waterway or ground. Contact specialist disposal companies.

**14 TRANSPORT INFORMATION**

PROPER SHIPPING NAME	ISOPROPANOL (ISOPROPYL ALCOHOL)		
UN NO. ROAD	1219	ADR CLASS NO.	3
ADR CLASS	Class 3: Flammable liquids.	ADR PACK GROUP	II
HAZARD NO. (ADR)	33 Highly flammable liquid (flash-point below 23°C).		33
ADR LABEL NO.	3	HAZCHEM CODE	2YE
RID CLASS NO.	3	RID PACK GROUP	II
UN NO. SEA	1219	IMDG CLASS	3
IMDG PACK GR.	II	EMS	3-06
MARINE POLLUTANT	No.	UN NO. AIR	1219
AIR CLASS	3	AIR PACK GR.	II

**15 REGULATORY INFORMATION****LABELLING**

Irritant Highly Flammable

**RISK PHRASES**

R11 Highly flammable.  
 R36 Irritating to eyes.  
 R67 Vapours may cause drowsiness and dizziness.



## ISOPROPYL ALCOHOL

### SAFETY PHRASES

S9	Keep container in a well-ventilated place.
S16	Keep away from sources of ignition - No smoking.
S25	Avoid contact with eyes.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S51	Use only in well-ventilated areas.
S60	This material and its container must be disposed of as hazardous waste.

### ENVIRONMENTAL LISTING

Environmental Protection Act 1990 Hazardous Waste Regulations 2005

### EU DIRECTIVES

Dangerous Substance Directive 67/548/EEC. Dangerous Preparations Directive 1999/45/EC.

### APPROVED CODE OF PRACTICE

Safety Data Sheets for Substances and Preparations. Classification and Labelling of Substances and Preparations Dangerous for Supply.

### GUIDANCE NOTES

Workplace Exposure Limits EH40.

### NATIONAL REGULATIONS

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002. No. 1689. Health and Safety at Work Act (As Amended) 1974 Control of Substances Hazardous to Health Regulations 2002 (as amended) The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2007 (CDG 2007)

## 16 OTHER INFORMATION

REVISION DATE 12/02/2007

REV. NO./REPL. SDS GENERATED ISSUE NO 5

SDS NO. 1003

### SAFETY DATA SHEET STATUS

Approved.

### RISK PHRASES IN FULL

R11	Highly flammable.
R36	Irritating to eyes.
R67	Vapours may cause drowsiness and dizziness.

### DISCLAIMER

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.



## Safety Data Sheet according to (EC) No 1907/2006

Page 1 of 16

Loctite 7200

sds no. : 173071  
V004.0  
Revision: 19.07.2012  
printing date: 21.08.2012

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Loctite 7200

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use:

Solvent based cleaner

#### 1.3. Details of the supplier of the safety data sheet

Henkel Ireland Limited  
Product Safety & Regulatory Affairs  
Tallaght Business Park, Whitestown  
Dublin 24

Ireland

Phone: +353 (14046444)

Fax-no.: +353 (14519926)

ua-productsafety.uk@uk.henkel.com

#### 1.4. Emergency telephone number

24 Hours Emergency Tel: +44 (0)1442 278497

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (DPD):

F+ - Extremely flammable

R12 Extremely flammable.

#### 2.2. Label elements

**Label elements (DPD):**

F+ - Extremely flammable



**Risk phrases:**

R12 Extremely flammable.

**Safety phrases:**

S16 Keep away from sources of ignition - No smoking.

S23 Do not breathe spray.

S24 Avoid contact with skin.

S51 Use only in well-ventilated areas.

**Additional labeling:**

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. Do not spray on a naked flame or any incandescent material. Keep away from sources of ignition - No smoking.

Keep out of the reach of children

For consumer use only: S2 Keep out of the reach of children

S46 If swallowed, seek medical advice immediately and show this container or label.

**2.3. Other hazards**

None if used properly.

**SECTION 3: Composition/information on ingredients**

**General chemical description:**

Cleaner

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Propane 74-98-6	200-827-9	10- 20 %	Flammable gases 1 H220 Gases under pressure
1,3-Dioxolane 646-06-0	211-463-5	10- 20 %	Flammable liquids 2 H225
Butanone 78-93-3	201-159-0 01-2119457290-43	1- 5 %	Flammable liquids 2 H225 Specific target organ toxicity - single exposure 3 H336 Serious eye irritation 2 H319
2-aminoethanol 141-43-5	205-483-3 01-2119486455-28	1- 5 %	Acute toxicity 4; Inhalation H332 Acute toxicity 4; Dermal H312 Skin corrosion 1B H314 Acute toxicity 4; Oral H302
Naphtha (petroleum), hydrotreated heavy, <0.1% Benzene 64742-48-9	265-150-3 01-2119463258-33	1- 5 %	Flammable liquids 3 H226 Aspiration hazard 1 H304 Specific target organ toxicity - single exposure 3 H336
Ethanol 64-17-5	200-578-6 01-2119457610-43	5- 10 %	Serious eye irritation 2 H319 Flammable liquids 2 H225
Propan-2-ol 67-63-0	200-661-7 01-2119457558-25	5- 10 %	Flammable liquids 2 H225 Serious eye irritation 2 H319 Specific target organ toxicity - single exposure 3 H336

For full text of the H - statements and other abbreviations see section 16 "Other information".  
Substances without classification may have community workplace exposure limits available.

**Declaration of ingredients according to DPD (EC) No 1999/45:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Methylal 109-87-5	203-714-2	50 - 80 %	F - Highly flammable; R11
Propane 74-98-6	200-827-9	10 - 20 %	F+ - Extremely flammable; R12
1,3-Dioxolane 646-06-0	211-463-5	10 - 20 %	F - Highly flammable; R11
Butanone 78-93-3	201-159-0 01-2119457290-43	1 - 5 %	F - Highly flammable; R11 R67 Xi - Irritant; R36 R66
2-aminoethanol 141-43-5	205-483-3 01-2119486455-28	1 - 5 %	Xn - Harmful; R20/21/22 C - Corrosive; R34
Naphtha 64742-48-9	265-150-3 01-2119471843-32	1 - 5 %	R10 R66, R67 Xn - Harmful; R65
Ethanol 64-17-5	200-578-6 01-2119457610-43	5 - 10 %	F - Highly flammable; R11
Propan-2-ol 67-63-0	200-661-7 01-2119457558-25	5 - 10 %	Xi - Irritant; R36 F - Highly flammable; R11 R67

For full text of the R-Phrases indicated by codes see section 16 'Other Information'.

**Substances without classification may have community workplace exposure limits available.**

**Declaration of ingredients according to Detergent Regulation 648/2004/EC**

15 - 30 %	aliphatic hydrocarbons
< 5 %	non-ionic surfactants

**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**Inhalation:**

Move to fresh air.  
Seek medical advice.

**Skin contact:**

Rinse with running water and soap.  
Seek medical advice.

**Eye contact:**

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

**Ingestion:**

Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

**4.2. Most important symptoms and effects, both acute and delayed**

Vapors may cause drowsiness and dizziness.

**4.3. Indication of any immediate medical attention and special treatment needed**

See section: Description of first aid measures

**SECTION 5: Firefighting measures**

**Combustion behaviour:**

Solvent containing flammable product. In case of fire toxic gases are released.

**5.1. Extinguishing media**

**Suitable extinguishing media:**

Foam, extinguishing powder, carbon dioxide.

**Extinguishing media which must not be used for safety reasons:**

None known

**5.2. Special hazards arising from the substance or mixture**

Do not expose to direct heat.

**5.3. Advice for firefighters**

Wear self-contained breathing apparatus.

**Additional information:**

In case of fire, keep containers cool with water spray.

**SECTION 6: Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures**

Avoid skin and eye contact.  
Remove sources of ignition.  
Ensure adequate ventilation.

**6.2. Environmental precautions**

Do not let product enter drains.

**6.3. Methods and material for containment and cleaning up**

Wipe up using absorbent material.  
Store in a partly filled, closed container until disposal.

**6.4. Reference to other sections**

See advice in chapter 8

**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

Avoid skin and eye contact.  
Keep away from sources of ignition - no smoking.  
Vapours should be extracted to avoid inhalation.

Hygiene measures:

Good industrial hygiene practices should be observed.  
Wash hands before work breaks and after finishing work.

**7.2. Conditions for safe storage, including any incompatibilities**

Store in a cool, dry place.  
Do not store near sources of heat or ignition, or reactive materials.

**7.3. Specific end use(s)**

Solvent based cleaner

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters**

Valid for

Great Britain

Basis

UK EH40 WELs

Ingredient	ppm	mg/m3	Type	Category	Remarks
PROPAN-2-OL 67-63-0	500	1.250	Short Term Exposure Limit (STEL):		EH40 WEL
PROPAN-2-OL 67-63-0	400	999	Time Weighted Average (TWA):		EH40 WEL
DIMETHOXYMETHANE 109-87-5	1.250	3.950	Short Term Exposure Limit (STEL):		EH40 WEL
DIMETHOXYMETHANE 109-87-5	1.000	3.160	Time Weighted Average (TWA):		EH40 WEL
PROPANE 74-98-6				Included in the regulation but with no data values. See regulation for further details	EH40 WEL
BUTAN-2-ONE (METHYL ETHYL KETONE) 78-93-3	300	899	Short Term Exposure Limit (STEL):		EH40 WEL
BUTAN-2-ONE (METHYL ETHYL KETONE) 78-93-3			Skin designation:	Can be absorbed through the skin.	EH40 WEL
BUTAN-2-ONE (METHYL ETHYL KETONE) 78-93-3	200	600	Time Weighted Average (TWA):		EH40 WEL
BUTANONE 78-93-3	200	600	Time Weighted Average (TWA):	Indicative	ECLTV
BUTANONE 78-93-3	300	900	Short Term Exposure Limit (STEL):	Indicative	ECLTV
ETHANOL 64-17-5	1.000	1.920	Time Weighted Average (TWA):		EH40 WEL
2-AMINOETHANOL 141-43-5			Skin designation:	Can be absorbed through the skin.	EH40 WEL
2-AMINOETHANOL 141-43-5	1	2,5	Time Weighted Average (TWA):		EH40 WEL
2-AMINOETHANOL 141-43-5	3	7,6	Short Term Exposure Limit (STEL):		EH40 WEL
2-AMINOETHANOL 141-43-5	3	7,6	Short Term Exposure Limit (STEL):	Indicative	ECLTV
2-AMINOETHANOL 141-43-5	1	2,5	Time Weighted Average (TWA):	Indicative	ECLTV

**Predicted No-Effect Concentration (PNEC):**

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
Butanone 78-93-3	aqua (freshwater)					55,8 mg/L	
Butanone 78-93-3	aqua (marine water)					55,8 mg/L	
Butanone 78-93-3	aqua (intermittent releases)					55,8 mg/L	
Butanone 78-93-3	STP					709 mg/L	
Butanone 78-93-3	sediment (freshwater)				284,7 mg/kg		
Butanone 78-93-3	sediment (marine water)				284,7 mg/kg		
Butanone 78-93-3	soil				22,5 mg/kg		
2-Aminoethanol 141-43-5	aqua (freshwater)					0,085 mg/L	
2-Aminoethanol 141-43-5	aqua (marine water)					0,0085 mg/L	
2-Aminoethanol 141-43-5	aqua (intermittent releases)					0,025 mg/L	
2-Aminoethanol 141-43-5	sediment (freshwater)				0,425 mg/kg		
2-Aminoethanol 141-43-5	sediment (marine water)				0,0425 mg/kg		
2-Aminoethanol 141-43-5	soil				0,035 mg/kg		
2-Aminoethanol 141-43-5	STP					100 mg/L	
Ethanol 64-17-5	aqua (freshwater)		0,96 mg/l				
Ethanol 64-17-5	aqua (marine water)		0,79 mg/l				
Ethanol 64-17-5	aqua (intermittent releases)		2,75 mg/l				
Ethanol 64-17-5	sediment (freshwater)				3,6 mg/kg		
Ethanol 64-17-5	soil				0,63 mg/kg		
Ethanol 64-17-5	STP		580 mg/l				
Ethanol 64-17-5	oral				720 mg/kg		
Propan-2-ol 67-63-0	aqua (freshwater)					140,9 mg/L	
Propan-2-ol 67-63-0	aqua (marine water)					140,9 mg/L	
Propan-2-ol 67-63-0	sediment (freshwater)				552 mg/kg		
Propan-2-ol 67-63-0	sediment (marine water)				552 mg/kg		
Propan-2-ol 67-63-0	soil				28 mg/kg		
Propan-2-ol 67-63-0	aqua (intermittent releases)					140,9 mg/L	
Propan-2-ol 67-63-0	STP					2251 mg/L	



**Derived No-Effect Level (DNEL):**

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Butanone 78-93-3	worker	dermal	Long term exposure - systemic effects		1161 mg/kg bw/day	
Butanone 78-93-3	worker	inhalation	Long term exposure - systemic effects		600 mg/m <sup>3</sup>	
Butanone 78-93-3	general population	dermal	Long term exposure - systemic effects		412 mg/kg bw/day	
Butanone 78-93-3	general population	inhalation	Long term exposure - systemic effects		106 mg/m <sup>3</sup>	
Butanone 78-93-3	general population	oral	Long term exposure - systemic effects		31 mg/kg bw/day	
2-Aminoethanol 141-43-5	worker	dermal	Long term exposure - systemic effects		1 mg/kg bw/day	
2-Aminoethanol 141-43-5	worker	inhalation	Long term exposure - local effects		3,3 mg/m <sup>3</sup>	
2-Aminoethanol 141-43-5	general population	dermal	Long term exposure - systemic effects		0,24 mg/kg bw/day	
2-Aminoethanol 141-43-5	general population	inhalation	Acute/short term exposure - local effects		2 mg/m <sup>3</sup>	
2-Aminoethanol 141-43-5	general population	oral	Long term exposure - systemic effects		3,75 mg/kg bw/day	
Naphtha (petroleum), hydrotreated heavy 64742-48-9	worker	dermal	Long term exposure - systemic effects		300 mg/kg bw/day	
Naphtha (petroleum), hydrotreated heavy 64742-48-9	worker	inhalation	Long term exposure - systemic effects		1500 mg/m <sup>3</sup>	
Naphtha (petroleum), hydrotreated heavy 64742-48-9	general population	dermal	Long term exposure - systemic effects		300 mg/kg bw/day	
Naphtha (petroleum), hydrotreated heavy 64742-48-9	general population	inhalation	Long term exposure - systemic effects		900 mg/m <sup>3</sup>	
Naphtha (petroleum), hydrotreated heavy 64742-48-9	general population	oral	Long term exposure - systemic effects		300 mg/kg bw/day	
Ethanol 64-17-5	worker	inhalation	Acute/short term exposure - local effects		1900 mg/m <sup>3</sup>	
Ethanol 64-17-5	worker	dermal	Long term exposure - systemic effects		343 mg/kg bw/day	
Ethanol 64-17-5	worker	inhalation	Long term exposure - systemic effects		950 mg/m <sup>3</sup>	
Ethanol 64-17-5	general population	inhalation	Acute/short term exposure - local effects		950 mg/m <sup>3</sup>	
Ethanol 64-17-5	general population	dermal	Long term exposure - systemic effects		206 mg/kg bw/day	
Ethanol 64-17-5	general population	inhalation	Long term exposure - systemic effects		114 mg/m <sup>3</sup>	
Ethanol 64-17-5	general population	oral	Long term exposure - systemic effects		87 mg/kg bw/day	
Propan-2-ol 67-63-0	worker	dermal	Long term exposure - systemic effects		888 mg/kg bw/day	
Propan-2-ol 67-63-0	worker	inhalation	Long term exposure -		500 mg/m <sup>3</sup>	

			systemic effects		
Propan-2-ol 67-63-0	general population	dermal	Long term exposure - systemic effects		319 mg/kg bw/day
Propan-2-ol 67-63-0	general population	inhalation	Long term exposure - systemic effects		89 mg/m <sup>3</sup>
Propan-2-ol 67-63-0	general population	oral	Long term exposure - systemic effects		26 mg/kg

**8.2. Exposure controls:**

## Respiratory protection:

Ensure adequate ventilation.

Use only in well-ventilated areas.

An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area

Filtertype: AX

Filter type: P2

## Hand protection:

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

## Eye protection:

Wear protective glasses.

## Skin protection:

Wear suitable protective clothing.

## SECTION 9: Physical and chemical properties

**9.1. Information on basic physical and chemical properties**

Appearance	aerosol Amber
Odor	Alcoholic
pH ( )	10,6 - 11,0
Initial boiling point	-44 °C (-47.2 °F)
Flash point	-97 °C (-142.6 °F)
Decomposition temperature	No data available / Not applicable
Vapour pressure (20 °C (68 °F))	8300 hPa
Density (20 °C (68 °F))	0,79 g/cm <sup>3</sup>
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative) (Solvent: Water)	Not miscible
Solubility (qualitative) (Solvent: Acetone)	Miscible
Solidification temperature	No data available / Not applicable

Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	
lower	1,70 %(V)
upper	10,90 %(V)
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	Not available.
Vapor density	No data available / Not applicable
Oxidising properties	No data available / Not applicable

## 9.2. Other information

Ignition temperature 235 °C (455 °F)

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Strong oxidizing agents.

### 10.2. Chemical stability

Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

See section reactivity

### 10.4. Conditions to avoid

Stable under normal conditions of storage and use.  
Heat, flames, sparks and other sources of ignition.

### 10.5. Incompatible materials

No data available.

### 10.6. Hazardous decomposition products

None if used for intended purpose.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### General toxicological information:

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

#### Oral toxicity:

May cause irritation to the digestive tract.

#### Inhalative toxicity:

May cause irritation to respiratory system.

#### Skin irritation:

Solvent may remove essential oils from the skin making it susceptible to attack from other chemicals.

#### Eye irritation:

Prolonged or repeated contact may cause eye irritation.

**Acute toxicity:**

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Butanone 78-93-3	LD50 LC50 LD50	2.600 - 5.400 mg/kg > 5000 ppm 6.400 - 8.000 mg/kg	oral inhalation dermal	6 h	rat rat rabbit	
2-aminoethanol 141-43-5	LD50 LC50 LD50	1.970 mg/kg 1 - 5 mg/l 1.025 mg/kg	oral inhalation dermal	4 h	rat rat rabbit	
Naphtha 64742-48-9	LC50	> 11 mg/l	inhalation	4 h	rat	OECD Guideline 403 (Acute Inhalation Toxicity)
Ethanol 64-17-5	LD50 LC50 LDLo	13.700 mg/kg 124,7 mg/l 20.000 mg/kg	oral inhalation dermal	4 h	rat rat rabbit	
Propan-2-ol 67-63-0	LD50 LC50 LD50	5.338 mg/kg 72,6 mg/l 12.870 mg/kg	oral inhalation dermal	4 h	rat rat rabbit	

**Skin corrosion/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Butanone 78-93-3	moderately irritating		rabbit	
2-aminoethanol 141-43-5	corrosive		rabbit	
Naphtha 64742-48-9	moderately irritating		rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Ethanol 64-17-5	not irritating		rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Propan-2-ol 67-63-0	slightly irritating	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

**Serious eye damage/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Butanone 78-93-3	irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
2-aminoethanol 141-43-5	corrosive		rabbit	
Ethanol 64-17-5	Category II		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Propan-2-ol 67-63-0	moderately irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

**Respiratory or skin sensitization:**

Hazardous components CAS-No.	Result	Test type	Species	Method
Butanone 78-93-3	not sensitising	Guinea pig maximisation test	guinea pig	
Ethanol 64-17-5	not sensitising	Guinea pig maximisation test	guinea pig	
Propan-2-ol 67-63-0	not sensitising	Buehler test	guinea pig	

**Germ cell mutagenicity:**

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Propane 74-98-6	negative with metabolic activation	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Butanone 78-93-3	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
2-aminoethanol 141-43-5	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		
Ethanol 64-17-5	negative negative	bacterial reverse mutation assay (e.g Ames test) in vitro mammalian chromosome aberration test	with and without without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Propan-2-ol 67-63-0	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		

**Repeated dose toxicity**

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Method
Butanone 78-93-3	NOAEL=2500 ppm	inhalation	90 days 6 hours/day, 5 days/week	rat	
Propan-2-ol 67-63-0	NOAEL=1500	inhalation	13 weeks 6 hours/day, 5 days/week	mouse	

**SECTION 12: Ecological information****General ecological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Ecotoxicity:**

Do not empty into drains / surface water / ground water.

**Mobility:**

The product evaporates readily.

**Persistence and Biodegradability:**

No data available.

**Persistence and degradability:****Degradation of surfactants**

The product does not contain surface-active substances as defined in the EU Detergent Regulation (EC/648/2004).

**Bioaccumulative potential:**

Does not bioaccumulate.

## 12.1. Toxicity

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Methylal 109-87-5	LC50	6.990 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Methylal 109-87-5	EC50	> 500 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
1,3-Dioxolane 646-06-0	LC50	> 95,4 mg/l	Fish	96 h	Lepomis macrochirus	OECD Guideline 203 (Fish, Acute Toxicity Test)
1,3-Dioxolane 646-06-0	EC50	> 772 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
1,3-Dioxolane 646-06-0	NOEC	877 mg/l	Algae	72 h	Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Butanone 78-93-3	LC50	3.220 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Butanone 78-93-3	EC50	5.091 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Butanone 78-93-3	EC50	> 1.000 mg/l	Algae			OECD Guideline 201 (Alga, Growth Inhibition Test)
2-aminoethanol 141-43-5	NOEC	1.221 mg/l	Fish		Brachydanio rerio (new name: Danio rerio)	
2-aminoethanol 141-43-5	LC50	> 250 mg/l	Fish	48 h	Leuciscus idus	
2-aminoethanol 141-43-5	EC50	85 mg/l	Daphnia	24 h	Daphnia magna	
2-aminoethanol 141-43-5	EC50	15 mg/l	Algae	72 h	Pseudokirchnerella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Naphtha 64742-48-9	LC50	> 1.000 mg/l	Fish			OECD Guideline 203 (Fish, Acute Toxicity Test)
Naphtha 64742-48-9	EC50	> 1.000 mg/l	Daphnia		Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Naphtha 64742-48-9	EC50	> 1.000 mg/l	Algae			OECD Guideline 201 (Alga, Growth Inhibition Test)
Ethanol 64-17-5	LC50	14,2 g/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Ethanol 64-17-5	EC50	9.268 - 14.221 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Ethanol 64-17-5	EC50	> 5.000 mg/l	Algae	7 d	Scenedesmus quadricauda	OECD Guideline 201 (Alga, Growth Inhibition Test)
Propan-2-ol 67-63-0	LC50	9.640 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Propan-2-ol 67-63-0	EC50	13.299 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Propan-2-ol 67-63-0	EC50	> 1.000 mg/l	Algae	96 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)

**12.2. Persistence and degradability**

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
Methylal 109-87-5			88 %	
1,3-Dioxolane 646-06-0		aerobic	20 %	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
Butanone 78-93-3	readily biodegradable	aerobic	> 60 %	
2-aminoethanol 141-43-5	readily biodegradable	aerobic	100 %	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)
Naphtha 64742-48-9			23 - 35 %	OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
Ethanol 64-17-5	readily biodegradable	aerobic	80 - 85 %	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
Propan-2-ol 67-63-0	readily biodegradable	aerobic	95 %	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)

**12.3. Bioaccumulative potential / 12.4. Mobility in soil**

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
1,3-Dioxolane 646-06-0	-0,35					
Butanone 78-93-3	0,29					
2-aminoethanol 141-43-5	-1,91				25 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
Ethanol 64-17-5	-0,31					
Propan-2-ol 67-63-0	0,05					OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

**SECTION 13: Disposal considerations****13.1. Waste treatment methods**

Product disposal:

Dispose of in accordance with local and national regulations.

Disposal of uncleaned packages:

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

Disposal must be made according to official regulations.

Waste code

14 06 03 - other solvents and solvent mixtures

**SECTION 14: Transport information****Road transport ADR:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number:  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS  
Tunnelcode: (D)

**Railroad transport RID:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number: 23  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS  
Tunnelcode:

**Inland water transport ADN:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number:  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS

**Marine transport IMDG:**

Class: 2.1  
Packaging group:  
UN no.: 1950  
Label: 2.1  
EmS: F-D ,S-U  
Seawater pollutant: -  
Proper shipping name: AEROSOLS

**Air transport IATA:**

Class: 2.1  
Packaging group:  
Packaging instructions (passenger) 203  
Packaging instructions (cargo) 203  
UN no.: 1950  
Label: 2.1  
Proper shipping name: Aerosols, flammable

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

VOC content 82,09 %  
(1999/13/EC)



## SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

- R10 Flammable.
- R11 Highly flammable.
- R12 Extremely flammable.
- R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
- R34 Causes burns.
- R36 Irritating to eyes.
- R65 Harmful: may cause lung damage if swallowed.
- R66 Repeated exposure may cause skin dryness or cracking.
- R67 Vapours may cause drowsiness and dizziness.
- H220 Extremely flammable gas.
- H225 Highly flammable liquid and vapour.
- H226 Flammable liquid and vapour.
- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H312 Harmful in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H336 May cause drowsiness or dizziness.

### Further information:

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and its subsequent amendments, and Commission Directive 1999/45/EC.



## Safety Data Sheet according to (EC) No 1907/2006

Page 1 of 11

Loctite 128068

sds no. : 173017  
V003.2  
Revision: 09.03.2012  
printing date: 20.08.2012

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Loctite 128068

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use:

Anaerobic

#### 1.3. Details of the supplier of the safety data sheet

Henkel Ireland Limited  
Product Safety & Regulatory Affairs  
Tallaght Business Park, Whitestown  
Dublin 24

Ireland

Phone: +353 (14046444)

Fax-no.: +353 (14519926)

ua-productsafety.uk@uk.henkel.com

#### 1.4. Emergency telephone number

24 Hours Emergency Tel: +44 (0)1442 278497

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (DPD):

Xn - Harmful

R20 Harmful by inhalation.

Xi - Irritant

R36/37 Irritating to eyes and respiratory system.

Dangerous for the environment

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### 2.2. Label elements

**Label elements (DPD):**

Xn - Harmful



**Risk phrases:**

R20 Harmful by inhalation.

R36/37 Irritating to eyes and respiratory system.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety phrases:**

S23 Do not breathe vapour.

S25 Avoid contact with eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S51 Use only in well-ventilated areas.

S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Additional labeling:**

For consumer use only: S2 Keep out of the reach of children

S46 If swallowed, seek medical advice immediately and show this container or label.

**Contains:**

Cumene hydroperoxide

Contains 2-Hydroxyethyl methacrylate. May produce an allergic reaction.

**2.3. Other hazards**

None if used properly.

**SECTION 3: Composition/information on ingredients**

**General chemical description:**

Anaerobic adhesive

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Cumene hydroperoxide 80-15-9	201-254-7	1 - < 3 %	Acute toxicity 4; Dermal H312 Specific target organ toxicity - repeated exposure 2 H373 Acute toxicity 3; Inhalation H331 Acute toxicity 4; Oral H302 Organic peroxides E H242 Chronic hazards to the aquatic environment 2 H411 Skin corrosion 1B H314
2-Hydroxyethyl methacrylate 868-77-9	212-782-2 01-2119490169-29	0,1- 0,9 %	Serious eye irritation 2 H319 Skin irritation 2 H315 Skin sensitizer 1 H317
N,N-dimethyl-o-toluidine 609-72-3	210-199-8	0,1- 0,5 %	Acute toxicity 3; Inhalation H331 Acute toxicity 3; Dermal H311 Acute toxicity 3; Oral H301 Specific target organ toxicity - repeated exposure 2 H373 Chronic hazards to the aquatic environment 3 H412
Cumene 98-82-8	202-704-5	0,1- 0,5 %	Flammable liquids 3 H226 Aspiration hazard 1 H304 Specific target organ toxicity - single exposure 3 H335 Chronic hazards to the aquatic environment 2 H411

For full text of the H - statements and other abbreviations see section 16 "Other information".  
Substances without classification may have community workplace exposure limits available.

**Declaration of ingredients according to DPD (EC) No 1999/45:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Cumene hydroperoxide 80-15-9	201-254-7	1 - < 3 %	T - Toxic; R23 Xn - Harmful; R21/22, R48/20/22 O - Oxidizing; R7 C - Corrosive; R34 N - Dangerous for the environment; R51/53
2-Hydroxyethyl methacrylate 868-77-9	212-782-2 01-2119490169-29	0,1 - 0,9 %	Xi - Irritant; R36/38 R43
N,N-dimethyl-o-toluidine 609-72-3	210-199-8	0,1 - 0,5 %	T - Toxic; R23/24/25 R33 R52/53
Cumene 98-82-8	202-704-5	0,1 - 0,5 %	R10 Xn - Harmful; R65 Xi - Irritant; R37 N - Dangerous for the environment; R51/53

For full text of the R-Phrases indicated by codes see section 16 "Other Information".  
Substances without classification may have community workplace exposure limits available.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### Inhalation:

Move to fresh air. If symptoms persist, seek medical advice.

#### Skin contact:

Rinse with running water and soap.  
Seek medical advice.

#### Eye contact:

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

#### Ingestion:

Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting.  
Seek medical advice.

### 4.2. Most important symptoms and effects, both acute and delayed

RESPIRATORY: Irritation, coughing, shortness of breath, chest tightness.

EYE: Irritation, conjunctivitis.

### 4.3. Indication of any immediate medical attention and special treatment needed

See section: Description of first aid measures

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable extinguishing media:

Carbon dioxide, foam, powder

### 5.2. Special hazards arising from the substance or mixture

Oxides of carbon, oxides of nitrogen, irritating organic vapors.

### 5.3. Advice for firefighters

Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Avoid skin and eye contact.  
Ensure adequate ventilation.

### 6.2. Environmental precautions

Do not let product enter drains.

### 6.3. Methods and material for containment and cleaning up

For small spills wipe up with paper towel and place in container for disposal.  
For large spills absorb onto inert absorbent material and place in sealed container for disposal.

### 6.4. Reference to other sections

See advice in chapter 8

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Use only in well-ventilated areas.  
Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation.

## Hygiene measures:

- Wash hands before work breaks and after finishing work.
- Do not eat, drink or smoke while working.
- Good industrial hygiene practices should be observed.

**7.2. Conditions for safe storage, including any incompatibilities**

Store in original containers at 8-21°C (46.4-69.8°F) and do not return residual materials to containers as contamination may reduce the shelf life of the bulk product.

**7.3. Specific end use(s)**

Anaerobic

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters**

Valid for  
Great Britain

Ingredient	ppm	mg/m <sup>3</sup>	Type	Category	Remarks
CUMENE 98-82-8	25	125	Time Weighted Average (TWA):		EH40 WEL
CUMENE 98-82-8	50	250	Short Term Exposure Limit (STEL):		EH40 WEL
CUMENE 98-82-8			Skin designation:	Can be absorbed through the skin.	EH40 WEL
CUMENE 98-82-8			Skin designation:	Can be absorbed through the skin.	ECTLV
CUMENE 98-82-8	50	250	Short Term Exposure Limit (STEL):	Indicative	ECTLV
CUMENE 98-82-8	20	100	Time Weighted Average (TWA):	Indicative	ECTLV

**Predicted No-Effect Concentration (PNEC):**

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
2-Hydroxyethyl methacrylate 868-77-9	aqua (freshwater)					0,482 mg/L	
2-Hydroxyethyl methacrylate 868-77-9	aqua (marine water)					0,482 mg/L	
2-Hydroxyethyl methacrylate 868-77-9	STP					10 mg/L	
2-Hydroxyethyl methacrylate 868-77-9	aqua (intermittent releases)					1 mg/L	
2-Hydroxyethyl methacrylate 868-77-9	sediment (freshwater)					3,79 mg/kg	
2-Hydroxyethyl methacrylate 868-77-9	sediment (marine water)					3,79 mg/kg	
2-Hydroxyethyl methacrylate 868-77-9	soil					0,476 mg/kg	

**Derived No-Effect Level (DNEL):**

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
2-Hydroxyethyl methacrylate 868-77-9	worker	dermal	Long term exposure - systemic effects		1,3 mg/kg	
2-Hydroxyethyl methacrylate 868-77-9	worker	inhalation	Long term exposure - systemic effects		4,9 mg/m <sup>3</sup>	
2-Hydroxyethyl methacrylate 868-77-9	general population	dermal	Long term exposure - systemic effects		0,83 mg/kg	
2-Hydroxyethyl methacrylate 868-77-9	general population	inhalation	Long term exposure - systemic effects		2,9 mg/m <sup>3</sup>	
2-Hydroxyethyl methacrylate 868-77-9	general population	oral	Long term exposure - systemic effects		0,83 mg/kg	

**8.2. Exposure controls:**

## Engineering controls:

Ensure adequate ventilation.

## Respiratory protection:

Use only in well-ventilated areas.

## Hand protection:

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

## Eye protection:

Wear protective glasses.

## Skin protection:

Wear suitable protective clothing.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Appearance	paste purple
Odor	characteristic
pH ( )	3 - 6
Initial boiling point	Not determined
Flash point	> 100 °C (> 212 °F)
Decomposition temperature	No data available / Not applicable
Vapour pressure	< 0,1 mm hg
Density	No data available / Not applicable
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable

Solubility (qualitative)	Not miscible
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	No data available / Not applicable
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	No data available / Not applicable
Vapor density	Not available.
Oxidising properties	No data available / Not applicable

## 9.2. Other information

No data available / Not applicable

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reaction with strong acids.  
Reacts with strong oxidants.

### 10.2. Chemical stability

Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

See section reactivity

### 10.4. Conditions to avoid

Stable

### 10.5. Incompatible materials

None if used properly.

### 10.6. Hazardous decomposition products

Irritating organic vapours.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### General toxicological information:

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

#### Oral toxicity:

This material is considered to have low toxicity if swallowed.

#### Inhalative toxicity:

Harmful by inhalation.  
Irritating to respiratory system

#### Skin irritation:

Although it is not a common sensitizer there may be a risk of sensitization on prolonged or repeated contact with damaged skin

#### Eye irritation:

Irritating to eyes.

#### Acute toxicity:

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	LD50	550 mg/kg	oral	4 h	rat	
	LC50	220 ppm	inhalation		rat	
	LD50	500 mg/kg	dermal		rat	



**Skin corrosion/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	corrosive		rabbit	

**Germ cell mutagenicity:**

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	positive	bacterial reverse mutation assay (e.g Ames test)	without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Cumene hydroperoxide 80-15-9	negative	dermal		mouse	
2-Hydroxyethyl methacrylate 868-77-9	positive negative	in vitro mammalian chromosome aberration test bacterial reverse mutation assay (e.g Ames test)	with and without with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test) OECD Guideline 471 (Bacterial Reverse Mutation Assay)

**SECTION 12: Ecological information****General ecological information:**

Cured Loctite products are typical polymers and do not pose any immediate environmental hazards.

Do not empty into drains / surface water / ground water.

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Ecotoxicity:**

Harmful to aquatic organisms.

May cause long-term adverse effects in the aquatic environment.

**Mobility:**

Cured adhesives are immobile.

**Persistence and Biodegradability:**

No data available.

**Bioaccumulative potential:**

Does not bioaccumulate.

**12.1. Toxicity**

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	LC50	3,9 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Cumene hydroperoxide 80-15-9	EC50	18 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Cumene hydroperoxide 80-15-9	ErC50	3,1 mg/l	Algae	72 h	Pseudokirchnerella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-Hydroxyethyl methacrylate 868-77-9	LC50	227 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
2-Hydroxyethyl methacrylate 868-77-9	EC50	380 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
2-Hydroxyethyl methacrylate 868-77-9	EC50	345 mg/l	Algae	72 h	Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Cumene 98-82-8	LC50	4,8 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Cumene 98-82-8	EC50	4 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Cumene 98-82-8	EC50	2,6 mg/l	Algae	72 h	Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)

**12.2. Persistence and degradability**

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
Cumene hydroperoxide 80-15-9			18 %	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)
2-Hydroxyethyl methacrylate 868-77-9	readily biodegradable	aerobic	98 %	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)
Cumene 98-82-8		aerobic	86 %	

**12.3. Bioaccumulative potential / 12.4. Mobility in soil**

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Cumene hydroperoxide 80-15-9		9,1		calculation		OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)
Cumene hydroperoxide 80-15-9	2,16					
Cumene 98-82-8		35,5		Carassius auratus		OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)
Cumene 98-82-8	3,55				23 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

**SECTION 13: Disposal considerations****13.1. Waste treatment methods**

Product disposal:

Dispose of in accordance with local and national regulations.  
Contribution of this product to waste is very insignificant in comparison to article in which it is used

Disposal of uncleaned packages:

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

Waste code

08 04 09 waste adhesives and sealants containing organic solvents and other dangerous substances

### SECTION 14: Transport information

**General information:**

Not hazardous according to RID, ADR, ADNR, IMDG, IATA-DGR.

### SECTION 15: Regulatory information

**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

VOC content < 3 %  
(1999/13/EC)

## SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

- R10 Flammable.
- R21/22 Harmful in contact with skin and if swallowed.
- R23 Toxic by inhalation.
- R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
- R33 Danger of cumulative effects.
- R34 Causes burns.
- R36/38 Irritating to eyes and skin.
- R37 Irritating to respiratory system.
- R43 May cause sensitisation by skin contact.
- R48/20/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
- R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R65 Harmful: may cause lung damage if swallowed.
- R7 May cause fire.
- H226 Flammable liquid and vapor.
- H242 Heating may cause a fire.
- H301 Toxic if swallowed.
- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H311 Toxic in contact with skin.
- H312 Harmful in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H331 Toxic if inhaled.
- H335 May cause respiratory irritation.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H411 Toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.

### Further information:

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and its subsequent amendments, and Commission Directive 1999/45/EC.



## Safety Data Sheet according to (EC) No 1907/2006

Page 1 of 9

Loctite 221

sds no. : 173033  
V002.2

Revision: 24.01.2011  
printing date: 20.08.2012

### 1. Identification of the substance/mixture and of the company/undertaking

**Product identifier:**

Loctite 221

**Relevant identified uses of the substance or mixture and uses advised against:**

Intended use:

Adhesive

**Details of the supplier of the safety data sheet:**

Henkel Ireland Limited  
Product Safety & Regulatory Affairs  
Tallaght Business Park, Whitestown  
Dublin 24

Ireland

Phone: +353 (14046444)

Fax-no.: +353 (14519926)

ua-productsafety.uk@uk.henkel.com

**Emergency telephone number:**

24 Hours Emergency Tel: +44 (0)1442 278497

### 2. Hazards identification

**Classification of the substance or mixture:**

**Classification (DPD):**

Xn - Harmful

R20 Harmful by inhalation.

Xi - Irritant

R36/37 Irritating to eyes and respiratory system.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Label elements (DPD):**

Xn - Harmful



**Risk phrases:**

- R20 Harmful by inhalation.
- R36/37 Irritating to eyes and respiratory system.
- R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety phrases:**

- S23 Do not breathe vapour.
- S25 Avoid contact with eyes.
- S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S51 Use only in well-ventilated areas.
- S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Additional labeling:**

- For consumer use only: S2 Keep out of the reach of children
- S46 If swallowed, seek medical advice immediately and show this container or label.

**Contains:**

Cumene hydroperoxide

**Other hazards:**

None if used properly.

### 3. Composition/information on ingredients

**General chemical description:**

Methacrylate resin based threadlocker

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Cumene hydroperoxide 80-15-9	201-254-7	> 1- < 3 %	Acute toxicity 4; Dermal H312 Specific target organ toxicity - repeated exposure 2 H373 Acute toxicity 3; Inhalation H331 Acute toxicity 4; Oral H302 Organic peroxides E H242 Chronic hazards to the aquatic environment 2 H411 Skin corrosion 1B H314
Cumene 98-82-8	202-704-5	> 0,1- < 1 %	Flammable liquids 3 H226 Aspiration hazard 1 H304 Specific target organ toxicity - single exposure 3 H335 Chronic hazards to the aquatic environment 2 H411
N,N-dimethyl-o-toluidine 609-72-3	210-199-8	> 0,1- < 1 %	Acute toxicity 3; Inhalation H331 Acute toxicity 3; Dermal H311 Acute toxicity 3; Oral H301 Specific target organ toxicity - repeated exposure 2 H373 Chronic hazards to the aquatic environment 3 H412

Only dangerous ingredients for which a CLP classification is already available are displayed in this table.

For full text of the H - statements and other abbreviations see section 16 "Other information".

Substances without classification may have community workplace exposure limits available.

**Declaration of ingredients according to DPD (EC) No 1999/45:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Cumene hydroperoxide 80-15-9	201-254-7	> 1- < 3 %	T - Toxic; R23 Xn - Harmful; R21/22, R48/20/22 O - Oxidizing; R7 C - Corrosive; R34 N - Dangerous for the environment; R51, R53
Cumene 98-82-8	202-704-5	> 0,1 - < 1 %	R10 Xn - Harmful; R65 Xi - Irritant; R37 N - Dangerous for the environment; R51, R53
N,N-dimethyl-o-toluidine 609-72-3	210-199-8	> 0,1 - < 1 %	R52, R53 T - Toxic; R23/24/25 R33

For full text of the R-Phrases indicated by codes see section 16 'Other Information'.

Substances without classification may have community workplace exposure limits available.

#### 4. First aid measures

**Description of first aid measures:****Inhalation:**

Move to fresh air. If symptoms persist, seek medical advice.

**Skin contact:**

Rinse with running water and soap.  
Seek medical advice.

**Eye contact:**

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

**Ingestion:**

Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting.  
Seek medical advice.

**Most important symptoms and effects, both acute and delayed:**

RESPIRATORY: Irritation, coughing, shortness of breath, chest tightness.

EYE: Irritation, conjunctivitis.

**Indication of any immediate medical attention and special treatment needed:**

See section: Description of first aid measures

## 5. Firefighting measures

**Extinguishing media:**

**Suitable extinguishing media:**

Carbon dioxide, foam, powder

**Extinguishing media which must not be used for safety reasons:**

None known

**Special hazards arising from the substance or mixture:**

In the event of a fire, carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>) can be released.

In case of fire, keep containers cool with water spray.

**Advice for firefighters:**

Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures:**

Avoid skin and eye contact.

Ensure adequate ventilation.

**Environmental precautions:**

Do not let product enter drains.

**Methods and material for containment and cleaning up:**

For small spills wipe up with paper towel and place in container for disposal.

For large spills absorb onto inert absorbent material and place in sealed container for disposal.

**Reference to other sections:**

See advice in chapter 8

## 7. Handling and storage

**Precautions for safe handling:**

Use only in well-ventilated areas.

Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation.

**Hygiene measures:**

Good industrial hygiene practices should be observed.

Wash hands before work breaks and after finishing work.

Do not eat, drink or smoke while working.



**Conditions for safe storage, including any incompatibilities:**

Store in original containers at 8-21°C (46.4-69.8°F) and do not return residual materials to containers as contamination may reduce the shelf life of the bulk product.

**Specific end use(s):**

Adhesive

**8. Exposure controls/personal protection****Control parameters:**

Valid for  
Great Britain

Ingredient	ppm	mg/m <sup>3</sup>	Type	Category	Remarks
CUMENE 98-82-8	25	125	Time Weighted Average (TWA):		EH40 WEL
CUMENE 98-82-8	50	250	Short Term Exposure Limit (STEL):		EH40 WEL
CUMENE 98-82-8			Skin designation:	Can be absorbed through the skin.	EH40 WEL
CUMENE 98-82-8			Skin designation:	Can be absorbed through the skin.	ECTLV
CUMENE 98-82-8	50	250	Short Term Exposure Limit (STEL):	Indicative	ECTLV
CUMENE 98-82-8	20	100	Time Weighted Average (TWA):	Indicative	ECTLV

**Exposure controls:**

## Respiratory protection:

Use only in well-ventilated areas.

## Hand protection:

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30

minutes permeation time as per EN 374):

nitrile rubber (NBR; >= 0.4 mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR; >= 0.4 mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

## Eye protection:

Wear protective glasses.

## Skin protection:

Wear suitable protective clothing.

**9. Physical and chemical properties****Information on basic physical and chemical properties:**

Appearance	liquid purple
Odor	characteristic
pH	3,00 - 6,00
( )	
Initial boiling point	> 150,0 °C (> 302 °F)
Flash point	> 100 °C (> 212 °F); None
Decomposition temperature	No data available / Not applicable

Vapour pressure (25 °C (77 °F))	< 0,13 mbar
Density ( )	1,0800 g/cm3
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative) (Solvent: Water)	Not miscible
Solubility (qualitative) (Solvent: Acetone)	Miscible
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	No data available / Not applicable
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	No data available / Not applicable
Vapor density	No data available / Not applicable
Oxidising properties	No data available / Not applicable

**Other information:**

No data available / Not applicable

## 10. Stability and reactivity

**Reactivity:**

- Peroxides.
- Reaction with strong bases
- Reaction with strong acids.
- Reaction with strong oxidants.

**Possibility of hazardous reactions:**

See section reactivity

**Conditions to avoid:**

- Stable under normal conditions of storage and use.
- No decomposition if stored and applied as directed.

**Incompatible materials:**

None if used properly.

**Hazardous decomposition products:**

carbon oxides.

## 11. Toxicological information

**General toxicological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Oral toxicity:**

- May cause irritation to the digestive tract.
- This material is considered to have low toxicity if swallowed.

**Inhalative toxicity:**

- Harmful by inhalation.
- Irritating to respiratory system

**Skin irritation:**

- This product is considered to have low dermal toxicity.
- Prolonged or repeated contact may cause skin irritation.

**Eye irritation:**

Irritating to eyes.

**12. Ecological information****General ecological information:**

Harmful to aquatic organisms.

May cause long-term adverse effects in the aquatic environment.

Do not empty into drains / surface water / ground water.

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Ecotoxicity:**

Harmful to aquatic organisms.

May cause long-term adverse effects in the aquatic environment.

No data available for the product.

**Mobility:**

Cured adhesives are immobile.

**Bioaccumulative potential:**

Does not bioaccumulate.

**Toxicity:**

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	LC50	3,9 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Cumene hydroperoxide 80-15-9	EC50	18 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Cumene hydroperoxide 80-15-9	ErC50	3,1 mg/l	Algae	72 h	Pseudokirchnerella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Cumene 98-82-8	LC50	4,8 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Cumene 98-82-8	EC50	4 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Cumene 98-82-8	EC50	2,6 mg/l	Algae	72 h	Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)

**Persistence and degradability:**

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
Cumene hydroperoxide 80-15-9			18 %	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)
Cumene 98-82-8		aerobic	86 %	

**Bioaccumulative potential / Mobility in soil:**

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
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Cumene hydroperoxide 80-15-9		9,1				OECD Guideline 305 (Bioconcentration: Flow- through Fish Test)
Cumene hydroperoxide 80-15-9	2,16					
Cumene 98-82-8		35,5		Carassius auratus		OECD Guideline 305 (Bioconcentration: Flow- through Fish Test)
Cumene 98-82-8	3,55				23 °C	OECD Guideline 107 (Partition Coefficient (n- octanol / water), Shake Flask Method)

### 13. Disposal considerations

**Waste treatment methods:****Product disposal:**

Dispose of in accordance with local and national regulations.

Contribution of this product to waste is very insignificant in comparison to article in which it is used

**Disposal of uncleaned packages:**

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

**Waste code**

08 04 09 waste adhesives and sealants containing organic solvents and other dangerous substances

### 14. Transport information

**General information:**

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

### 15. Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture:**

VOC content < 3,00 %  
(1999/13/EC)

## 16. Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

- R10 Flammable.
- R21/22 Harmful in contact with skin and if swallowed.
- R23 Toxic by inhalation.
- R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
- R33 Danger of cumulative effects.
- R34 Causes burns.
- R37 Irritating to respiratory system.
- R48/20/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
- R51 Toxic to aquatic organisms.
- R52 Harmful to aquatic organisms.
- R53 May cause long-term adverse effects in the aquatic environment.
- R65 Harmful: may cause lung damage if swallowed.
- R7 May cause fire.

- H226 Flammable liquid and vapour.
- H242 Heating may cause a fire.
- H301 Toxic if swallowed.
- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H311 Toxic in contact with skin.
- H312 Harmful in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H331 Toxic if inhaled.
- H335 May cause respiratory irritation.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H411 Toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.

### Further information:

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and its subsequent amendments, and Commission Directive 1999/45/EC.



## Safety Data Sheet according to (EC) No 1907/2006

Page 1 of 10

Loctite 243

sds no. : 316211  
V004.5

Revision: 11.07.2012  
printing date: 21.08.2012

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Loctite 243

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use:

Adhesive

#### 1.3. Details of the supplier of the safety data sheet

Henkel Ireland Limited  
Product Safety & Regulatory Affairs  
Tallaght Business Park, Whitestown  
Dublin 24

Ireland

Phone: +353 (14046444)

Fax-no.: +353 (14519926)

ua-productsafety.uk@uk.henkel.com

#### 1.4. Emergency telephone number

24 Hours Emergency Tel: +44 (0)1442 278497

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (DPD):

Sensitizing

R43 May cause sensitisation by skin contact.

#### 2.2. Label elements

**Label elements (DPD):**

Xi - Irritant



**Risk phrases:**

R43 May cause sensitisation by skin contact.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety phrases:**

S24 Avoid contact with skin.

S37 Wear suitable gloves.

S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Additional labeling:**

For consumer use only: S2 Keep out of the reach of children

S46 If swallowed, seek medical advice immediately and show this container or label.

**Contains:**

Maleic acid

**2.3. Other hazards**

None if used properly.

**SECTION 3: Composition/information on ingredients**

**General chemical description:**

Anaerobic adhesive

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
2,4,6-Triallyloxy-s-triazine 101-37-1	202-936-7	>= 2,5- < 10 %	Acute toxicity 4; Oral H302 Chronic hazards to the aquatic environment 2 H411
Undecanoic acid, 11-amino-, homopolymer 25587-80-8		>= 0,25- < 2,5 %	Acute hazards to the aquatic environment 1 H400 Chronic hazards to the aquatic environment 1 H410
Cumene hydroperoxide 80-15-9	201-254-7	>= 0,1- < 0,9 %	Acute toxicity 4; Dermal H312 Specific target organ toxicity - repeated exposure 2 H373 Acute toxicity 3; Inhalation H331 Acute toxicity 4; Oral H302 Organic peroxides E H242 Chronic hazards to the aquatic environment 2 H411 Skin corrosion 1B H314
Maleic acid 110-16-7	203-742-5	>= 0,1- < 0,5 %	Acute toxicity 4; Oral H302 Serious eye irritation 2 H319 Specific target organ toxicity - single exposure 3 H335 Skin irritation 2 H315 Skin sensitizer 1 H317
Cumene 98-82-8	202-704-5	>= 0,05- < 0,5 %	Flammable liquids 3 H226 Aspiration hazard 1 H304 Specific target organ toxicity - single exposure 3 H335 Chronic hazards to the aquatic environment 2 H411

For full text of the H - statements and other abbreviations see section 16 "Other information".  
Substances without classification may have community workplace exposure limits available.

**Declaration of ingredients according to DPD (EC) No 1999/45:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
2,4,6-Triallyloxy-s-triazine 101-37-1	202-936-7	>= 2,5 - < 10 %	Xn - Harmful; R22 N - Dangerous for the environment; R51/53
Undecanoic acid, 11-amino-, homopolymer 25587-80-8		>= 0,25 - < 2,5 %	N - Dangerous for the environment; R50/53
Cumene hydroperoxide 80-15-9	201-254-7	>= 0,1 - < 0,9 %	T - Toxic; R23 Xn - Harmful; R21/22, R48/20/22 O - Oxidizing; R7 C - Corrosive; R34 N - Dangerous for the environment; R51/53
Maleic acid 110-16-7	203-742-5	>= 0,1 - < 0,5 %	Xn - Harmful; R22 Xi - Irritant; R36/37/38 R43
Cumene 98-82-8	202-704-5	>= 0,05 - < 0,5 %	R10 Xn - Harmful; R65 Xi - Irritant; R37 N - Dangerous for the environment; R51/53

For full text of the R-Phrases indicated by codes see section 16 'Other Information'.  
Substances without classification may have community workplace exposure limits available.



## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**Inhalation:**

Move to fresh air. If symptoms persist, seek medical advice.

**Skin contact:**

Rinse with running water and soap.  
Seek medical advice.

**Eye contact:**

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

**Ingestion:**

Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting.  
Seek medical advice.

### 4.2. Most important symptoms and effects, both acute and delayed

SKIN: Redness, inflammation.

### 4.3. Indication of any immediate medical attention and special treatment needed

See section: Description of first aid measures

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable extinguishing media:**

Carbon dioxide, foam, powder  
Fine water spray

**Extinguishing media which must not be used for safety reasons:**

None known

### 5.2. Special hazards arising from the substance or mixture

In the event of a fire, carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>) can be released.  
In case of fire, keep containers cool with water spray.

### 5.3. Advice for firefighters

Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Avoid skin and eye contact.  
Ensure adequate ventilation.

### 6.2. Environmental precautions

Do not let product enter drains.

### 6.3. Methods and material for containment and cleaning up

For small spills wipe up with paper towel and place in container for disposal.  
For large spills absorb onto inert absorbent material and place in sealed container for disposal.

### 6.4. Reference to other sections

See advice in chapter 8

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling**

Use only in well-ventilated areas.

Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation.

## Hygiene measures:

Good industrial hygiene practices should be observed.

Do not eat, drink or smoke while working.

Wash hands before work breaks and after finishing work.

**7.2. Conditions for safe storage, including any incompatibilities**

Ensure good ventilation/extraction.

Store in original containers at 8-21°C (46.4-69.8°F) and do not return residual materials to containers as contamination may reduce the shelf life of the bulk product.

**7.3. Specific end use(s)**

Adhesive

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters**

Valid for

Great Britain

Ingredient	ppm	mg/m <sup>3</sup>	Type	Category	Remarks
PROPANE-1,2-DIOL, PARTICULATES 57-55-6		10	Time Weighted Average (TWA):		EH40 WEL
PROPANE-1,2-DIOL, TOTAL VAPOUR AND PARTICULATES 57-55-6	150	474	Time Weighted Average (TWA):		EH40 WEL
CUMENE 98-82-8	25	125	Time Weighted Average (TWA):		EH40 WEL
CUMENE 98-82-8	50	250	Short Term Exposure Limit (STEL):		EH40 WEL
CUMENE 98-82-8			Skin designation:	Can be absorbed through the skin.	EH40 WEL
CUMENE 98-82-8			Skin designation:	Can be absorbed through the skin.	ECTLV
CUMENE 98-82-8	50	250	Short Term Exposure Limit (STEL):	Indicative	ECTLV
CUMENE 98-82-8	20	100	Time Weighted Average (TWA):	Indicative	ECTLV

**8.2. Exposure controls:**

## Respiratory protection:

Use only in well-ventilated areas.

An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area

Filter type: A

## Hand protection:

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq$  0.4 mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq$  0.4 mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:  
Wear protective glasses.

Skin protection:  
Wear suitable protective clothing.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Appearance	liquid blue
Odor	characteristic
pH	No data available / Not applicable
Initial boiling point	No data available / Not applicable
Flash point	> 93 °C (> 199.4 °F)
Decomposition temperature	No data available / Not applicable
Vapour pressure	No data available / Not applicable
Density	No data available / Not applicable
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative)	No data available / Not applicable
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	No data available / Not applicable
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	No data available / Not applicable
Vapor density	No data available / Not applicable
Oxidising properties	No data available / Not applicable

### 9.2. Other information

No data available / Not applicable

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Peroxides.

### 10.3. Possibility of hazardous reactions

See section reactivity

### 10.4. Conditions to avoid

Stable

### 10.5. Incompatible materials

None if used properly.

### 10.6. Hazardous decomposition products

carbon oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### General toxicological information:

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Oral toxicity:**

May cause irritation to the digestive tract.

**Skin irritation:**

Prolonged or repeated contact may cause skin irritation.

**Eye irritation:**

May cause mild irritation to the eyes.

**Sensitizing:**

May cause sensitization by skin contact.

**Acute toxicity:**

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	LD50	550 mg/kg	oral	4 h	rat	
	LC50	220 ppm	inhalation		rat	
	LD50	500 mg/kg	dermal		rat	

**Skin corrosion/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	corrosive		rabbit	

**Germ cell mutagenicity:**

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	positive	bacterial reverse mutation assay (e.g Ames test)	without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Cumene hydroperoxide 80-15-9	negative	dermal		mouse	

**SECTION 12: Ecological information****General ecological information:**

Do not empty into drains / surface water / ground water.

Harmful to aquatic organisms.

May cause long-term adverse effects in the aquatic environment.

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Ecotoxicity:**

Harmful to aquatic organisms.

May cause long-term adverse effects in the aquatic environment.

**Mobility:**

Cured adhesives are immobile.

**Persistence and Biodegradability:**

The product is not biodegradable.

## 12.1. Toxicity

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
2,4,6-Triallyloxy-s-triazine 101-37-1	LC50	4,36 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
2,4,6-Triallyloxy-s-triazine 101-37-1	EC50	19,4 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Undecanoic acid, 11-amino-, homopolymer 25587-80-8	NOEC	> 0,024 mg/l	Fish	96 h		OECD Guideline 203 (Fish, Acute Toxicity Test)
Undecanoic acid, 11-amino-, homopolymer 25587-80-8	NOEC	> 0,024 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Undecanoic acid, 11-amino-, homopolymer 25587-80-8	NOEC	> 0,0073 mg/l	Algae	72 h		OECD Guideline 201 (Alga, Growth Inhibition Test)
Cumene hydroperoxide 80-15-9	LC50	3,9 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Cumene hydroperoxide 80-15-9	EC50	18 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Cumene hydroperoxide 80-15-9	ErC50	3,1 mg/l	Algae	72 h	Pseudokirchnerella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Maleic acid 110-16-7	LC50	> 245 mg/l	Fish	48 h	Leuciscus idus	
Maleic acid 110-16-7	EC50	245 mg/l	Daphnia	24 h	Daphnia magna	
Cumene 98-82-8	LC50	4,8 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Cumene 98-82-8	EC50	4 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Cumene 98-82-8	EC50	2,6 mg/l	Algae	72 h	Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)

## 12.2. Persistence and degradability

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
2,4,6-Triallyloxy-s-triazine 101-37-1		aerobic	7 - 9 %	OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
Undecanoic acid, 11-amino-, homopolymer 25587-80-8		no data	7 %	
Cumene hydroperoxide 80-15-9			18 %	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)
Maleic acid 110-16-7	readily biodegradable	aerobic	87 - 88 %	EU Method C.4-E (Determination of the "Ready" Biodegradability Closed Bottle Test)
Cumene 98-82-8		aerobic	86 %	

## 12.3. Bioaccumulative potential / 12.4. Mobility in soil

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
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2,4,6-Triallyloxy-s-triazine 101-37-1	2,8				20 °C	
Cumene hydroperoxide 80-15-9		9,1		calculation		OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)
Cumene hydroperoxide 80-15-9	2,16					
Maleic acid 110-16-7	-0,48					
Cumene 98-82-8		35,5		Carassius auratus		OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)
Cumene 98-82-8	3,55				23 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

##### Product disposal:

Dispose of in accordance with local and national regulations.

Contribution of this product to waste is very insignificant in comparison to article in which it is used

##### Disposal of uncleaned packages:

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

Disposal must be made according to official regulations.

##### Waste code

08 04 09 waste adhesives and sealants containing organic solvents and other dangerous substances

### SECTION 14: Transport information

#### General information:

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

VOC content < 3 %  
(1999/13/EC)

## SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

- R10 Flammable.
- R21/22 Harmful in contact with skin and if swallowed.
- R22 Harmful if swallowed.
- R23 Toxic by inhalation.
- R34 Causes burns.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- R37 Irritating to respiratory system.
- R43 May cause sensitisation by skin contact.
- R48/20/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
- R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R65 Harmful: may cause lung damage if swallowed.
- R7 May cause fire.
- H226 Flammable liquid and vapour.
- H242 Heating may cause a fire.
- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H312 Harmful in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H331 Toxic if inhaled.
- H335 May cause respiratory irritation.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.
- H411 Toxic to aquatic life with long lasting effects.

### Further information:

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and its subsequent amendments, and Commission Directive 1999/45/EC.



## Safety Data Sheet according to (EC) No 1907/2006

Page 1 of 1

Loctite 275

sds no. : 173044  
V002.1

Revision: 22.07.2011  
printing date: 26.09.2011

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

**Product identifier:**

Loctite 275

**Relevant identified uses of the substance or mixture and uses advised against:**

Intended use:  
Adhesive

**Details of the supplier of the safety data sheet:**

Henkel Limited  
Technologies House  
Wood Lane End  
HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 (0)1442 278000  
Fax-no.: +44 (0)1442 278071

ua-productsafety.uk@uk.henkel.com

**Emergency Telephone Number:**

24 Hours Emergency Tel: +44 (0)1442 278497

### SECTION 2: Hazards identification

**Classification of the substance or mixture:**

**Classification (DPD):**

Xn - Harmful  
R20 Harmful by inhalation.  
Xi - Irritant  
R36/37 Irritating to eyes and respiratory system.  
Dangerous for the environment  
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.



**Label elements (DPD):**

Xn - Harmful



**Risk phrases:**

R20 Harmful by inhalation.  
R36/37 Irritating to eyes and respiratory system.  
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety phrases:**

S23 Do not breathe vapour.  
S25 Avoid contact with eyes.  
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S51 Use only in well-ventilated areas.  
S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Additional labeling:**

For consumer use only: S2 Keep out of the reach of children  
S46 If swallowed, seek medical advice immediately and show this container or label.

**Contains:**

Cumene hydroperoxide

**Other hazards:**

None if used properly.

**SECTION 3: Composition/information on ingredients**

**General chemical description:**

Methacrylate resin based threadlocker

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Cumene hydroperoxide 80-15-9	201-254-7	> 1 - < 3 %	Acute toxicity 4; Dermal H312 Specific target organ toxicity - repeated exposure 2 H373 Acute toxicity 3; Inhalation H331 Acute toxicity 4; Oral H302 Organic peroxides E H242 Chronic hazards to the aquatic environment 2 H411 Skin corrosion 1B H314
Cumene 98-82-8	202-704-5	> 0,1 - < 1 %	Flammable liquids 3 H226 Aspiration hazard 1 H304 Specific target organ toxicity - single exposure 3 H335 Chronic hazards to the aquatic environment 2 H411
N,N-dimethyl-o-toluidine 609-72-3	210-199-8	> 0,1 - < 1 %	Acute toxicity 3; Inhalation H331 Acute toxicity 3; Dermal H311 Acute toxicity 3; Oral H301 Specific target organ toxicity - repeated exposure 2 H373 Chronic hazards to the aquatic environment 3 H412

Only dangerous ingredients for which a CLP classification is already available are displayed in this table.  
For full text of the H - statements and other abbreviations see section 16 "Other information".  
Substances without classification may have community workplace exposure limits available.

**Declaration of ingredients according to DPD (EC) No 1999/45:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Cumene hydroperoxide 80-15-9	201-254-7	> 1 - < 3 %	T - Toxic; R23 Xn - Harmful; R21/22, R48/20/22 O - Oxidizing; R7 C - Corrosive; R34 N - Dangerous for the environment; R51, R53
Cumene 98-82-8	202-704-5	> 0,1 - < 1 %	R10 Xn - Harmful; R65 Xi - Irritant; R37 N - Dangerous for the environment; R51, R53
N,N-dimethyl-o-toluidine 609-72-3	210-199-8	> 0,1 - < 1 %	R52, R53 T - Toxic; R23/24/25 R33

For full text of the R-Phrases indicated by codes see section 16 'Other Information'.  
Substances without classification may have community workplace exposure limits available.

**SECTION 4: First aid measures****Description of first aid measures:****Inhalation:**

Move to fresh air. If symptoms persist, seek medical advice.

**Skin contact:**

Rinse with running water and soap.  
Seek medical advice.

**Eye contact:**

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

**Ingestion:**

Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting.  
Seek medical advice.

**Most important symptoms and effects, both acute and delayed:**

**EYE:** Irritation, conjunctivitis.

**RESPIRATORY:** Irritation, coughing, shortness of breath, chest tightness.

**INGESTION:** Nausea, vomiting, diarrhoea, abdominal pain.

**Indication of any immediate medical attention and special treatment needed:**

See section: Description of first aid measures

## SECTION 5: Firefighting measures

**Combustion behaviour:**

Non flammable product (flash point is greater than 100°C (CC))

**Extinguishing media:**

**Suitable extinguishing media:**

Foam, extinguishing powder, carbon dioxide.

**Special hazards arising from the substance or mixture:**

Trace amounts of toxic and/or irritating fumes may be released and the use of breathing apparatus is recommended.

## SECTION 6: Accidental release measures

**Personal precautions, protective equipment and emergency procedures:**

Avoid skin and eye contact.  
Ensure adequate ventilation.

**Environmental precautions:**

Do not let product enter drains.

**Methods and material for containment and cleaning up:**

For small spills wipe up with paper towel and place in container for disposal.  
For large spills absorb onto inert absorbent material and place in sealed container for disposal.

**Reference to other sections:**

See advice in chapter 8

## SECTION 7: Handling and storage

**Precautions for safe handling:**

Use only in well-ventilated areas.  
Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation.

**Hygiene measures:**

Wash hands before work breaks and after finishing work.  
Do not eat, drink or smoke while working.  
Good industrial hygiene practices should be observed.

**Conditions for safe storage, including any incompatibilities:**

Store in original containers at 8-21°C (46.4-69.8°F) and do not return residual materials to containers as contamination may reduce the shelf life of the bulk product.

**Specific end use(s):**

Adhesive

**SECTION 8: Exposure controls/personal protection****Control parameters:**

Valid for  
Great Britain

Ingredient	ppm	mg/m <sup>3</sup>	Type	Category	Remarks
SILICA, AMORPHOUS, RESPIRABLE DUST 112945-52-5		2,4	Time Weighted Average (TWA):		EH40 WEL
SILICA, AMORPHOUS, INHALABLE DUST 112945-52-5		6	Time Weighted Average (TWA):		EH40 WEL
CUMENE 98-82-8	25	125	Time Weighted Average (TWA):		EH40 WEL
CUMENE 98-82-8	50	250	Short Term Exposure Limit (STEL):		EH40 WEL
CUMENE 98-82-8			Skin designation:	Can be absorbed through the skin.	EH40 WEL
CUMENE 98-82-8			Skin designation:	Can be absorbed through the skin.	ECLTV
CUMENE 98-82-8	50	250	Short Term Exposure Limit (STEL):	Indicative	ECLTV
CUMENE 98-82-8	20	100	Time Weighted Average (TWA):	Indicative	ECLTV

**Exposure controls:**

## Respiratory protection:

Use only in well-ventilated areas.

## Hand protection:

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):

nitrile rubber (NBR; >= 0.4 mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR; >= 0.4 mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

## Eye protection:

Wear protective glasses.

## Skin protection:

Wear suitable protective clothing.

**SECTION 9: Physical and chemical properties**

pH

3,00 - 6,00

()

Initial boiling point

> 200,0 °C (> 200,0 200,0 °C)

Flash point	> 100 °C (> 100 100 °C); None
Decomposition temperature	No data available / Not applicable
Vapour pressure (25,0 °C (77 °F))	< 0,1300000 mbar
Density ( )	1,0800 g/cm3
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative) (Solvent: Water)	Not miscible
Solubility (qualitative) (Solvent: Acetone)	Miscible
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	No data available / Not applicable
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	No data available / Not applicable
Vapor density	No data available / Not applicable
Oxidising properties	No data available / Not applicable

**Other information:**

No data available / Not applicable

**SECTION 10: Stability and reactivity****Reactivity:**

- Peroxides.
- Reaction with strong bases
- Reaction with strong acids.
- Reaction with strong oxidants.

**Chemical stability:**

Stable under recommended storage conditions.

**Possibility of hazardous reactions:**

See section reactivity

**Conditions to avoid:**

Stable under normal conditions of storage and use.  
No decomposition if stored and applied as directed.

**SECTION 11: Toxicological information****General toxicological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Oral toxicity:**

May cause irritation to the digestive tract.  
This material is considered to have low toxicity if swallowed.

**Inhalative toxicity:**

Harmful by inhalation.  
Irritating to respiratory system

**Skin irritation:**

This product is considered to have low dermal toxicity.  
Prolonged or repeated contact may cause skin irritation.

**Eye irritation:**  
Irritating to eyes.

**Acute toxicity:**

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	LD50	550 mg/kg	oral	4 h	rat	
	LC50	220 ppm	inhalation		rat	
	LD50	500 mg/kg	dermal		rat	

**Skin corrosion/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	corrosive		rabbit	

**Germ cell mutagenicity:**

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	positive	bacterial reverse mutation assay (e.g Ames test)	without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Cumene hydroperoxide 80-15-9	negative	dermal		mouse	

## SECTION 12: Ecological information

**General ecological information:**

Harmful to aquatic organisms.  
May cause long-term adverse effects in the aquatic environment.  
Do not empty into drains / surface water / ground water.  
The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Ecotoxicity:**

Harmful to aquatic organisms.  
May cause long-term adverse effects in the aquatic environment.

**Mobility:**

Cured adhesives are immobile.

**Bioaccumulative potential:**

Does not bioaccumulate.

**Toxicity:**

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	LC50	3,9 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Cumene hydroperoxide 80-15-9	EC50	18 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Cumene hydroperoxide 80-15-9	ErC50	3,1 mg/l	Algae	72 h	Pseudokirchnerella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Cumene 98-82-8	LC50	4,8 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Cumene 98-82-8	EC50	4 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Cumene 98-82-8	EC50	2,6 mg/l	Algae	72 h	Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)

**Persistence and degradability:**

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
Cumene hydroperoxide 80-15-9			18 %	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)
Cumene 98-82-8		aerobic	86 %	

**Bioaccumulative potential / Mobility in soil:**

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Cumene hydroperoxide 80-15-9		9,1				OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)
Cumene hydroperoxide 80-15-9	2,16					
Cumene 98-82-8		35,5		Carassius auratus		OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)
Cumene 98-82-8	3,55				23 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

**SECTION 13: Disposal considerations****Waste treatment methods:**

## Product disposal:

Dispose of in accordance with local and national regulations.

Contribution of this product to waste is very insignificant in comparison to article in which it is used

## Disposal of uncleaned packages:

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

## Waste code

08 04 09 waste adhesives and sealants containing organic solvents and other dangerous substances

## SECTION 14: Transport information

### General information:

Not hazardous according to RID, ADR, ADNR, IMDG, IATA-DGR.

## SECTION 15: Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture:

VOC content < 3,00 %  
(1999/13/EC)

## SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

R10 Flammable.  
R21/22 Harmful in contact with skin and if swallowed.  
R23 Toxic by inhalation.  
R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.  
R33 Danger of cumulative effects.  
R34 Causes burns.  
R37 Irritating to respiratory system.  
R48/20/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.  
R51 Toxic to aquatic organisms.  
R52 Harmful to aquatic organisms.  
R53 May cause long-term adverse effects in the aquatic environment.  
R65 Harmful: may cause lung damage if swallowed.  
R7 May cause fire.

H226 Flammable liquid and vapour.  
H242 Heating may cause a fire.  
H301 Toxic if swallowed.  
H302 Harmful if swallowed.  
H304 May be fatal if swallowed and enters airways.  
H311 Toxic in contact with skin.  
H312 Harmful in contact with skin.  
H314 Causes severe skin burns and eye damage.  
H331 Toxic if inhaled.  
H335 May cause respiratory irritation.  
H373 May cause damage to organs through prolonged or repeated exposure.  
H411 Toxic to aquatic life with long lasting effects.  
H412 Harmful to aquatic life with long lasting effects.

### Further information:

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and its subsequent amendments, and Commission Directive 1999/45/EC.





## Safety Data Sheet according to (EC) No 1907/2006

Page 1 of 10

Loctite 542

sds no. : 168433  
V003.3

Revision: 21.06.2012  
printing date: 21.08.2012

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Loctite 542

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use:  
Anaerobic Sealant

#### 1.3. Details of the supplier of the safety data sheet

Henkel Ireland Limited  
Product Safety & Regulatory Affairs  
Tallaght Business Park, Whitestown  
Dublin 24

Ireland

Phone: +353 (14046444)  
Fax-no.: +353 (14519926)

ua-productsafety.uk@uk.henkel.com

#### 1.4. Emergency telephone number

24 Hours Emergency Tel: +44 (0)1442 278497

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (DPD):

Xn - Harmful  
R20 Harmful by inhalation.  
Xi - Irritant  
R36/37 Irritating to eyes and respiratory system.  
Dangerous for the environment  
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### 2.2. Label elements

**Label elements (DPD):**

Xn - Harmful



**Risk phrases:**

R20 Harmful by inhalation.

R36/37 Irritating to eyes and respiratory system.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety phrases:**

S23 Do not breathe vapour.

S25 Avoid contact with eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S51 Use only in well-ventilated areas.

S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Additional labeling:**

For consumer use only: S2 Keep out of the reach of children

S46 If swallowed, seek medical advice immediately and show this container or label.

**Contains:**

Cumene hydroperoxide

**2.3. Other hazards**

None if used properly.

**SECTION 3: Composition/information on ingredients**

**General chemical description:**

Anaerobic Sealant

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Cumene hydroperoxide 80-15-9	201-254-7	> 1- < 3 %	Acute toxicity 4; Dermal H312 Specific target organ toxicity - repeated exposure 2 H373 Acute toxicity 3; Inhalation H331 Acute toxicity 4; Oral H302 Organic peroxides E H242 Chronic hazards to the aquatic environment 2 H411 Skin corrosion 1B H314
Cumene 98-82-8	202-704-5	> 0,1- < 1 %	Flammable liquids 3 H226 Aspiration hazard 1 H304 Specific target organ toxicity - single exposure 3 H335 Chronic hazards to the aquatic environment 2 H411
N,N-dimethyl-o-toluidine 609-72-3	210-199-8	> 0,1- < 0,9 %	Acute toxicity 3; Inhalation H331 Acute toxicity 3; Dermal H311 Acute toxicity 3; Oral H301 Specific target organ toxicity - repeated exposure 2 H373 Chronic hazards to the aquatic environment 3 H412

For full text of the H - statements and other abbreviations see section 16 "Other information".  
Substances without classification may have community workplace exposure limits available.

**Declaration of ingredients according to DPD (EC) No 1999/45:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Cumene hydroperoxide 80-15-9	201-254-7	> 1 - < 3 %	T - Toxic; R23 Xn - Harmful; R21/22, R48/20/22 O - Oxidizing; R7 C - Corrosive; R34 N - Dangerous for the environment; R51/53
Cumene 98-82-8	202-704-5	> 0,1 - < 1 %	R10 Xn - Harmful; R65 Xi - Irritant; R37 N - Dangerous for the environment; R51/53
N,N-dimethyl-o-toluidine 609-72-3	210-199-8	> 0,1 - < 0,9 %	T - Toxic; R23/24/25 R33 R52/53

For full text of the R-Phrases indicated by codes see section 16 'Other Information'.  
Substances without classification may have community workplace exposure limits available.

**SECTION 4: First aid measures****4.1. Description of first aid measures**

Inhalation:

Move to fresh air. If symptoms persist, seek medical advice.

**Skin contact:**

Rinse with running water and soap.  
Seek medical advice.

**Eye contact:**

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

**Ingestion:**

Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting.  
Seek medical advice.

**4.2. Most important symptoms and effects, both acute and delayed**

**EYE:** Irritation, conjunctivitis.

**RESPIRATORY:** Irritation, coughing, shortness of breath, chest tightness.

**4.3. Indication of any immediate medical attention and special treatment needed**

See section: Description of first aid measures

## SECTION 5: Firefighting measures

**5.1. Extinguishing media**

**Suitable extinguishing media:**

Carbon dioxide, foam, powder

**Extinguishing media which must not be used for safety reasons:**

None known

**5.2. Special hazards arising from the substance or mixture**

In the event of a fire, carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>) can be released.

In case of fire, keep containers cool with water spray.

**5.3. Advice for firefighters**

Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

**Additional information:**

In case of fire, keep containers cool with water spray.

## SECTION 6: Accidental release measures

**6.1. Personal precautions, protective equipment and emergency procedures**

Avoid skin and eye contact.

Ensure adequate ventilation.

See advice in chapter 8

**6.2. Environmental precautions**

Do not let product enter drains.

**6.3. Methods and material for containment and cleaning up**

For small spills wipe up with paper towel and place in container for disposal.

For large spills absorb onto inert absorbent material and place in sealed container for disposal.

Dispose of contaminated material as waste according to Chapter 13.

**6.4. Reference to other sections**

See advice in chapter 8

## SECTION 7: Handling and storage

**7.1. Precautions for safe handling**

Use only in well-ventilated areas.

Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation.

**Hygiene measures:**

Wash hands before work breaks and after finishing work.  
Do not eat, drink or smoke while working.  
Good industrial hygiene practices should be observed.

**7.2. Conditions for safe storage, including any incompatibilities**

Store in original containers at 8-21°C (46.4-69.8°F) and do not return residual materials to containers as contamination may reduce the shelf life of the bulk product.

**7.3. Specific end use(s)**

Anaerobic Sealant

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters**

Valid for  
Great Britain

Ingredient	ppm	mg/m <sup>3</sup>	Type	Category	Remarks
CUMENE 98-82-8	25	125	Time Weighted Average (TWA):		EH40 WEL
CUMENE 98-82-8	50	250	Short Term Exposure Limit (STEL):		EH40 WEL
CUMENE 98-82-8			Skin designation:	Can be absorbed through the skin.	EH40 WEL
CUMENE 98-82-8			Skin designation:	Can be absorbed through the skin.	ECLTV
CUMENE 98-82-8	50	250	Short Term Exposure Limit (STEL):	Indicative	ECLTV
CUMENE 98-82-8	20	100	Time Weighted Average (TWA):	Indicative	ECLTV

**8.2. Exposure controls:****Respiratory protection:**

Use only in well-ventilated areas.

**Hand protection:**

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq$  0.4 mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq$  0.4 mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

**Eye protection:**

Wear protective glasses.

**Skin protection:**

Wear suitable protective clothing.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Appearance	liquid brown
Odor	characteristic
pH ( )	3 - 6
Initial boiling point	Not determined
Flash point	> 100 °C (> 212 °F)
Decomposition temperature	No data available / Not applicable
Vapour pressure	0,1 mm hg
Density ( )	1,08 g/cm <sup>3</sup>
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative) (Solvent: Water)	Not miscible
Solubility (qualitative)	Slight
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	No data available / Not applicable
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	Not available.
Vapor density	Not available.
Oxidising properties	No data available / Not applicable

**9.2. Other information**

No data available / Not applicable

**SECTION 10: Stability and reactivity****10.1. Reactivity**

Reaction with strong acids.  
Reacts with strong oxidants.

**10.2. Chemical stability**

Stable under recommended storage conditions.

**10.3. Possibility of hazardous reactions**

See section reactivity

**10.4. Conditions to avoid**

Stable

**10.5. Incompatible materials**

None if used properly.

**10.6. Hazardous decomposition products**

Irritating organic vapours.  
Oxides of carbon.  
Sulphur oxides  
nitrogen oxides

**SECTION 11: Toxicological information****11.1. Information on toxicological effects****General toxicological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Oral toxicity:**

May cause irritation to the digestive tract.

**Inhalative toxicity:**

Harmful by inhalation.  
Irritating to respiratory system

**Skin irritation:**

Prolonged or repeated contact may cause skin irritation.

**Eye irritation:**

Irritating to eyes.

**Acute toxicity:**

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	LD50	550 mg/kg	oral	4 h	rat	
	LC50	220 ppm	inhalation		rat	
	LD50	500 mg/kg	dermal		rat	

**Skin corrosion/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	corrosive		rabbit	

**Germ cell mutagenicity:**

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	positive	bacterial reverse mutation assay (e.g Ames test)	without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Cumene hydroperoxide 80-15-9	negative	dermal		mouse	

**SECTION 12: Ecological information****General ecological information:**

Cured Loctite products are typical polymers and do not pose any immediate environmental hazards.

Do not empty into drains / surface water / ground water.

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Persistence and Biodegradability:**

The product is not biodegradable.

**Bioaccumulative potential:**

No data available.

**Other adverse effects:**

Do not empty into drains, soil or bodies of water.

**12.1. Toxicity**

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Cumene hydroperoxide 80-15-9	LC50	3,9 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Cumene hydroperoxide 80-15-9	EC50	18 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Cumene hydroperoxide 80-15-9	ErC50	3,1 mg/l	Algae	72 h	Pseudokirchnerella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Cumene 98-82-8	LC50	4,8 mg/l	Fish	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Cumene 98-82-8	EC50	4 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Cumene 98-82-8	EC50	2,6 mg/l	Algae	72 h	Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)

**12.2. Persistence and degradability**

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
Cumene hydroperoxide 80-15-9			18 %	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)
Cumene 98-82-8		aerobic	86 %	

**12.3. Bioaccumulative potential / 12.4. Mobility in soil**

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Cumene hydroperoxide 80-15-9		9,1		calculation		OECD Guideline 305 (Bioconcentration: Flow- through Fish Test)
Cumene hydroperoxide 80-15-9	2,16					
Cumene 98-82-8		35,5		Carassius auratus		OECD Guideline 305 (Bioconcentration: Flow- through Fish Test)
Cumene 98-82-8	3,55				23 °C	OECD Guideline 107 (Partition Coefficient (n- octanol / water), Shake Flask Method)

**SECTION 13: Disposal considerations****13.1. Waste treatment methods**



Product disposal:

Dispose of in accordance with local and national regulations.  
Contribution of this product to waste is very insignificant in comparison to article in which it is used

Disposal of uncleaned packages:

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

Waste code

08 04 09 waste adhesives and sealants containing organic solvents and other dangerous substances

### SECTION 14: Transport information

**General information:**

Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

### SECTION 15: Regulatory information

**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

VOC content < 5 %  
(1999/13/EC)

## SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

- R10 Flammable.
- R21/22 Harmful in contact with skin and if swallowed.
- R23 Toxic by inhalation.
- R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
- R33 Danger of cumulative effects.
- R34 Causes burns.
- R37 Irritating to respiratory system.
- R48/20/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
- R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R65 Harmful: may cause lung damage if swallowed.
- R7 May cause fire.
- H226 Flammable liquid and vapour.
- H242 Heating may cause a fire.
- H301 Toxic if swallowed.
- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H311 Toxic in contact with skin.
- H312 Harmful in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H331 Toxic if inhaled.
- H335 May cause respiratory irritation.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H411 Toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.

### Further information:

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and its subsequent amendments, and Commission Directive 1999/45/EC.



## Safety Data Sheet according to (EC) No 1907/2006

Page 1 of 7

Loctite 5699

sds no. : 152852  
V002.1

Revision: 25.11.2010  
printing date: 21.08.2012

### 1. Identification of the substance/mixture and of the company/undertaking

**Product identifier:**

Loctite 5699

**Relevant identified uses of the substance or mixture and uses advised against:**

Intended use:  
Silicone sealant

**Details of the supplier of the safety data sheet:**

Henkel Ireland Limited  
Product Safety & Regulatory Affairs  
Tallaght Business Park, Whitestown  
Dublin 24

Ireland

Phone: +353 (14046444)  
Fax-no.: +353 (14519926)

ua-productsafety.uk@uk.henkel.com

**Emergency telephone number:**

24 Hours Emergency Tel: +44 (0)1442 278497

### 2. Hazards identification

**Classification of the substance or mixture:**

**Classification (DPD):**

carcinogenic, category 3  
R40 Limited evidence of a carcinogenic effect.  
Xi - Irritant  
R43 May cause sensitisation by skin contact.

**Label elements (DPD):**

Xn - Harmful

**Risk phrases:**

- R40 Limited evidence of a carcinogenic effect.  
R43 May cause sensitisation by skin contact.

**Safety phrases:**

- S23 Do not breathe vapour.  
S24 Avoid contact with skin.  
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S28 After contact with skin, wash immediately with plenty of water.  
S36/37 Wear suitable protective clothing and gloves.

**Contains:**

- Butanone oxime,  
Silicon compounds

**Other hazards:**

- Methyl ethyl ketoxime is formed during cure.

**3. Composition/information on ingredients****General chemical description:**

Silicone sealant

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EINECS REACH-Reg No.	content	Classification
Butanone oxime 96-29-7	202-496-6	1- 5 %	Carcinogenicity 2 H351 Serious eye damage 1 H318 Skin sensitizer 1 H317 Acute toxicity 4; Dermal H312

Only dangerous ingredients for which a CLP classification is already available are displayed in this table.  
For full text of the H - statements and other abbreviations see section 16 "Other information".  
Substances without classification may have community workplace exposure limits available.

**Declaration of ingredients according to DPD (EC) No 1999/45:**

Hazardous components CAS-No.	EINECS REACH-Reg No.	content	Classification
Silicon compounds		1 - 5 %	Xi - Irritant; R36/38, R43
Butanone oxime 96-29-7	202-496-6	1 - 5 %	carcinogenic, category 3; R40 Xn - Harmful; R21 Xi - Irritant; R41 R43

For full text of the R-Phrases indicated by codes see section 16 'Other Information'.  
Substances without classification may have community workplace exposure limits available.

Methyl ethyl ketoxime is formed during cure.

#### 4. First aid measures

**Description of first aid measures:**

**Inhalation:**

Move to fresh air. If symptoms persist, seek medical advice.

**Skin contact:**

Rinse with running water and soap.  
Obtain medical attention if irritation persists.

**Eye contact:**

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

**Ingestion:**

Do not induce vomiting.  
Seek medical advice.

**Most important symptoms and effects, both acute and delayed:**

May cause sensitization by skin contact.

**Indication of any immediate medical attention and special treatment needed:**

See section: Description of first aid measures

#### 5. Firefighting measures

**Extinguishing media:**

**Suitable extinguishing media:**

Carbon dioxide, foam, powder

**Extinguishing media which must not be used for safety reasons:**

None known

**Special hazards arising from the substance or mixture:**

Do not expose to direct heat.

**Advice for firefighters:**

Wear self-contained breathing apparatus.

#### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures:**

Avoid contact with skin and eyes.

**Environmental precautions:**

Do not let product enter drains.

**Methods and material for containment and cleaning up:**

Scrape up as much material as possible.  
Ensure adequate ventilation.  
Store in a partly filled, closed container until disposal.

#### 7. Handling and storage

**Precautions for safe handling:**

Use only in well-ventilated areas.  
Vapours should be extracted to avoid inhalation.

**Hygiene measures:**

Good industrial hygiene practices should be observed.  
Wash hands before work breaks and after finishing work.

**Conditions for safe storage, including any incompatibilities:**

Store in a cool, well-ventilated place.  
Never allow product to get in contact with water during storage

**Specific end use(s):**

Silicone sealant

## 8. Exposure controls/personal protection

**Control parameters:****Exposure controls:****Respiratory protection:**

Use only in well-ventilated areas.

**Hand protection:**

Please note that in practice the working life of chemical resistant gloves may be considerably reduced as a result of many influencing factors (e.g. temperature). Suitable risk assessment should be carried out by the end user. If signs of wear and tear are noticed then the gloves should be replaced.

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

**Eye protection:**

Wear protective glasses.

## 9. Physical and chemical properties

**Information on basic physical and chemical properties:**

Appearance	Paste Grey
Odor	odorless
pH	not applicable
Initial boiling point	Not applicable
Flash point	> 93 °C (> 199.4 °F)
Decomposition temperature	No data available.
Vapour pressure	< 5 mm hg
Density (20 °C (68 °F))	1,5 g/cm <sup>3</sup>
Bulk density	No data available.
Viscosity	No data available.
Viscosity (kinematic)	No data available.
Explosive properties	No data available.
Solubility (qualitative) (Solvent: Water)	Polymerises in presence of water.
Solidification temperature	No data available.
Melting point	Not available
Flammability	No data available.
Auto-ignition temperature	No data available.

Explosive limits	No data available.
Partition coefficient: n-octanol/water	No data available.
Evaporation rate	No data available.
Vapor density	No data available.
Oxidising properties	No data available.

**Other information:**

No data available.

## 10. Stability and reactivity

**Reactivity:**

Polymerises in presence of water.

**Chemical stability:**

Stable under recommended storage conditions.

**Possibility of hazardous reactions:**

See section reactivity

**Conditions to avoid:**

Stable  
Exposure to air or moisture over prolonged periods.

**Incompatible materials:**

No data available.

**Hazardous decomposition products:**

Methyl ethyl ketoxime formed during cure.

## 11. Toxicological information

**General toxicological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Oral toxicity:**

May cause irritation to the digestive tract.  
Ingestion of large quantities may cause liver or kidney damage.

**Inhalative toxicity:**

Methylethyl ketoxime released during polymerisation of oxime curing RTV silicones is irritating to the respiratory system

**Skin irritation:**

Methylethyl ketoxime released during polymerisation of oxime curing silicones. It is harmful in contact with skin and is a skin sensitizer.

**Eye irritation:**

May cause mild irritation to the eyes.

**Other remarks:**

Limited evidence of a carcinogenic effect  
Contains a substance classified R40 in the EU: >1%.

## 12. Ecological information

### General ecological information:

Cured Loctite products are typical polymers and do not pose any immediate environmental hazards. Precautions required with respect to Environmental Hazards of articles in which this product is used should be considered. The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

### Ecotoxicity:

Do not empty into drains / surface water / ground water.  
It is expected to be non hazardous to aquatic species.

### Mobility:

Cured adhesives are immobile.

### Persistence and Biodegradability:

The product is not biodegradable.

### Bioaccumulative potential:

Does not bioaccumulate.

### Toxicity:

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Butanone oxime 96-29-7	LC50	320 - 1.000 mg/l	Fish	96 h	Leuciscus idus	EU Method C.2 (Acute Toxicity for Daphnia) OECD Guideline 201 (Alga, Growth Inhibition Test)
Butanone oxime 96-29-7	EC50	> 500 mg/l	Daphnia	48 h	Daphnia magna	
Butanone oxime 96-29-7	EC50	83 mg/l	Algae	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	

### Bioaccumulative potential / Mobility in soil:

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Butanone oxime 96-29-7		0,5 - 0,6	42 d	Oryzias latipes	25 °C	OECD Guideline 305 C (Bioaccumulation: Test for the Degree of Bioconcentration in Fish) OECD Guideline 107 (Partition Coefficient (n- octanol / water), Shake Flask Method)
Butanone oxime 96-29-7	0,65				25 °C	

## 13. Disposal considerations

### Waste treatment methods:

#### Product disposal:

Dispose of in accordance with local and national regulations.  
Contribution of this product to waste is very insignificant in comparison to article in which it is used

#### Disposal of uncleaned packages:

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.  
Disposal must be made according to official regulations.

#### Waste code

08 04 09 waste adhesives and sealants containing organic solvents and other dangerous substances



#### 14. Transport information

**General information:**

Not hazardous according to RID, ADR, ADNR, IMDG, IATA-DGR.

#### 15. Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture:**

VOC content < 5,00 % (As defined in the Council Directive 2004/42/EC)  
(1999/13/EC)

#### 16. Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

R21 Harmful in contact with skin.  
R36/38 Irritating to eyes and skin.  
R40 Limited evidence of a carcinogenic effect.  
R41 Risk of serious damage to eyes.  
R43 May cause sensitisation by skin contact.

H312 Harmful in contact with skin.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H351 Suspected of causing cancer.

**Further information:**

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and its subsequent amendments, and Commission Directive 1999/45/EC.



## Safety Data Sheet according to (EC) No 1907/2006

Page 1 of 7

5900 HEAVY BODY ULTRA BLACK SILICONE

sds no. : 152855  
V002.1

Revision: 20.01.2011  
printing date: 21.08.2012

### 1. Identification of the substance/mixture and of the company/undertaking

**Product identifier:**

5900 HEAVY BODY ULTRA BLACK SILICONE

**Relevant identified uses of the substance or mixture and uses advised against:**

Intended use:  
Silicone sealant

**Details of the supplier of the safety data sheet:**

Henkel Ireland Limited  
Product Safety & Regulatory Affairs  
Tallaght Business Park, Whitestown  
Dublin 24

Ireland

Phone: +353 (14046444)  
Fax-no.: +353 (14519926)

ua-productsafety.uk@uk.henkel.com

**Emergency telephone number:**

24 Hours Emergency Tel: +44 (0)1442 278497

### 2. Hazards identification

**Classification of the substance or mixture:**

**Classification (DPD):**

Xi - Irritant  
R43 May cause sensitisation by skin contact.  
carcinogenic, category 3  
R40 Limited evidence of a carcinogenic effect.

**Label elements (DPD):**

Xn - Harmful

**Risk phrases:**

- R40 Limited evidence of a carcinogenic effect.  
R43 May cause sensitisation by skin contact.

**Safety phrases:**

- S23 Do not breathe vapour.  
S24 Avoid contact with skin.  
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S28 After contact with skin, wash immediately with plenty of water.  
S36/37 Wear suitable protective clothing and gloves.

**Contains:**

- Butanone oxime,  
Silicon compounds

**Other hazards:**

- Methyl ethyl ketoxime is formed during cure.

**3. Composition/information on ingredients****General chemical description:**

Silicone sealant

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Butanone oxime 96-29-7	202-496-6	1- 5 %	Carcinogenicity 2 H351 Serious eye damage 1 H318 Skin sensitizer 1 H317 Acute toxicity 4; Dermal H312

Only dangerous ingredients for which a CLP classification is already available are displayed in this table.  
For full text of the H - statements and other abbreviations see section 16 "Other information".  
Substances without classification may have community workplace exposure limits available.

**Declaration of ingredients according to DPD (EC) No 1999/45:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Silicon compounds		1 - 5 %	Xi - Irritant; R36/38, R43
Butanone oxime 96-29-7	202-496-6	1 - 5 %	carcinogenic, category 3; R40 Xn - Harmful; R21 Xi - Irritant; R41 R43

For full text of the R-Phrases indicated by codes see section 16 'Other Information'.  
Substances without classification may have community workplace exposure limits available.

Methyl ethyl ketoxime is formed during cure.

#### 4. First aid measures

**Description of first aid measures:**

**Inhalation:**

Move to fresh air. If symptoms persist, seek medical advice.

**Skin contact:**

Rinse with running water and soap.  
Obtain medical attention if irritation persists.

**Eye contact:**

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

**Ingestion:**

Do not induce vomiting.  
Seek medical advice.

**Most important symptoms and effects, both acute and delayed:**

May cause sensitization by skin contact.

**Indication of any immediate medical attention and special treatment needed:**

See section: Description of first aid measures

#### 5. Firefighting measures

**Extinguishing media:**

**Suitable extinguishing media:**

Carbon dioxide, foam, powder

**Extinguishing media which must not be used for safety reasons:**

None known

**Special hazards arising from the substance or mixture:**

Do not expose to direct heat.

**Advice for firefighters:**

Wear self-contained breathing apparatus.

#### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures:**

Avoid contact with skin and eyes.

**Environmental precautions:**

Do not let product enter drains.

**Methods and material for containment and cleaning up:**

Scrape up as much material as possible.  
Ensure adequate ventilation.  
Store in a partly filled, closed container until disposal.

#### 7. Handling and storage

**Precautions for safe handling:**

Use only in well-ventilated areas.  
Vapours should be extracted to avoid inhalation.

**Hygiene measures:**

Good industrial hygiene practices should be observed.  
Wash hands before work breaks and after finishing work.

**Conditions for safe storage, including any incompatibilities:**

Store in a cool, well-ventilated place.  
Never allow product to get in contact with water during storage

**Specific end use(s):**

Silicone sealant

## 8. Exposure controls/personal protection

**Control parameters:****Exposure controls:****Respiratory protection:**

Use only in well-ventilated areas.

**Hand protection:**

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

**Eye protection:**

Wear protective glasses.

## 9. Physical and chemical properties

**Information on basic physical and chemical properties:**

Appearance	paste black
Odor	Mild
pH	not applicable
Initial boiling point	Not applicable
Flash point	> 93 °C (> 199.4 °F); Tagliabue closed cup
Decomposition temperature	No data available / Not applicable
Vapour pressure	< 5 mm hg
Density	1,31 g/cm <sup>3</sup>
( )	
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative)	Polymerises in presence of water.
(Solvent: Water)	
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	No data available / Not applicable
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	No data available / Not applicable

Vapor density  
Oxidising properties

No data available / Not applicable  
No data available / Not applicable

**Other information:**

No data available / Not applicable

## 10. Stability and reactivity

**Reactivity:**

Polymerises in presence of water.

**Chemical stability:**

Stable under recommended storage conditions.

**Possibility of hazardous reactions:**

See section reactivity

**Conditions to avoid:**

Stable  
Exposure to air or moisture over prolonged periods.

**Hazardous decomposition products:**

Methyl ethyl ketoxime formed during cure.  
Methanol is liberated slowly upon exposure to moisture.

## 11. Toxicological information

**General toxicological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Oral toxicity:**

May cause irritation to the digestive tract.  
Ingestion of large quantities may cause liver or kidney damage.

**Inhalative toxicity:**

Methylethyl ketoxime released during polymerisation of oxime curing RTV silicones is irritating to the respiratory system

**Skin irritation:**

Methylethyl ketoxime released during polymerisation of oxime curing silicones. It is harmful in contact with skin and is a skin sensitizer.

**Eye irritation:**

May cause mild irritation to the eyes.

**Other remarks:**

Limited evidence of a carcinogenic effect  
Contains a substance classified R40 in the EU: >1%.

## 12. Ecological information

**General ecological information:**

Cured Loctite products are typical polymers and do not pose any immediate environmental hazards.  
Precautions required with respect to Environmental Hazards of articles in which this product is used should be considered.  
The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Ecotoxicity:**

Do not empty into drains / surface water / ground water.  
It is expected to be non hazardous to aquatic species.

**Mobility:**

Cured adhesives are immobile.

**Bioaccumulative potential:**

Does not bioaccumulate.

**Toxicity:**

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Butanone oxime 96-29-7	LC50	320 - 1.000 mg/l	Fish	96 h	Leuciscus idus	EU Method C.2 (Acute Toxicity for Daphnia) OECD Guideline 201 (Alga, Growth Inhibition Test)
Butanone oxime 96-29-7	EC50	> 500 mg/l	Daphnia	48 h	Daphnia magna	
Butanone oxime 96-29-7	EC50	83 mg/l	Algae	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	

**Bioaccumulative potential / Mobility in soil:**

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Butanone oxime 96-29-7	0,65	0,5 - 0,6	42 d	Oryzias latipes	25 °C	OECD Guideline 305 C (Bioaccumulation: Test for the Degree of Bioconcentration in Fish) OECD Guideline 107 (Partition Coefficient (n- octanol / water), Shake Flask Method)
Butanone oxime 96-29-7					25 °C	

**13. Disposal considerations****Waste treatment methods:****Product disposal:**

Dispose of in accordance with local and national regulations.

Contribution of this product to waste is very insignificant in comparison to article in which it is used

**Disposal of uncleaned packages:**

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

Disposal must be made according to official regulations.

**Waste code**

08 04 09 waste adhesives and sealants containing organic solvents and other dangerous substances

**14. Transport information****General information:**

Not hazardous according to RID, ADR, ADNR, IMDG, IATA-DGR.

**15. Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture:**

VOC content  
(1999/13/EC)

< 5 % (As defined in the Council Directive 2004/42/EC)

## 16. Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

- R21 Harmful in contact with skin.
- R36/38 Irritating to eyes and skin.
- R40 Limited evidence of a carcinogenic effect.
- R41 Risk of serious damage to eyes.
- R43 May cause sensitisation by skin contact.

- H312 Harmful in contact with skin.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H351 Suspected of causing cancer.

### Further information:

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and its subsequent amendments, and Commission Directive 1999/45/EC.





## Safety Data Sheet according to (EC) No 1907/2006

Page 1 of 10

Loctite 7063

sds no. : 179512  
V005.3

Revision: 22.08.2011  
printing date: 09.09.2011

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

**Product identifier:**

Loctite 7063

**Relevant identified uses of the substance or mixture and uses advised against:**

Intended use:  
Solvent based cleaner

**Details of the supplier of the safety data sheet:**

Henkel Limited  
Technologies House  
Wood Lane End  
HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 (0)1442 278000  
Fax-no.: +44 (0)1442 278071

ua-productsafety.uk@uk.henkel.com

**Emergency Telephone Number:**

24 Hours Emergency Tel: +44 (0)1442 278497

### SECTION 2: Hazards identification

**Classification of the substance or mixture:**

**Classification (DPD):**

F+ - Extremely flammable  
R12 Extremely flammable.  
Xi - Irritant  
R38 Irritating to skin.  
N - Dangerous for the environment  
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
R67 Vapours may cause drowsiness and dizziness.

**Label elements (DPD):**

N - Dangerous for the environment

Xi - Irritant

F+ - Extremely flammable

**Risk phrases:**

R12 Extremely flammable.

R38 Irritating to skin.

R67 Vapours may cause drowsiness and dizziness.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety phrases:**

S16 Keep away from sources of ignition - No smoking.

S23 Do not breathe vapour.

S24 Avoid contact with skin.

S51 Use only in well-ventilated areas.

S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Additional labeling:**

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. Do not spray on a naked flame or any incandescent material. Keep away from sources of ignition - No smoking.

Keep out of the reach of children

For consumer use only: S2 Keep out of the reach of children

S46 If swallowed, seek medical advice immediately and show this container or label.

**Other hazards:**

The aerosol container is under pressure. Do not expose to high temperatures.

**SECTION 3: Composition/information on ingredients****General chemical description:**

Solvent cleaner

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Ethanol denatured 64-17-5	200-578-6	10- 20 %	Flammable liquids 2 H225
Naphtha, hydrotreated light, <0,1% benzene 64742-49-0	265-151-9	50- 70 %	Flammable liquids 2 H225 Germ cell mutagenicity 1B H340 Chronic hazards to the aquatic environment 2 H411 Carcinogenicity 1B H350 Skin irritation 2 H315 Aspiration hazard 1 H304 Aspiration hazard 1 H304 Specific target organ toxicity - single exposure 3 H336

**Only dangerous ingredients for which a CLP classification is already available are displayed in this table.  
For full text of the H - statements and other abbreviations see section 16 "Other information".**

Substances without classification may have community workplace exposure limits available.

Declaration of ingredients according to DPD (EC) No 1999/45:

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Naphtha, hydrotreated light, <0,1% benzene 64742-49-0	265-151-9	>= 50 - <= 100 %	F - Highly flammable; R11 Xn - Harmful; R65 Xi - Irritant; R38 R67 N - Dangerous for the environment; R51/53
Ethanol 64-17-5	200-578-6	>= 10 - < 20 %	F - Highly flammable; R11
Methylal 109-87-5	203-714-2	>= 10 - < 20 %	F - Highly flammable; R11

For full text of the R-Phrases indicated by codes see section 16 'Other Information'.

Substances without classification may have community workplace exposure limits available.

#### SECTION 4: First aid measures

**Description of first aid measures:**

Inhalation:

Move to fresh air.  
Seek medical advice.

Skin contact:

Rinse with running water and soap.  
Seek medical advice.

Eye contact:

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

Ingestion:

Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

**Most important symptoms and effects, both acute and delayed:**

Vapors may cause drowsiness and dizziness.

SKIN: Redness, inflammation.

**Indication of any immediate medical attention and special treatment needed:**

See section: Description of first aid measures

#### SECTION 5: Firefighting measures

**Combustion behaviour:**

Solvent containing flammable product. In case of fire toxic gases are released.

**Extinguishing media:**

**Suitable extinguishing media:**

Foam, extinguishing powder, carbon dioxide.

**Extinguishing media which must not be used for safety reasons:**

None known

**Special hazards arising from the substance or mixture:**

Vapours may accumulate in low or confined areas, travel considerable distance to source of ignition, and flash back.  
Oxides of carbon, oxides of nitrogen, irritating organic vapors.

**Advice for firefighters:**

Wear self-contained breathing apparatus.

**Additional information:**

In case of fire, keep containers cool with water spray.

**SECTION 6: Accidental release measures****Personal precautions, protective equipment and emergency procedures:**

Remove sources of ignition.  
Ensure adequate ventilation.

**Environmental precautions:**

Do not let product enter drains.

**Methods and material for containment and cleaning up:**

Wipe up using absorbent material.  
Store in a partly filled, closed container until disposal.  
Dispose of contaminated material as waste according to Chapter 13.

**Reference to other sections:**

See advice in chapter 8

**SECTION 7: Handling and storage****Precautions for safe handling:**

Keep away from sources of ignition - no smoking.  
Vapours should be extracted to avoid inhalation.  
Use only in well-ventilated areas.

**Hygiene measures:**

Wash hands before work breaks and after finishing work.  
Do not eat, drink or smoke while working.  
Good industrial hygiene practices should be observed.

**Conditions for safe storage, including any incompatibilities:**

Store in a cool, dry place.  
Do not store near sources of heat or ignition, or reactive materials.

**Specific end use(s):**

Solvent based cleaner

**SECTION 8: Exposure controls/personal protection****Control parameters:**

Valid for  
Great Britain

Ingredient	ppm	mg/m <sup>3</sup>	Type	Category	Remarks
ETHANOL 64-17-5	1.000	1.920	Time Weighted Average (TWA):		EH40 WEL
DIMETHOXYMETHANE 109-87-5	1.250	3.950	Short Term Exposure Limit (STEL):		EH40 WEL
DIMETHOXYMETHANE 109-87-5	1.000	3.160	Time Weighted Average (TWA):		EH40 WEL

**Exposure controls:****Respiratory protection:**

Do not inhale vapors and fumes.  
Use only in well-ventilated areas.

**Hand protection:**

In circumstances where there is a potential for prolonged or repeated skin contact, the use of disposable gloves (polyethylene, natural rubber or equivalent ester-resistant material) is recommended.

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

**Eye protection:**

Wear protective glasses.

**Skin protection:**

Suitable protective clothing

**SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties:**

Appearance	aerosol colourless
Odor	hydrocarbons
pH	Not applicable
Initial boiling point	-78 °C (-108.4 °F)
Flash point	-18 °C (0.4 °F)
Decomposition temperature	No data available / Not applicable
Vapour pressure	No data available / Not applicable
Density	0,742 g/cm <sup>3</sup>
( )	
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative)	Not miscible
(Solvent: Water)	
Solubility (qualitative)	Miscible
(Solvent: Acetone)	
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	No data available / Not applicable
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	No data available / Not applicable
Vapor density	No data available / Not applicable
Oxidising properties	No data available / Not applicable

**Other information:**

No data available / Not applicable

**SECTION 10: Stability and reactivity****Reactivity:**

Strong oxidizing agents.

**Chemical stability:**

Stable under recommended storage conditions.

**Possibility of hazardous reactions:**

See section reactivity

**Conditions to avoid:**Stable under normal conditions of storage and use.  
Heat, flames, sparks and other sources of ignition.**Incompatible materials:**

No data available.

**Hazardous decomposition products:**

None if used for intended purpose.

**SECTION 11: Toxicological information****General toxicological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Oral toxicity:**Harmful if swallowed.  
Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause bronchopneumonia or pulmonary oedema.**Inhalative toxicity:**

May cause headache and dizziness.

**Skin irritation:**Solvent may remove essential oils from the skin making it susceptible to attack from other chemicals.  
Irritating to the skin.**Eye irritation:**

May cause mild irritation to the eyes.

**Acute toxicity:**

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Ethanol 64-17-5	LD50 LC50 LDLo	13.700 mg/kg 124,7 mg/l 20.000 mg/kg	oral inhalation dermal	4 h	rat rat rabbit	

**Skin corrosion/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Ethanol 64-17-5	not irritating		rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

**Serious eye damage/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Ethanol 64-17-5	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

**Respiratory or skin sensitization:**

Hazardous components CAS-No.	Result	Test type	Species	Method
Ethanol 64-17-5	not sensitising	Guinea pig maximisation test	guinea pig	

**Germ cell mutagenicity:**

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Ethanol 64-17-5	negative negative	bacterial reverse mutation assay (e.g Ames test) in vitro mammalian chromosome aberration test	with and without without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)

**SECTION 12: Ecological information****General ecological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Ecotoxicity:**

Toxic to aquatic organisms  
May cause long-term adverse effects in the aquatic environment.  
Do not empty into drains / surface water / ground water.

**Mobility:**

The product evaporates readily.

**Persistence and Biodegradability:**

No data available.

**Bioaccumulative potential:**

No data available.

**Toxicity:**

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Naphtha, hydrotreated light, <0,1% benzene 64742-49-0	LC50	1 - 10 mg/l	Fish			OECD Guideline 203 (Fish, Acute Toxicity Test)
Naphtha, hydrotreated light, <0,1% benzene 64742-49-0	EC50	3 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Naphtha, hydrotreated light, <0,1% benzene 64742-49-0	EC50	1 - 10 mg/l	Algae			OECD Guideline 201 (Alga, Growth Inhibition Test)
Ethanol 64-17-5	LC50	14,2 g/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Ethanol 64-17-5	EC50	9.268 - 14.221 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Ethanol 64-17-5	EC50	> 5.000 mg/l	Algae	7 d	Scenedesmus quadricauda	OECD Guideline 201 (Alga, Growth Inhibition Test)
Methylal 109-87-5	LC50	6.990 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Methylal 109-87-5	EC50	> 500 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

**Persistence and degradability:**

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
Ethanol 64-17-5	readily biodegradable	aerobic	80 - 85 %	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
Methylal 109-87-5			88 %	

**Bioaccumulative potential / Mobility in soil:**

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Ethanol 64-17-5	-0,31					

**SECTION 13: Disposal considerations****Waste treatment methods:**

Product disposal:

Dispose of according to regulations.

Disposal of uncleaned packages:

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

Disposal must be made according to official regulations.

Waste code

14 06 03 Other solvents and solvent mixtures

**SECTION 14: Transport information****Road transport ADR:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number:  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS  
Tunnelcode: (D)  
Additional substance property: Environmentally Hazardous

**Railroad transport RID:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number: 23  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS  
Tunnelcode:  
Additional substance property: Environmentally Hazardous



**Inland water transport ADN:**

Class:	2
Packaging group:	
Classification code:	5F
Hazard ident. number:	
UN no.:	1950
Label:	2.1
Technical name:	AEROSOLS
Additional substance property:	Environmentally Hazardous

**Marine transport IMDG:**

Class:	2.1
Packaging group:	
UN no.:	1950
Label:	2.1
EmS:	F-D ,S-U
Seawater pollutant:	Marine pollutant
Proper shipping name:	AEROSOLS (Solvent Naphtha (Petroleum), Light Aromatic)

**Air transport IATA:**

Class:	2.1
Packaging group:	
Packaging instructions (passenger)	203
Packaging instructions (cargo)	203
UN no.:	1950
Label:	2.1
Proper shipping name:	Aerosols, flammable

**SECTION 15: Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture:**

VOC content (1999/13/EC)	95 %
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## SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

R11 Highly flammable.

R38 Irritating to skin.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R65 Harmful: may cause lung damage if swallowed.

R67 Vapours may cause drowsiness and dizziness.

H225 Highly flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

H340 May cause genetic defects.

H350 May cause cancer.

H411 Toxic to aquatic life with long lasting effects.

### Further information:

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and its subsequent amendments, and Commission Directive 1999/45/EC.

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.



## Safety Data Sheet according to (EC) No 1907/2006

Page 1 of 11

Loctite 7063

sds no. : 179512  
V005.6

Revision: 02.04.2012  
printing date: 21.08.2012

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Loctite 7063

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use:

Solvent based cleaner

#### 1.3. Details of the supplier of the safety data sheet

Henkel Ireland Limited  
Product Safety & Regulatory Affairs  
Tallaght Business Park, Whitestown  
Dublin 24

Ireland

Phone: +353 (14046444)

Fax-no.: +353 (14519926)

ua-productsafety.uk@uk.henkel.com

#### 1.4. Emergency telephone number

24 Hours Emergency Tel: +44 (0)1442 278497

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (DPD):

F+ - Extremely flammable

R12 Extremely flammable.

Xi - Irritant

R38 Irritating to skin.

N - Dangerous for the  
environment

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R67 Vapours may cause drowsiness and dizziness.

#### 2.2. Label elements

**Label elements (DPD):**

N - Dangerous for the environment

Xi - Irritant

F+ - Extremely flammable

**Risk phrases:**

R12 Extremely flammable.

R38 Irritating to skin.

R67 Vapours may cause drowsiness and dizziness.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety phrases:**

S16 Keep away from sources of ignition - No smoking.

S23 Do not breathe vapour.

S24 Avoid contact with skin.

S51 Use only in well-ventilated areas.

S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Additional labeling:**

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. Do not spray on a naked flame or any incandescent material. Keep away from sources of ignition - No smoking.

Keep out of the reach of children

For consumer use only: S2 Keep out of the reach of children

S46 If swallowed, seek medical advice immediately and show this container or label.

**2.3. Other hazards**

The aerosol container is under pressure. Do not expose to high temperatures.

**SECTION 3: Composition/information on ingredients****General chemical description:**

Solvent cleaner

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Naphtha, hydrotreated light, <0,1% benzene 64742-49-0	265-151-9 01-2119475514-35 01-2119484651-34	> 50- < 70 %	Flammable liquids 2 H225 Aspiration hazard 1 H304 Skin irritation 2 H315 Specific target organ toxicity - single exposure 3 H336 Chronic hazards to the aquatic environment 2 H411
Ethanol 64-17-5	200-578-6 01-2119457610-43	> 10- < 20 %	Serious eye irritation 2 H319 Flammable liquids 2 H225
Methylal 109-87-5	203-714-2	> 10- < 20 %	No data available.
Carbon dioxide 124-38-9	204-696-9	2,5- < 10 %	No data available.

For full text of the H - statements and other abbreviations see section 16 "Other information".

Substances without classification may have community workplace exposure limits available.

**Declaration of ingredients according to DPD (EC) No 1999/45:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Naphtha, hydrotreated light, <0,1% benzene 64742-49-0	265-151-9 01-2119475514-35 01-2119484651-34	> 50 - < 70 %	F - Highly flammable; R11 Xn - Harmful; R65 Xi - Irritant; R38 R67 N - Dangerous for the environment; R51/53
Ethanol 64-17-5	200-578-6 01-2119457610-43	> 10 - < 20 %	F - Highly flammable; R11
Methylal 109-87-5	203-714-2	> 10 - < 20 %	F - Highly flammable; R11
Carbon dioxide 124-38-9	204-696-9	2,5 - < 10 %	

For full text of the R-Phrases indicated by codes see section 16 'Other Information'.

Substances without classification may have community workplace exposure limits available.

**Declaration of ingredients according to Detergent Regulation 648/2004/EC**

> 30 %                      aliphatic hydrocarbons

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**Inhalation:**

Move to fresh air.  
Seek medical advice.

**Skin contact:**

Rinse with running water and soap.  
Seek medical advice.

**Eye contact:**

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

**Ingestion:**

Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

### 4.2. Most important symptoms and effects, both acute and delayed

Vapors may cause drowsiness and dizziness.

SKIN: Redness, inflammation.

### 4.3. Indication of any immediate medical attention and special treatment needed

See section: Description of first aid measures

## SECTION 5: Firefighting measures

### Combustion behaviour:

Solvent containing flammable product. In case of fire toxic gases are released.

### 5.1. Extinguishing media

**Suitable extinguishing media:**

Foam, extinguishing powder, carbon dioxide.

**Extinguishing media which must not be used for safety reasons:**

None known

**5.2. Special hazards arising from the substance or mixture**

Vapours may accumulate in low or confined areas, travel considerable distance to source of ignition, and flash back.  
Oxides of carbon, oxides of nitrogen, irritating organic vapors.

**5.3. Advice for firefighters**

Wear self-contained breathing apparatus.

**Additional information:**

In case of fire, keep containers cool with water spray.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

Remove sources of ignition.  
Ensure adequate ventilation.

**6.2. Environmental precautions**

Do not let product enter drains.

**6.3. Methods and material for containment and cleaning up**

Wipe up using absorbent material.  
Store in a partly filled, closed container until disposal.  
Dispose of contaminated material as waste according to Chapter 13.

**6.4. Reference to other sections**

See advice in chapter 8

**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

Keep away from sources of ignition - no smoking.  
Vapours should be extracted to avoid inhalation.  
Use only in well-ventilated areas.

**Hygiene measures:**

Wash hands before work breaks and after finishing work.  
Do not eat, drink or smoke while working.  
Good industrial hygiene practices should be observed.

**7.2. Conditions for safe storage, including any incompatibilities**

Store in a cool, dry place.  
Do not store near sources of heat or ignition, or reactive materials.

**7.3. Specific end use(s)**

Solvent based cleaner

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters**

Valid for  
Great Britain

Ingredient	ppm	mg/m <sup>3</sup>	Type	Category	Remarks
ETHANOL 64-17-5	1.000	1.920	Time Weighted Average (TWA):		EH40 WEL
DIMETHOXYMETHANE 109-87-5	1.250	3.950	Short Term Exposure Limit (STEL):		EH40 WEL
DIMETHOXYMETHANE 109-87-5	1.000	3.160	Time Weighted Average (TWA):		EH40 WEL

**Predicted No-Effect Concentration (PNEC):**

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
Ethanol 64-17-5	aqua (freshwater)		0,96 mg/l				
Ethanol 64-17-5	aqua (marine water)		0,79 mg/l				
Ethanol 64-17-5	aqua (intermittent releases)		2,75 mg/l				
Ethanol 64-17-5	sediment (freshwater)				3,6 mg/kg		
Ethanol 64-17-5	soil				0,63 mg/kg		
Ethanol 64-17-5	STP		580 mg/l				
Ethanol 64-17-5	oral				720 mg/kg		

**Derived No-Effect Level (DNEL):**

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Naphtha (petroleum), hydrotreated light 64742-49-0	worker	dermal	Long term exposure - systemic effects		13964 mg/kg bw/day	
Naphtha (petroleum), hydrotreated light 64742-49-0	general population	oral	Long term exposure - systemic effects		1301 mg/kg bw/day	
Naphtha (petroleum), hydrotreated light 64742-49-0	general population	dermal	Long term exposure - systemic effects		1377 mg/kg bw/day	
Naphtha (petroleum), hydrotreated light 64742-49-0	general population	inhalation	Long term exposure - systemic effects		1131 mg/m3	
Ethanol 64-17-5	worker	inhalation	Acute/short term exposure - local effects		1900 mg/m3	
Ethanol 64-17-5	worker	dermal	Long term exposure - systemic effects		343 mg/kg bw/day	
Ethanol 64-17-5	worker	inhalation	Long term exposure - systemic effects		950 mg/m3	
Ethanol 64-17-5	general population	inhalation	Acute/short term exposure - local effects		950 mg/m3	
Ethanol 64-17-5	general population	dermal	Long term exposure - systemic effects		206 mg/kg bw/day	
Ethanol 64-17-5	general population	inhalation	Long term exposure - systemic effects		114 mg/m3	
Ethanol 64-17-5	general population	oral	Long term exposure - systemic effects		87 mg/kg bw/day	

**8.2. Exposure controls:**

## Respiratory protection:

- Do not inhale vapors and fumes.
- Use only in well-ventilated areas.

**Hand protection:**

In circumstances where there is a potential for prolonged or repeated skin contact, the use of disposable gloves (polyethylene, natural rubber or equivalent ester-resistant material) is recommended.

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq 0.4$  mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

**Eye protection:**

Wear protective glasses.

**Skin protection:**

Suitable protective clothing

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Appearance	aerosol
	colourless
Odor	hydrocarbons
pH	Not applicable
Initial boiling point	-78 °C (-108.4 °F)
Flash point	-18 °C (0.4 °F)
Decomposition temperature	No data available / Not applicable
Vapour pressure	440 hPa
(20 °C (68 °F))	
Density	0,742 g/cm <sup>3</sup>
(20 °C (68 °F))	
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative)	Not miscible
(Solvent: Water)	
Solubility (qualitative)	Miscible
(Solvent: Acetone)	
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	
lower	0,8 %(V)
upper	15 %(V)
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	No data available / Not applicable
Vapor density	No data available / Not applicable
Oxidising properties	No data available / Not applicable

**9.2. Other information**

Ignition temperature	200 °C (392 °F)
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**SECTION 10: Stability and reactivity****10.1. Reactivity**

Strong oxidizing agents.



**10.2. Chemical stability**

Stable under recommended storage conditions.

**10.3. Possibility of hazardous reactions**

See section reactivity

**10.4. Conditions to avoid**

Stable under normal conditions of storage and use.

Heat, flames, sparks and other sources of ignition.

**10.5. Incompatible materials**

None if used properly.

**10.6. Hazardous decomposition products**

None if used for intended purpose.

**SECTION 11: Toxicological information****11.1. Information on toxicological effects****General toxicological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Oral toxicity:**

Harmful if swallowed.

**Inhalative toxicity:**

May cause headache and dizziness.

**Skin irritation:**

Solvent may remove essential oils from the skin making it susceptible to attack from other chemicals.

Irritating to the skin.

**Eye irritation:**

May cause mild irritation to the eyes.

**Acute toxicity:**

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Ethanol 64-17-5	LD50 LC50 LDLo	13.700 mg/kg 124,7 mg/l 20.000 mg/kg	oral inhalation dermal	4 h	rat rat rabbit	

**Skin corrosion/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Ethanol 64-17-5	not irritating		rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

**Serious eye damage/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Ethanol 64-17-5	Category II		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

**Respiratory or skin sensitization:**

Hazardous components CAS-No.	Result	Test type	Species	Method
Ethanol 64-17-5	not sensitising	Guinea pig maximisation test	guinea pig	

**Germ cell mutagenicity:**

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Ethanol 64-17-5	negative negative	bacterial reverse mutation assay (e.g Ames test) in vitro mammalian chromosome aberration test	with and without without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)

**SECTION 12: Ecological information****General ecological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

Toxic to aquatic organisms

May cause long-term adverse effects in the aquatic environment.

**Ecotoxicity:**

Toxic to aquatic organisms

May cause long-term adverse effects in the aquatic environment.

Do not empty into drains / surface water / ground water.

**Mobility:**

The product evaporates readily.

**Persistence and Biodegradability:**

No data available.

**Persistence and degradability:****Degradation of surfactants**

The product does not contain surface-active substances as defined in the EU Detergent Regulation (EC/648/2004).

**Bioaccumulative potential:**

No data available.

**12.1. Toxicity**

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Naphtha, hydrotreated light, <0,1% benzene 64742-49-0	LC50	1 - 10 mg/l	Fish			OECD Guideline 203 (Fish, Acute Toxicity Test)
Naphtha, hydrotreated light, <0,1% benzene 64742-49-0	EC50	3 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Naphtha, hydrotreated light, <0,1% benzene 64742-49-0	EC50	1 - 10 mg/l	Algae			OECD Guideline 201 (Alga, Growth Inhibition Test)
Ethanol 64-17-5	LC50	14,2 g/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Ethanol 64-17-5	EC50	9.268 - 14.221 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Ethanol 64-17-5	EC50	> 5.000 mg/l	Algae	7 d	Scenedesmus quadricauda	OECD Guideline 201 (Alga, Growth Inhibition Test)
Methylal 109-87-5	LC50	6.990 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Methylal 109-87-5	EC50	> 500 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

**12.2. Persistence and degradability**

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
Ethanol 64-17-5	readily biodegradable	aerobic	80 - 85 %	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
Methylal 109-87-5			88 %	

**12.3. Bioaccumulative potential / 12.4. Mobility in soil**

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Ethanol 64-17-5	-0,31					

**SECTION 13: Disposal considerations****13.1. Waste treatment methods**

Product disposal:

Dispose of according to regulations.

Disposal of uncleaned packages:

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

Disposal must be made according to official regulations.

Waste code

14 06 03 Other solvents and solvent mixtures

**SECTION 14: Transport information****Road transport ADR:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number:  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS  
Tunnelcode: (D)  
Additional substance property: Environmentally Hazardous

**Railroad transport RID:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number: 23  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS  
Tunnelcode:  
Additional substance property: Environmentally Hazardous

**Inland water transport ADN:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number:  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS  
Additional substance property: Environmentally Hazardous

**Marine transport IMDG:**

Class: 2.1  
Packaging group:  
UN no.: 1950  
Label: 2.1  
EmS: F-D ,S-U  
Seawater pollutant: Marine pollutant  
Proper shipping name: AEROSOLS (Solvent Naphtha (Petroleum), Light Aromatic)

**Air transport IATA:**

Class: 2.1  
Packaging group:  
Packaging instructions (passenger) 203  
Packaging instructions (cargo) 203  
UN no.: 1950  
Label: 2.1  
Proper shipping name: Aerosols, flammable

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

VOC content 95 %  
(1999/13/EC)

### SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

R11 Highly flammable.

R38 Irritating to skin.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R65 Harmful: may cause lung damage if swallowed.

R67 Vapours may cause drowsiness and dizziness.

H225 Highly flammable liquid and vapor.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

H411 Toxic to aquatic life with long lasting effects.

**Further information:**

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and its subsequent amendments, and Commission Directive 1999/45/EC.

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.



## Safety Data Sheet according to (EC) No 1907/2006

Page 1 of 11

LOCTITE 7471 150ml EN

sds no. : 179503  
V002.3

Revision: 22.08.2011  
printing date: 07.09.2011

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

**Product identifier:**

LOCTITE 7471 150ml EN

**Relevant identified uses of the substance or mixture and uses advised against:**

Intended use:

Primer, containing solvents

**Details of the supplier of the safety data sheet:**

Henkel Limited  
Technologies House  
Wood Lane End  
HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 (0)1442 278000

Fax-no.: +44 (0)1442 278071

ua-productsafety.uk@uk.henkel.com

**Emergency Telephone Number:**

24 Hours Emergency Tel: +44 (0)1442 278497

### SECTION 2: Hazards identification

**Classification of the substance or mixture:**

**Classification (DPD):**

Xi - Irritant

R38 Irritating to skin.

F+ - Extremely flammable

R12 Extremely flammable.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R66 Repeated exposure may cause skin dryness or cracking.

R67 Vapours may cause drowsiness and dizziness.

**Label elements (DPD):**

Xi - Irritant

F+ - Extremely flammable



**Risk phrases:**

R12 Extremely flammable.

R36 Irritating to eyes.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R66 Repeated exposure may cause skin dryness or cracking.

R67 Vapours may cause drowsiness and dizziness.

**Safety phrases:**

S23 Do not breathe spray.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37 Wear suitable gloves.

S51 Use only in well-ventilated areas.

S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Additional labeling:**

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. Do not spray on a naked flame or any incandescent material. Keep away from sources of ignition - No smoking.

Keep out of the reach of children

For consumer use only: S2 Keep out of the reach of children

S46 If swallowed, seek medical advice immediately and show this container or label.

Contains Benzothiazole-2-thiol. May produce an allergic reaction.

**Other hazards:**

The aerosol container is under pressure. Do not expose to high temperatures.

**SECTION 3: Composition/information on ingredients**

**General chemical description:**

Primer, containing solvents

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Acetone 67-64-1	200-662-2	60- 80 %	Flammable liquids 2 H225 Specific target organ toxicity - single exposure 3 H336 Serious eye irritation 2 H319
Propane 74-98-6	200-827-9	10- 20 %	Flammable gases 1 H220 Gases under pressure
Propan-2-ol 67-63-0	200-661-7	10- 20 %	Specific target organ toxicity - single exposure 3 H336 Flammable liquids 2 H225 Serious eye irritation 2 H319
Benzothiazole-2-thiol 149-30-4	205-736-8	0,1- 1 %	Skin sensitizer 1 H317 Chronic hazards to the aquatic environment 1 H410 Acute hazards to the aquatic environment 1 H400

Only dangerous ingredients for which a CLP classification is already available are displayed in this table.

For full text of the H - statements and other abbreviations see section 16 "Other information".

Substances without classification may have community workplace exposure limits available.

**Declaration of ingredients according to DPD (EC) No 1999/45:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Acetone 67-64-1	200-662-2	>= 50 - <= 100 %	R66 Xi - Irritant; R36 F - Highly flammable; R11 R67
Propane 74-98-6	200-827-9	>= 10 - < 20 %	F+ - Extremely flammable; R12
Propan-2-ol 67-63-0	200-661-7	>= 10 - < 15 %	Xi - Irritant; R36 F - Highly flammable; R11 R67
Benzothiazole-2-thiol 149-30-4	205-736-8	>= 0,25 - < 1 %	R43 N - Dangerous for the environment; R50/53

For full text of the R-Phrases indicated by codes see section 16 'Other Information'.

Substances without classification may have community workplace exposure limits available.

**SECTION 4: First aid measures****Description of first aid measures:****Inhalation:**

Move to fresh air. If symptoms persist, seek medical advice.

**Skin contact:**

Rinse with running water and soap.  
Seek medical advice.

**Eye contact:**

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

**Ingestion:**

Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting.  
Seek medical advice.



**Most important symptoms and effects, both acute and delayed:**

Vapors may cause drowsiness and dizziness.

**Indication of any immediate medical attention and special treatment needed:**

See section: Description of first aid measures

### SECTION 5: Firefighting measures

**Extinguishing media:**

**Suitable extinguishing media:**

Carbon dioxide, foam, powder

**Extinguishing media which must not be used for safety reasons:**

None known

**Special hazards arising from the substance or mixture:**

None

Oxides of carbon, oxides of nitrogen, irritating organic vapors.

**Advice for firefighters:**

Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

**Additional information:**

In case of fire, keep containers cool with water spray.

### SECTION 6: Accidental release measures

**Personal precautions, protective equipment and emergency procedures:**

Avoid skin and eye contact.

Ensure adequate ventilation.

**Environmental precautions:**

Do not let product enter drains.

**Methods and material for containment and cleaning up:**

For small spills wipe up with paper towel and place in container for disposal.

For large spills absorb onto inert absorbent material and place in sealed container for disposal.

Dispose of contaminated material as waste according to Chapter 13.

**Reference to other sections:**

See advice in chapter 8

### SECTION 7: Handling and storage

**Precautions for safe handling:**

Use only in well-ventilated areas.

Vapours should be extracted to avoid inhalation.

Keep away from sources of ignition - no smoking.

**Hygiene measures:**

Wash hands before work breaks and after finishing work.

Do not eat, drink or smoke while working.

Good industrial hygiene practices should be observed.

**Conditions for safe storage, including any incompatibilities:**

Store in a cool, well-ventilated place.

Keep away from heat and direct sunlight.

**Specific end use(s):**

Primer, containing solvents

## SECTION 8: Exposure controls/personal protection

**Control parameters:**

Valid for  
Great Britain

Ingredient	ppm	mg/m <sup>3</sup>	Type	Category	Remarks
ACETONE 67-64-1	1.500	3.620	Short Term Exposure Limit (STEL):		EH40 WEL
ACETONE 67-64-1	500	1.210	Time Weighted Average (TWA):		EH40 WEL
ACETONE 67-64-1	500	1.210	Time Weighted Average (TWA):	Indicative	ECLTV
PROPAN-2-OL 67-63-0	400	999	Time Weighted Average (TWA):		EH40 WEL
PROPAN-2-OL 67-63-0	500	1.250	Short Term Exposure Limit (STEL):		EH40 WEL

**Exposure controls:**

## Respiratory protection:

Use only in well-ventilated areas.  
Filter type: P2

## Hand protection:

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq$  0.4 mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq$  0.4 mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

## Eye protection:

Wear protective glasses.

## Skin protection:

Wear suitable protective clothing.

## SECTION 9: Physical and chemical properties

**Information on basic physical and chemical properties:**

Appearance	aerosol
Odor	yellow pungent
pH	not applicable
Initial boiling point	Not applicable
Flash point	Not applicable
Decomposition temperature	No data available / Not applicable
Vapour pressure (20 °C (68 °F))	230 mm hg
Density ( $\rho$ )	0,8 g/cm <sup>3</sup>
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative)	Miscible

(Solvent: Water)	
Solubility (qualitative)	Soluble
(Solvent: Acetone)	
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	No data available / Not applicable
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	No data available / Not applicable
Vapor density	No data available / Not applicable
Oxidising properties	No data available / Not applicable

**Other information:**

No data available / Not applicable

**SECTION 10: Stability and reactivity****Reactivity:**

Reaction with strong acids.  
Reacts with strong oxidants.

**Chemical stability:**

Stable under recommended storage conditions.

**Possibility of hazardous reactions:**

See section reactivity

**Conditions to avoid:**

Stable

**Incompatible materials:**

No data available.

**Hazardous decomposition products:**

Irritating organic vapours.

**SECTION 11: Toxicological information****General toxicological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Oral toxicity:**

This material is considered to have low toxicity if swallowed.

**Inhalative toxicity:**

May cause headache and dizziness.

**Skin irritation:**

Solvent may remove essential oils from the skin making it susceptible to attack from other chemicals.

**Eye irritation:**

Irritating to eyes.

**Acute toxicity:**

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Acetone 67-64-1	LD50 LC50 LD50	5.800 mg/kg 76 mg/l > 15.688 mg/kg	oral inhalation dermal	4 h	rat rat rabbit	
Propan-2-ol 67-63-0	LD50 LC50 LD50	5.338 mg/kg 72,6 mg/l 12.870 mg/kg	oral inhalation dermal	4 h	rat rat rabbit	

**Skin corrosion/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Propan-2-ol 67-63-0	slightly irritating	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

**Serious eye damage/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Acetone 67-64-1	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Propan-2-ol 67-63-0	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

**Respiratory or skin sensitization:**

Hazardous components CAS-No.	Result	Test type	Species	Method
Propan-2-ol 67-63-0	not sensitising	Buehler test	guinea pig	
Benzothiazole-2-thiol 149-30-4	sensitising	Guinea pig maximisation test	guinea pig	OECD Guideline 406 (Skin Sensitisation)
Benzothiazole-2-thiol 149-30-4	sensitising	Buehler test	guinea pig	OECD Guideline 406 (Skin Sensitisation)

**Germ cell mutagenicity:**

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Acetone 67-64-1	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Propan-2-ol 67-63-0	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		
Benzothiazole-2-thiol 149-30-4	negative	intraperitoneal		mouse	

**Repeated dose toxicity**

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Method
Acetone 67-64-1	NOAEL=2500 ppm	oral: drinking water	13 weeks	rat	
Propan-2-ol 67-63-0	NOAEL=1500	inhalation	13 weeks 6 hours/day, 5 days/week	mouse	
Benzothiazole-2-thiol 149-30-4	NOAEL=375 mg/kg	oral: gavage	13 weeks 5 days/week	rat	

## SECTION 12: Ecological information

**General ecological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Ecotoxicity:**

Harmful to aquatic organisms.  
May cause long-term adverse effects in the aquatic environment.  
Do not empty into drains / surface water / ground water.

**Mobility:**

The product evaporates readily.

**Persistence and Biodegradability:**

No data available.

**Bioaccumulative potential:**

No data available.

**Toxicity:**

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Acetone 67-64-1	LC50	8.120 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Acetone 67-64-1	EC50	6.098,4 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Propan-2-ol 67-63-0	LC50	9.640 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Propan-2-ol 67-63-0	EC50	13.299 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Propan-2-ol 67-63-0	EC50	> 1.000 mg/l	Algae	96 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Benzothiazole-2-thiol 149-30-4	LC50	1,6 mg/l	Fish	96 h	Brachydanio rerio (new name: Danio rerio)	OECD Guideline 203 (Fish, Acute Toxicity Test)
Benzothiazole-2-thiol 149-30-4	EC50	4,1 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Benzothiazole-2-thiol 149-30-4	EC50	0,25 mg/l	Algae	96 h	Selenastrum capricornutum (new name: Pseudokirchnerella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)

**Persistence and degradability:**

Hazardous components CAS-No.	Result	Route of application	Degradability	Method

Acetone 67-64-1	readily biodegradable	aerobic	81 - 92 %	EU Method C.4-E (Determination of the "Ready" Biodegradability Closed Bottle Test)
Propan-2-ol 67-63-0	readily biodegradable	aerobic	95 %	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)
Benzothiazole-2-thiol 149-30-4		aerobic	2,5 %	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))

**Bioaccumulative potential / Mobility in soil:**

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Acetone 67-64-1	0,24					
Propan-2-ol 67-63-0	0,05					OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
Benzothiazole-2-thiol 149-30-4	2,34 - 2,5					

**SECTION 13: Disposal considerations****Waste treatment methods:**

Product disposal:

Dispose of in accordance with local and national regulations.

Disposal of uncleaned packages:

Disposal must be made according to official regulations.

Waste code

14 06 03 Other solvents and solvent mixtures

**SECTION 14: Transport information****Road transport ADR:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number:  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS  
Tunnelcode: (D)

**Railroad transport RID:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number: 23  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS  
Tunnelcode:

**Inland water transport ADN:**

Class:	2
Packaging group:	
Classification code:	5F
Hazard ident. number:	
UN no.:	1950
Label:	2.1
Technical name:	AEROSOLS

**Marine transport IMDG:**

Class:	2.1
Packaging group:	
UN no.:	1950
Label:	2.1
EmS:	F-D ,S-U
Seawater pollutant:	-
Proper shipping name:	AEROSOLS

**Air transport IATA:**

Class:	2.1
Packaging group:	
Packaging instructions (passenger)	203
Packaging instructions (cargo)	203
UN no.:	1950
Label:	2.1
Proper shipping name:	Aerosols, flammable

**SECTION 15: Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture:**

VOC content (1999/13/EC)	99 %
-----------------------------	------

## SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

- R11 Highly flammable.
- R12 Extremely flammable.
- R36 Irritating to eyes.
- R43 May cause sensitisation by skin contact.
- R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R66 Repeated exposure may cause skin dryness or cracking.
- R67 Vapours may cause drowsiness and dizziness.
  
- H220 Extremely flammable gas.
- H225 Highly flammable liquid and vapour.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H336 May cause drowsiness or dizziness.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.

### Further information:

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and its subsequent amendments, and Commission Directive 1999/45/EC.





## Safety Data Sheet according to (EC) No 1907/2006

Page 1 of 9

Loctite 7649

sds no. : 179515  
V002.4

Revision: 07.07.2011  
printing date: 20.08.2012

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

**Product identifier:**

Loctite 7649

**Relevant identified uses of the substance or mixture and uses advised against:**

Intended use:  
activator

**Details of the supplier of the safety data sheet:**

Henkel Ireland Limited  
Product Safety & Regulatory Affairs  
Tallaght Business Park, Whitestown  
Dublin 24

Ireland

Phone: +353 (14046444)  
Fax-no.: +353 (14519926)

ua-productsafety.uk@uk.henkel.com

**Emergency telephone number:**

24 Hours Emergency Tel: +44 (0)1442 278497

### SECTION 2: Hazards identification

**Classification of the substance or mixture:**

**Classification (DPD):**

F+ - Extremely flammable  
R12 Extremely flammable.  
Xi - Irritant  
R36 Irritating to eyes.  
R66 Repeated exposure may cause skin dryness or cracking.  
R67 Vapours may cause drowsiness and dizziness.

**Label elements (DPD):**

Xi - Irritant



F+ - Extremely flammable

**Risk phrases:**

- R12 Extremely flammable.
- R36 Irritating to eyes.
- R66 Repeated exposure may cause skin dryness or cracking.
- R67 Vapours may cause drowsiness and dizziness.

**Safety phrases:**

- S23 Do not breathe vapour.
- S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S37 Wear suitable gloves.
- S51 Use only in well-ventilated areas.

**Additional labeling:**

- Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. Do not spray on a naked flame or any incandescent material. Keep away from sources of ignition - No smoking.
- Keep out of the reach of children
- For consumer use only: S2 Keep out of the reach of children
- S46 If swallowed, seek medical advice immediately and show this container or label.

**Other hazards:**

- The aerosol container is under pressure. Do not expose to high temperatures.

**SECTION 3: Composition/information on ingredients****General chemical description:**

Activator

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Acetone 67-64-1	200-662-2	80- 90 %	Flammable liquids 2 H225 Specific target organ toxicity - single exposure 3 H336 Serious eye irritation 2 H319
Propane 74-98-6	200-827-9	10- 15 %	Flammable gases 1 H220 Gases under pressure

Only dangerous ingredients for which a CLP classification is already available are displayed in this table.

For full text of the H - statements and other abbreviations see section 16 "Other information".

Substances without classification may have community workplace exposure limits available.

**Declaration of ingredients according to DPD (EC) No 1999/45:**

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Acetone 67-64-1	200-662-2	80 - 90 %	R66 Xi - Irritant; R36 F - Highly flammable; R11 R67
Propane 74-98-6	200-827-9	10 - 15 %	F+ - Extremely flammable; R12

For full text of the R-Phrases indicated by codes see section 16 'Other Information'.  
Substances without classification may have community workplace exposure limits available.

**SECTION 4: First aid measures****Description of first aid measures:****Inhalation:**

Move to fresh air. If symptoms persist, seek medical advice.

**Skin contact:**

Rinse with running water and soap.  
Seek medical advice.

**Eye contact:**

Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

**Ingestion:**

Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting.  
Seek medical advice.

**Most important symptoms and effects, both acute and delayed:**

Vapors may cause drowsiness and dizziness.

**Indication of any immediate medical attention and special treatment needed:**

See section: Description of first aid measures

**SECTION 5: Firefighting measures****Extinguishing media:****Suitable extinguishing media:**

Carbon dioxide, foam, powder

**Extinguishing media which must not be used for safety reasons:**

None known

**Special hazards arising from the substance or mixture:**

None  
Oxides of carbon, oxides of nitrogen, irritating organic vapors.

**Advice for firefighters:**

Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

**Additional information:**

In case of fire, keep containers cool with water spray.

**SECTION 6: Accidental release measures**

**Personal precautions, protective equipment and emergency procedures:**

Avoid skin and eye contact.  
Ensure adequate ventilation.  
See advice in chapter 8

**Environmental precautions:**

Do not let product enter drains.

**Methods and material for containment and cleaning up:**

For small spills wipe up with paper towel and place in container for disposal.  
For large spills absorb onto inert absorbent material and place in sealed container for disposal.  
Dispose of contaminated material as waste according to Chapter 13.

**SECTION 7: Handling and storage****Precautions for safe handling:**

Use only in well-ventilated areas.  
Vapours should be extracted to avoid inhalation.  
Keep away from sources of ignition - no smoking.

**Hygiene measures:**

Wash hands before work breaks and after finishing work.  
Do not eat, drink or smoke while working.  
Good industrial hygiene practices should be observed.

**Conditions for safe storage, including any incompatibilities:**

Store in a cool, well-ventilated place.  
Keep away from heat and direct sunlight.

**Specific end use(s):**

activator

**SECTION 8: Exposure controls/personal protection****Control parameters:**

Valid for  
Great Britain  
Basis  
UK EH40 WELs

Ingredient	ppm	mg/m3	Type	Category	Remarks
ACETONE 67-64-1	1.500	3.620	Short Term Exposure Limit (STEL):		EH40 WEL
ACETONE 67-64-1	500	1.210	Time Weighted Average (TWA):		EH40 WEL
ACETONE 67-64-1	500	1.210	Time Weighted Average (TWA):	Indicative	ECTLV
PROPANE 74-98-6				Included in the regulation but with no data values. See regulation for further details	EH40 WEL

**Exposure controls:****Respiratory protection:**

Use only in well-ventilated areas.  
Filter type: P2

**Hand protection:**

The use of chemical resistant gloves such as Neoprene or Natural Rubber are recommended  
Please note that in practice the working life of chemical resistant gloves may be considerably reduced as a result of many influencing factors (e.g. temperature). Suitable risk assessment should be carried out by the end user. If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:  
Wear protective glasses.

Skin protection:  
Wear suitable protective clothing.

## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties:

Appearance	aerosol green
Odor	pungent
pH	not applicable
Initial boiling point	56 °C (132.8 °F)
Flash point	-18 °C (0.4 °F)
Decomposition temperature	No data available / Not applicable
Vapour pressure (20 °C (68 °F))	230 mbar
Density (20 °C (68 °F))	0,8 g/cm <sup>3</sup>
Bulk density	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Solubility (qualitative) (Solvent: Water)	Miscible
Solubility (qualitative) (Solvent: Acetone)	Soluble
Solidification temperature	No data available / Not applicable
Melting point	No data available / Not applicable
Flammability	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Explosive limits	
lower	2,5 % (V)
upper	13 % (V)
Partition coefficient: n-octanol/water	No data available / Not applicable
Evaporation rate	No data available / Not applicable
Vapor density	No data available / Not applicable
Oxidising properties	No data available / Not applicable

### Other information:

No data available / Not applicable

## SECTION 10: Stability and reactivity

### Reactivity:

Reacts with strong oxidants.

### Chemical stability:

Stable under recommended storage conditions.

### Possibility of hazardous reactions:

See section reactivity

### Conditions to avoid:

Stable

### Incompatible materials:

No data available.

### Hazardous decomposition products:

Irritating organic vapours.

**SECTION 11: Toxicological information****General toxicological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Oral toxicity:**

This material is considered to have low toxicity if swallowed.

**Inhalative toxicity:**

May cause headache and dizziness.

**Skin irritation:**

Solvent may remove essential oils from the skin making it susceptible to attack from other chemicals.

**Eye irritation:**

Irritating to eyes.

**Acute toxicity:**

Hazardous components CAS-No.	Value type	Value	Route of application	Exposure time	Species	Method
Acetone 67-64-1	LD50 LC50 LD50	5.800 mg/kg 76 mg/l > 15.688 mg/kg	oral inhalation dermal	4 h	rat rat rabbit	

**Serious eye damage/irritation:**

Hazardous components CAS-No.	Result	Exposure time	Species	Method
Acetone 67-64-1	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

**Germ cell mutagenicity:**

Hazardous components CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Acetone 67-64-1	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)

**Repeated dose toxicity**

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Method
Acetone 67-64-1	NOAEL=2500 ppm	oral: drinking water	13 weeks	rat	

**SECTION 12: Ecological information****General ecological information:**

The preparation is classified based on the conventional method outlined in Article 6(1)(a) of Directive 1999/45/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

**Ecotoxicity:**

Do not empty into drains / surface water / ground water.

**Mobility:**

The product evaporates readily.

**Persistence and Biodegradability:**

No data available.

**Bioaccumulative potential:**

No data available.

**Toxicity:**

Hazardous components CAS-No.	Value type	Value	Acute Toxicity Study	Exposure time	Species	Method
Acetone 67-64-1	LC50	8.120 mg/l	Fish	96 h	Pimephales promelas	OECD Guideline 203 (Fish, Acute Toxicity Test)
Acetone 67-64-1	EC50	6.098,4 mg/l	Daphnia	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

**Persistence and degradability:**

Hazardous components CAS-No.	Result	Route of application	Degradability	Method
Acetone 67-64-1	readily biodegradable	aerobic	81 - 92 %	EU Method C.4-E (Determination of the "Ready" Biodegradability Closed Bottle Test)

**Bioaccumulative potential / Mobility in soil:**

Hazardous components CAS-No.	LogKow	Bioconcentration factor (BCF)	Exposure time	Species	Temperature	Method
Acetone 67-64-1	0,24					

**SECTION 13: Disposal considerations****Waste treatment methods:**

Product disposal:

Dispose of in accordance with local and national regulations.

Disposal of uncleaned packages:

Disposal must be made according to official regulations.

Waste code

14 06 03 Other solvents and solvent mixtures

**SECTION 14: Transport information****Road transport ADR:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number:  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS  
Tunnelcode: (D)

**Railroad transport RID:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number: 23  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS  
Tunnelcode:

**Inland water transport ADN:**

Class: 2  
Packaging group:  
Classification code: 5F  
Hazard ident. number:  
UN no.: 1950  
Label: 2.1  
Technical name: AEROSOLS

**Marine transport IMDG:**

Class: 2.1  
Packaging group:  
UN no.: 1950  
Label: 2.1  
EmS: F-D ,S-U  
Seawater pollutant: -  
Proper shipping name: AEROSOLS

**Air transport IATA:**

Class: 2.1  
Packaging group:  
Packaging instructions (passenger) 203  
Packaging instructions (cargo) 203  
UN no.: 1950  
Label: 2.1  
Proper shipping name: Aerosols, flammable

**SECTION 15: Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture:**

VOC content 99 %  
(1999/13/EC)



## SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

- R11 Highly flammable.
- R12 Extremely flammable.
- R36 Irritating to eyes.
- R66 Repeated exposure may cause skin dryness or cracking.
- R67 Vapours may cause drowsiness and dizziness.
- H220 Extremely flammable gas.
- H225 Highly flammable liquid and vapour.
- H319 Causes serious eye irritation.
- H336 May cause drowsiness or dizziness.

### **Further information:**

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

This safety data sheet was prepared in accordance with Council Directive 67/548/EEC and its subsequent amendments, and Commission Directive 1999/45/EC.

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### 1. Identification of the Substance/Mixture and of the Company/Undertaking

#### 1.1 Product Identifier

**Material Name:** MIDEL 7131.  
**CAS No:** 68424-31-7  
**REACH No.:** 01-2119542596-31-0000.

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Product Use:** Dielectric fluid.  
**Uses advised against:** None.

#### 1.3 Details of the supplier of the substance or mixture

**Company:** M&I Materials Ltd., Hibernia Way, Trafford Park, Manchester, M32 0ZD, UK.  
**Telephone:** +44 (0)161 864 5411.  
**Emergency Telephone:** +44 (0)161 864 5439.  
**Email:** RussellMartin@mimaterials.com.

### 2. Hazards Identification

#### 2.1 Classification of the substance or mixture

**Regulation (EC) No 1272/2008 (CLP):** Not classified.  
**67/548/EEC or 1999/45/EC:** Not classified as dangerous under EC criteria.

#### 2.2 Label elements

**Regulation (EC) No 1272/2008 (CLP):** No symbol or signal word.  
**Directive 1999/45/EC, 67/548/EEC:** No symbols or phrases required.

#### 2.3 Other hazards

None.

### 3. Composition/Information on Ingredients

#### 3.1 Substance

**CAS No.:** 68424-31-7.  
**Description:** Fatty acids, C5-10 (linear and branched), mixed esters with pentaerythritol.

### 4. First Aid Measures

#### 4.1 Description of first aid measures

**Inhalation:** None envisaged due to the low vapour pressure of the substance.  
**Skin:** Wash with soap and water. Obtain medical attention if irritation develops.  
**Eyes:** Irrigate with copious amounts of water. Obtain medical attention if irritation develops.  
**Ingestion:** Do not induce vomiting, obtain medical attention.

#### 4.2 Most important symptoms and effects, both acute and delayed

No adverse effects expected.

#### 4.3 Indication of any immediate medical attention and special treatment needed

No special treatment required.

### 5. Fire Fighting Measures

#### 5.1 Extinguishing media

Carbon dioxide, dry powder, foam or water fog. Do not use water jets.

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### 6. Accidental Release Measures

#### 5.2 Special hazards arising from the substance or mixture

None.

#### 5.3 Advice for fire fighters

Self-contained breathing apparatus may be required.

### 7. Handling and Storage

#### 6.1 Personal precautions, protective equipment and emergency procedures

Spilt product constitutes a slip hazard. Avoid contact with skin and eyes.

#### 6.2 Environmental precautions

Do not contaminate any lakes, streams, ponds, groundwater or soil. Avoid flushing into drains. In the event of a large spillage contain product as thoroughly as possible and dispose of in accordance with local regulations.

#### 6.3 Methods and material for containment and cleaning up

Soak up spilt material with absorbent granules for disposal.

### 8. Exposure Controls/ Personal Protection

#### 7.1 Precautions for safe handling

Avoid eye and prolonged skin contact.

#### 7.2 Conditions for safe storage, including any incompatibilities

No special precautions required.

#### 7.3 Specific end use(s)

Exposure to air should be minimised. Opened containers should be properly resealed.

#### 8.1 Control parameters

No relevant control parameters.

#### 8.2 Exposure controls

Eye washes should be available for emergency use.

**Respiratory protection:** Not required for normal use.

**Skin protection:** Wear coveralls.

**Hand protection:** Wash hands after use. For prolonged or repeated skin contact gloves are recommended.

**Eye protection:** If splashes are likely to occur wear safety glasses.

### 9. Physical and Chemical Properties

#### 9.1 Information on basic physical and chemical properties

**Appearance:** Pale amber liquid.

**Odour:** Faintly sweet.

**pH:** Not applicable.

**Freezing point:** -57°C.

**Initial boiling point and boiling range:** >300°C.

**Flash point:** 260°C (closed cup).

**Flammability (solid, gas):** Non flammable.

**Upper/lower flammability or explosive limits:** Data not available.

**Vapour pressure:** <0.001Pa at 20°C.

**Vapour density:** Not applicable.

**Relative density:** 0.97 at 20°C.

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**Water solubility:** <1mg/l.  
**Solubility:** Not applicable.  
**Partition coefficient:** log  $K_{ow}$ : >6.74  
**Auto-ignition temperature:** No auto-ignition expected.  
**Decomposition temperature:** Data not available.  
**Viscosity:** 28mm<sup>2</sup>/s at 40°C.  
**Explosive properties:** Non-explosive.  
**Oxidising properties:** Non-oxidising.

### 9.2 Other information

Not applicable.

## 10. Stability and Reactivity

### 10.1 Reactivity

Stable under normal conditions of use.

### 10.2 Chemical stability

Stable under normal conditions of use.

### 10.3 Possibility of hazardous reactions

Data not available.

### 10.4 Conditions to avoid

Temperatures >250°C.

### 10.5 Incompatible materials

Strong oxidising agents.

### 10.6 Hazardous decomposition products

None.

## 11. Toxicological Information

### 11.1 Information on toxicological effects

**Likely routes of exposure:** Skin and eyes are the most likely routes for exposure. Accidental ingestion may occur. Inhalation is not expected to be a relevant route of exposure.

**Acute oral toxicity:** Low toxicity: LD50 >2000mg/kg, OECD 401.

**Acute dermal toxicity:** Expected to be of low toxicity: LD50 >2000mg/kg, OECD 402.

**Acute inhalation toxicity:** Low volatility makes inhalation unlikely.

**Skin corrosion/irritation:** Not irritating, skin, OECD 404.

**Eye corrosion/irritation:** Not irritating, eye, OECD 405.

**Respiratory or skin sensitisation:** Not sensitising, skin, OECD 406.

**Aspiration hazard:** Not considered an aspiration hazard.

**Carcinogenicity/mutagenicity:** Not considered a mutagenic hazard or carcinogen.

## 12. Ecological Information

When used and/or disposed of as indicated no adverse environmental effects are foreseen. Ecotoxicological effects based on knowledge of similar substances.

### 12.1 Toxicity

Salmo Gairdneri LC50 (96h), OECD 203: >1000mg/l

Daphnia Magna EI50 (48h), OECD 202: >1000mg/l

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	<p><b>12.2 Persistence and degradability</b> Readily biodegradable, OECD 301F, 89% after 28 days.</p> <p><b>12.3 Bioaccumulative potential</b> No potential for bioaccumulation.</p> <p><b>12.4 Mobility in soil</b> Product has low mobility in soil.</p> <p><b>12.5 Results of PBT and vPvB assessment</b> The product does not meet criteria for toxicity which requires further assessment. It is not considered PBT or vPvB.</p> <p><b>12.6 Other adverse effects</b> No other adverse effects envisaged.</p>
<b>13. Disposal Considerations</b>	<p><b>13.1 Waste treatment methods</b> Product and packaging must be disposed of in accordance with local and national regulations. May be incinerated. Unused product may be returned for reclamation.</p>
<b>14. Transport Information</b>	<p>Not classified as hazardous under air (ICAO/IATA), sea (IMDG), road (ADR) or rail (RID) regulations.</p> <p><b>14.1 UN number</b> Not relevant.</p> <p><b>14.2 UN proper shipping name</b> Not relevant.</p> <p><b>14.3 Transport hazard class</b> Not relevant.</p> <p><b>14.4 Packing group</b> Not relevant.</p> <p><b>14.5 Environmental hazards</b> Not relevant.</p> <p><b>14.6 Special precautions for user</b> Not relevant.</p>
<b>15. Regulatory Information</b>	<p><b>15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture</b> Product is not subject to Authorisation under REACH.</p> <p><b>15.2 Chemical safety assessment</b> A chemical safety assessment has been performed for this substance.</p>
<b>16. Other Information</b>	<p>Compiled according to regulation 1907/EC/2006.</p>

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**16.1 Changes from last issue:**  
Complete revision to comply with REACH.

The information provided in this Safety Data Sheet is correct to our best knowledge, information and belief at the date of its publication. It is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not be construed as guaranteeing any specific property of the product.

# MATERIAL SAFETY DATA SHEET

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT

**Product Name:** MOBILITH SHC 460  
**Product Description:** Synthetic Base Stocks and Additives  
**Product Code:** 643551-00, 970748  
**Intended Use:** Grease

### COMPANY IDENTIFICATION

**Supplier:** EXXON MOBIL CORPORATION  
3225 GALLOWS RD.  
FAIRFAX, VA. 22037 USA

**24 Hour Health Emergency:** 609-737-4411  
**Transportation Emergency Phone:** 800-424-9300  
**ExxonMobil Transportation No.:** 281-834-3296  
**MSDS Requests:** 713-613-3661  
**Product Technical Information:** 800-662-4525, 800-947-9147  
**MSDS Internet Address:** <http://www.exxon.com>, <http://www.mobil.com>

## SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

### Reportable Hazardous Substance(s) or Complex Substance(s)

Name	CAS#	Concentration*
ZINC DIALKYL DITHIOPHOSPHATE	68457-79-4	1 - 5%

\* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

## SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

### POTENTIAL HEALTH EFFECTS

Excessive exposure may result in eye, skin, or respiratory irritation. Low order of toxicity. High-pressure injection under skin may cause serious damage.

### ENVIRONMENTAL HAZARDS

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**NFPA Hazard ID:** Health: 0 Flammability: 1 Reactivity: 0  
**HMIS Hazard ID:** Health: 0 Flammability: 1 Reactivity: 0

**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

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## SECTION 4 FIRST AID MEASURES

### INHALATION

Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

### SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

### EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

### INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

## SECTION 5 FIRE FIGHTING MEASURES

### EXTINGUISHING MEDIA

**Appropriate Extinguishing Media:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

**Inappropriate Extinguishing Media:** Straight Streams of Water

### FIRE FIGHTING

**Fire Fighting Instructions:** Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

**Hazardous Combustion Products:** Aldehydes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulfur oxides

### FLAMMABILITY PROPERTIES

**Flash Point [Method]:** >204°C (400°F) [ EST. FOR OIL, ASTM D-92 (COC)]

**Flammable Limits (Approximate volume % in air):** LEL: N/D UEL: N/D

**Autoignition Temperature:** N/D

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. U.S. regulations require reporting releases of this material to the environment which exceed the reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.



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## SPILL MANAGEMENT

**Land Spill:** Allow spilled material to solidify and scrape up with shovels into a suitable container for recycle or disposal.

**Water Spill:** Confine the spill immediately with booms. Stop leak if you can do it without risk. Skim from surface.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

## ENVIRONMENTAL PRECAUTIONS

Prevent entry into waterways, sewers, basements or confined areas.

## SECTION 7

## HANDLING AND STORAGE

### HANDLING

Prevent small spills and leakage to avoid slip hazard.

**Static Accumulator:** This material is not a static accumulator.

### STORAGE

Do not store in open or unlabelled containers.

## SECTION 8

## EXPOSURE CONTROLS / PERSONAL PROTECTION

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

### ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

### PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of

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respirators to be considered for this material include:

No protection is ordinarily required under normal conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

**Hand Protection:** Any specific glove information provided is based on published literature and glove manufacturer data. Work conditions can greatly effect glove durability; inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

**Eye Protection:** If contact is likely, safety glasses with side shields are recommended.

**Skin and Body Protection:** Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

**Specific Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

## ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

## SECTION 9

## PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

### GENERAL INFORMATION

**Physical State:** Solid

**Form:** Semi-fluid

**Color:** Red

**Odor:** Characteristic

**Odor Threshold:** N/D

### IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

**Relative Density (at 15 °C):** 1

**Flash Point [Method]:** >204°C (400°F) [ EST. FOR OIL, ASTM D-92 (COC)]

**Flammable Limits (Approximate volume % in air):** LEL: N/D UEL: N/D

**Autoignition Temperature:** N/D

**Boiling Point / Range:** > 316°C (600°F)

**Vapor Density (Air = 1):** N/D

**Vapor Pressure:** < 0.013 kPa (0.1 mm Hg) at 20°C

**Evaporation Rate (n-butyl acetate = 1):** N/D

**pH:** N/A

**Log Pow (n-Octanol/Water Partition Coefficient):** > 3.5

**Solubility in Water:** Negligible

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**Viscosity:** 460 cSt (460 mm<sup>2</sup>/sec ) at 40 °C  
**Oxidizing Properties:** See Sections 3, 15, 16.

**OTHER INFORMATION**

**Freezing Point:** N/D

**Melting Point:** N/D

NOTE: Most physical properties above are for the oil component in the material.

<b>SECTION 10</b>	<b>STABILITY AND REACTIVITY</b>
-------------------	---------------------------------

**STABILITY:** Material is stable under normal conditions.

**CONDITIONS TO AVOID:** Excessive heat. High energy sources of ignition.

**MATERIALS TO AVOID:** Strong oxidizers

**HAZARDOUS DECOMPOSITION PRODUCTS:** Material does not decompose at ambient temperatures.

**HAZARDOUS POLYMERIZATION:** Will not occur.

<b>SECTION 11</b>	<b>TOXICOLOGICAL INFORMATION</b>
-------------------	----------------------------------

**ACUTE TOXICITY**

<u>Route of Exposure</u>	<u>Conclusion / Remarks</u>
<b>Inhalation</b>	
Toxicity (Rat): LC50 > 5000 mg/m <sup>3</sup>	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
<b>Ingestion</b>	
Toxicity (Rat): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
<b>Skin</b>	
Toxicity (Rabbit): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
<b>Eye</b>	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

**CHRONIC/OTHER EFFECTS**

**Contains:**

Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitizing in test animals and humans.

Additional information is available by request.

Product Name: MOBILITH SHC 460

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The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC

3 = IARC 1

5 = IARC 2B

2 = NTP SUS

4 = IARC 2A

6 = OSHA CARC

<b>SECTION 12</b>	<b>ECOLOGICAL INFORMATION</b>
-------------------	-------------------------------

The information given is based on data available for the material, the components of the material, and similar materials.

**ECOTOXICITY**

Material -- Expected to be harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

**MOBILITY**

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

<b>SECTION 13</b>	<b>DISPOSAL CONSIDERATIONS</b>
-------------------	--------------------------------

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

**DISPOSAL RECOMMENDATIONS**

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Suitable routes of disposal are supervised incineration or appropriate recycling methods in accordance with applicable regulations and material characteristics at the time of disposal.

**REGULATORY DISPOSAL INFORMATION**

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

**Empty Container Warning** PRECAUTIONARY LABEL TEXT: Empty containers may retain residue and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Product Name: MOBILITH SHC 460

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SECTION 14	TRANSPORT INFORMATION
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**LAND (DOT)** : Not Regulated for Land Transport

**LAND (TDG)** : Not Regulated for Land Transport

**SEA (IMDG)** : Not Regulated for Sea Transport according to IMDG-Code

**AIR (IATA)** : Not Regulated for Air Transport

SECTION 15	REGULATORY INFORMATION
------------	------------------------

**OSHA HAZARD COMMUNICATION STANDARD:** When used for its intended purposes, this material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

**NATIONAL CHEMICAL INVENTORY LISTING:** TSCA

**EPCRA:** This material contains no extremely hazardous substances.

**SARA (311/312) REPORTABLE HAZARD CATEGORIES:** None.

**SARA (313) TOXIC RELEASE INVENTORY:**

Chemical Name	CAS Number	Typical Value
ZINC DIALKYL DITHIOPHOSPHATE	68457-79-4	1 - 5%

**The Following Ingredients are Cited on the Lists Below:\***

Chemical Name	CAS Number	List Citations
DIPHENYLAMINE	122-39-4	5, 9, 18
ZINC DIALKYL DITHIOPHOSPHATE	68457-79-4	13, 15, 17
ZINC NEODECANOATE	27253-29-8	15

--REGULATORY LISTS SEARCHED--

- |               |                  |                   |             |
|---------------|------------------|-------------------|-------------|
| 1 = ACGIH ALL | 6 = TSCA 5a2     | 11 = CA P65 REPRO | 16 = MN RTK |
| 2 = ACGIH A1  | 7 = TSCA 5e      | 12 = CA RTK       | 17 = NJ RTK |
| 3 = ACGIH A2  | 8 = TSCA 6       | 13 = IL RTK       | 18 = PA RTK |
| 4 = OSHA Z    | 9 = TSCA 12b     | 14 = LA RTK       | 19 = RI RTK |
| 5 = TSCA 4    | 10 = CA P65 CARC | 15 = MI 293       |             |

Code key: CARC=Carcinogen; REPRO=Reproductive

\* EPA recently added new chemical substances to its TSCA Section 4 test rules. Please contact the supplier to confirm whether the ingredients in this product currently appear on a TSCA 4 or TSCA 12b list.



Product Name: MOBILITH SHC 460

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**SECTION 16**

**OTHER INFORMATION**

N/D = Not determined, N/A = Not applicable

**THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:**

No revision information is available.

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PPEC: A

DGN: 2009995XUS (553328)

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**SAFETY DATA SHEET**  
RTD LIQUID

Page: 1

Compilation date: 07/01/2012

Revision No: 6

**Section 1: Identification of the substance/mixture and of the company/undertaking**

**1.1. Product identifier**

Product name: RTD LIQUID

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Use of substance / mixture: Lubricant for reaming, tapping and drilling.

**1.3. Details of the supplier of the safety data sheet**

Company name: ROCOL

ROCOL House

Swillington

Leeds

West Yorkshire

LS26 8BS

ENGLAND

Tel: +44 (0) 113 232 2700

Fax: +44 (0) 113 232 2740

Email: [customer-service@rocol.com](mailto:customer-service@rocol.com)

**1.4. Emergency telephone number**

Emergency tel: +44 (0) 113 232 2600

**Section 2: Hazards identification**

**2.1. Classification of the substance or mixture**

Classification under CHIP: N: R50/53; -: R64; -: R66

**Most important adverse effects:** Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause harm to breastfed babies. Repeated exposure may cause skin dryness or cracking.

**2.2. Label elements**

Label elements under CHIP:

Hazard symbols: Dangerous for the environment.



**Risk phrases:** R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R64: May cause harm to breastfed babies.

R66: Repeated exposure may cause skin dryness or cracking.

[cont...]

# SAFETY DATA SHEET

RTD LIQUID

Page: 2

**Safety phrases:** S61: Avoid release to the environment. Refer to special instructions / safety data sheets.

## 2.3. Other hazards

**PBT:** This substance is not identified as a PBT substance.

## Section 3: Composition/information on ingredients

### 3.2. Mixtures

#### Hazardous ingredients:

C14-C17 CHLORINATED PARAFFIN - REACH registered number(s): 01-2119519269-33-XXXX

EINECS	CAS	CHIP Classification	CLP Classification	Percent
287-477-0	85535-85-9	N: R50/53; -: R64; -: R66	-	70-90%

## Section 4: First aid measures

### 4.1. Description of first aid measures

**Skin contact:** Wash immediately with plenty of soap and water.

**Eye contact:** Bathe the eye with running water for 15 minutes. Consult a doctor.

**Ingestion:** Wash out mouth with water.

**Inhalation:** Remove casualty from exposure ensuring one's own safety whilst doing so.

### 4.2. Most important symptoms and effects, both acute and delayed

**Skin contact:** There may be mild irritation at the site of contact. There may be irritation with skin drying and defatting Prolonged and repeated contact may defat the skin leading to dermatitis

**Eye contact:** There may be irritation and redness.

**Ingestion:** There may be irritation of the throat.

**Inhalation:** There may be coughing and a sore throat.

**Delayed / immediate effects:** Ingestion by mothers may cause harm to breast-fed babies.

### 4.3. Indication of any immediate medical attention and special treatment needed

## Section 5: Fire-fighting measures

### 5.1. Extinguishing media

**Extinguishing media:** Use water spray to cool containers. Suitable extinguishing media for the surrounding fire should be used.

### 5.2. Special hazards arising from the substance or mixture

**Exposure hazards:** In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

### 5.3. Advice for fire-fighters

**Advice for fire-fighters:** Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

[cont...]



# SAFETY DATA SHEET

RTD LIQUID

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## Section 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions:** Refer to section 8 of SDS for personal protection details.

### 6.2. Environmental precautions

**Environmental precautions:** Do not discharge into drains or rivers.

### 6.3. Methods and material for containment and cleaning up

**Clean-up procedures:** Transfer to a closable, labelled salvage container for disposal by an appropriate method.

### 6.4. Reference to other sections

## Section 7: Handling and storage

### 7.1. Precautions for safe handling

**Handling requirements:** Avoid direct contact with the substance.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage conditions:** Store in cool, well ventilated area.

**Suitable packaging:** Must only be kept in original packaging.

### 7.3. Specific end use(s)

**Specific end use(s):** No special requirement.

## Section 8: Exposure controls/personal protection

### 8.1. Control parameters

**Workplace exposure limits:** Not applicable.

### 8.2. Exposure controls

**Engineering measures:** Ensure there is sufficient ventilation of the area.

**Respiratory protection:** Respiratory protection not normally required.

**Hand protection:** Nitrile gloves.

**Eye protection:** Safety glasses with side-shields.

**Skin protection:** Protective clothing.

## Section 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

**State:** Liquid

**Colour:** Brown

**Odour:** Characteristic odour

**Evaporation rate:** Negligible

[cont...]

# SAFETY DATA SHEET

RTD LIQUID

Page: 4

**Oxidising:** Non-oxidising (by EC criteria)  
**Solubility in water:** Insoluble  
**Viscosity:** Viscous  
**Flash point°C:** > 100  
**Relative density:** 1.2  
**Autoflammability°C:** > 200

## 9.2. Other information

**Other information:** Not applicable.

## Section 10: Stability and reactivity

### 10.1. Reactivity

**Reactivity:** Stable under recommended transport or storage conditions.

### 10.2. Chemical stability

**Chemical stability:** Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

**Hazardous reactions:** Hazardous reactions will not occur under normal transport or storage conditions.

### 10.4. Conditions to avoid

**Conditions to avoid:** Heat.

### 10.5. Incompatible materials

**Materials to avoid:** Strong oxidising agents. Strong reducing agents.

### 10.6. Hazardous decomposition products

**Haz. decomp. products:** In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

## Section 11: Toxicological information

### 11.1. Information on toxicological effects

**Toxicity values:** Not applicable.

### Symptoms / routes of exposure

**Skin contact:** There may be mild irritation at the site of contact. There may be irritation with skin drying and defatting Prolonged and repeated contact may defat the skin leading to dermatitis

**Eye contact:** There may be irritation and redness.

**Ingestion:** There may be irritation of the throat.

**Inhalation:** There may be coughing and a sore throat.

**Delayed / immediate effects:** Ingestion by mothers may cause harm to breast-fed babies.

## Section 12: Ecological information

[cont...]

# SAFETY DATA SHEET

RTD LIQUID

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## 12.1. Toxicity

**Ecotoxicity values:** Not applicable.

## 12.2. Persistence and degradability

**Persistence and degradability:** Only slightly biodegradable.

## 12.3. Bioaccumulative potential

**Bioaccumulative potential:** No data available.

## 12.4. Mobility in soil

**Mobility:** Non-volatile. Absorbed only slowly into soil.

## 12.5. Results of PBT and vPvB assessment

**PBT identification:** This substance is not identified as a PBT substance.

## 12.6. Other adverse effects

**Other adverse effects:** Very toxic to aquatic organisms.

## Section 13: Disposal considerations

### 13.1. Waste treatment methods

**Disposal operations:** Transfer to a suitable container and arrange for collection by specialised disposal company.

**Recovery operations:** Not applicable.

**Disposal of packaging:** Dispose of in a regulated landfill site or other method for hazardous or toxic wastes.

**NB:** The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

## Section 14: Transport information

### 14.1. UN number

**UN number:** UN3082

### 14.2. UN proper shipping name

**Shipping name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(C14-C17 CHLORINATED PARAFFIN)

### 14.3. Transport hazard class(es)

**Transport class:** 9

### 14.4. Packing group

**Packing group:** III

### 14.5. Environmental hazards

**Environmentally hazardous:** Yes

**Marine pollutant:** Yes

[cont...]

# SAFETY DATA SHEET

RTD LIQUID

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## 14.6. Special precautions for user

## Section 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

### 15.2. Chemical Safety Assessment

**Chemical safety assessment:** A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

## Section 16: Other information

### Other information

**Other information:** This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

**Phrases used in s.2 and 3:** R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R64: May cause harm to breastfed babies.

R66: Repeated exposure may cause skin dryness or cracking.

**Legal disclaimer:** The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

**Material Safety Data Sheet****1. MATERIAL AND COMPANY IDENTIFICATION**

**Material Name** : Shell Naturelle Fluid HF-E 46  
**Uses** : Hydraulic oil

**Manufacturer/Supplier** : SOPUS Products  
 PO BOX 4427  
 Houston, TX 77210-4427  
 USA

**MSDS Request** : 877-276-7285

**Emergency Telephone Number**  
**Spill Information** : 877-242-7400  
**Health Information** : 877-504-9351

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Blend of synthetic esters and additives.

**3. HAZARDS IDENTIFICATION**

<b>Emergency Overview</b>	
<b>Appearance and Odour</b>	: Green. Liquid at room temperature. Slight hydrocarbon.
<b>Health Hazards</b>	: High-pressure injection under the skin may cause serious damage including local necrosis.
<b>Safety Hazards</b>	: Not classified as flammable but will burn.
<b>Environmental Hazards</b>	: Not classified as dangerous for the environment.

**Health Hazards** : Not expected to be a health hazard when used under normal conditions.

**Health Hazards**  
**Inhalation** : Under normal conditions of use, this is not expected to be a primary route of exposure.  
**Skin Contact** : Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.  
**Eye Contact** : May cause slight irritation to eyes.  
**Ingestion** : Low toxicity if swallowed.  
**Other Information** : High-pressure injection under the skin may cause serious damage including local necrosis. Used oil may contain harmful impurities.

**Signs and Symptoms** : Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection. Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.

**Material Safety Data Sheet**

- Aggravated Medical Conditions** : Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Skin.
- Environmental Hazards** : Not classified as dangerous for the environment.
- Additional Information** : Under normal conditions of use or in a foreseeable emergency, this product does not meet the definition of a hazardous chemical when evaluated according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**4. FIRST AID MEASURES**

- General Information** : Not expected to be a health hazard when used under normal conditions.
- Inhalation** : No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
- Skin Contact** : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.
- Eye Contact** : Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
- Ingestion** : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
- Advice to Physician** : Treat symptomatically. High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

**5. FIRE FIGHTING MEASURES**

Clear fire area of all non-emergency personnel.

- Flash point** : Typical 322 °C / 612 °F (COC)
- Upper / lower Flammability or Explosion limits** : Typical 1 - 10 %(V)
- Auto ignition temperature** : > 320 °C / 608 °F
- Specific Hazards** : Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic

**Material Safety Data Sheet**

- compounds.
- Suitable Extinguishing Media** : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
- Unsuitable Extinguishing Media** : Do not use water in a jet.
- Protective Equipment for Firefighters** : Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

**6. ACCIDENTAL RELEASE MEASURES**

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe the relevant local and international regulations.

- Protective measures** : Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
- Clean Up Methods** : Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
- Additional Advice** : Local authorities should be advised if significant spillages cannot be contained.

**7. HANDLING AND STORAGE**

- General Precautions** : Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
- Handling** : Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
- Storage** : Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Store at ambient temperature.
- Recommended Materials** : For containers or container linings, use mild steel or high density polyethylene.
- Unsuitable Materials** : PVC.
- Additional Information** : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Occupational Exposure Limits**

3/8

**Material Safety Data Sheet**

Contains no components with occupational exposure limit values.

- Exposure Controls** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
- Personal Protective Equipment** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Respiratory Protection** : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
- Hand Protection** : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
- Eye Protection** : Wear safety glasses or full face shield if splashes are likely to occur.
- Protective Clothing** : Skin protection not ordinarily required beyond standard issue work clothes.
- Monitoring Methods** : Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
- Environmental Exposure Controls** : Minimise release to the environment. An environmental assessment must be made to ensure compliance with local



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environmental legislation.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	: Green. Liquid at room temperature.
Odour	: Slight hydrocarbon.
pH	: Not applicable.
Initial Boiling Point and Boiling Range	: > 280 °C / 536 °F estimated value(s)
Pour point	: Typical -42 °C / -44 °F
Flash point	: Typical 322 °C / 612 °F (COC)
Upper / lower Flammability or Explosion limits	: Typical 1 - 10 %(V)
Auto-ignition temperature	: > 320 °C / 608 °F
Vapour pressure	: < 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	: Typical 0.921 at 15 °C / 59 °F
Density	: Typical 921 kg/m <sup>3</sup> at 15 °C / 59 °F
Water solubility	: Negligible.
n-octanol/water partition coefficient (log Pow)	: > 6 (based on information on similar products)
Kinematic viscosity	: Typical 47.2 mm <sup>2</sup> /s at 40 °C / 104 °F
Vapour density (air=1)	: > 1 (estimated value(s))
Evaporation rate (nBuAc=1)	: Data not available

**10. STABILITY AND REACTIVITY**

<b>Stability</b>	: Stable.
<b>Conditions to Avoid</b>	: Extremes of temperature and direct sunlight.
<b>Materials to Avoid</b>	: Strong oxidising agents.
<b>Hazardous Decomposition Products</b>	: Hazardous decomposition products are not expected to form during normal storage.

**11. TOXICOLOGICAL INFORMATION**

<b>Basis for Assessment</b>	: Information given is based on data on the components and the toxicology of similar products.
<b>Acute Oral Toxicity</b>	: Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat
<b>Acute Dermal Toxicity</b>	: Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit
<b>Acute Inhalation Toxicity</b>	: Not considered to be an inhalation hazard under normal conditions of use.
<b>Skin Irritation</b>	: Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
<b>Eye Irritation</b>	: Expected to be slightly irritating.
<b>Respiratory Irritation</b>	: Inhalation of vapours or mists may cause irritation.
<b>Sensitisation</b>	: Not expected to be a skin sensitiser.
<b>Repeated Dose Toxicity</b>	: Not expected to be a hazard.
<b>Mutagenicity</b>	: Not considered a mutagenic hazard.
<b>Carcinogenicity</b>	: Components are not known to be associated with carcinogenic effects.

**Material Safety Data Sheet**

- Reproductive and Developmental Toxicity** : Not expected to be a hazard.
- Additional Information** : Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed.

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**12. ECOLOGICAL INFORMATION**

Information given is based on product data, a knowledge of the components and the ecotoxicology of similar products.

- Acute Toxicity** : Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract.)
- Mobility** : Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.
- Persistence/degradability** : Readily biodegradable.
- Bioaccumulation** : Contains components with the potential to bioaccumulate.
- Other Adverse Effects** : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

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**13. DISPOSAL CONSIDERATIONS**

- Material Disposal** : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.
- Container Disposal** : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
- Local Legislation** : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

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**14. TRANSPORT INFORMATION****US Department of Transportation Classification (49CFR)**

## Material Safety Data Sheet

This material is not subject to DOT regulations under 49 CFR Parts 171-180.

### IMDG

This material is not classified as dangerous under IMDG regulations.

### IATA (Country variations may apply)

This material is either not classified as dangerous under IATA regulations or needs to follow country specific requirements.

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## 15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

### Federal Regulatory Status

#### Notification Status

EINECS	All components listed or polymer exempt.
TSCA	All components listed.
DSL	All components listed.

Shell classifies this material as an "oil" under the CERCLA Petroleum Exclusion, therefore releases to the environment are not reportable under CERCLA.

#### SARA Hazard Categories (311/312)

No SARA 311/312 Hazards.

### State Regulatory Status

#### California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

This material does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

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## 16. OTHER INFORMATION

## Material Safety Data Sheet

- NFPA Rating (Health, Fire, Reactivity)** : 0, 1, 0
- MSDS Version Number** : 5.2
- MSDS Effective Date** : 01/17/2012
- MSDS Revisions** : A vertical bar (|) in the left margin indicates an amendment from the previous version.
- MSDS Regulation** : The content and format of this MSDS is in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
- MSDS Distribution** : The information in this document should be made available to all who may handle the product.
- Disclaimer** : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

**Material Safety Data Sheet**

---

**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING**

**Material Name** : Shell Omala Oil 100  
**Uses** : Gear lubricant.  
**Product Code** : 001A0774

**Manufacturer/Supplier** : Shell UK Oil Products Limited  
PO Box 3  
Ellesmere Port  
CH65 4HB  
United Kingdom

**Telephone** : +44-(0) 151-350-4000  
**Fax** : +44-(0) 151-350-4843

**Emergency Telephone Number** : +44-(0) 151-350-4595

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**2. COMPOSITION/INFORMATION ON INGREDIENTS**

**Preparation description** : Highly refined mineral oils and additives.

**Additional Information** : The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

---

**3. HAZARDS IDENTIFICATION**

**EC Classification** : Not classified as dangerous under EC criteria.

**Health Hazards** : Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. Used oil may contain harmful impurities.

**Signs and Symptoms** : Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.

**Safety Hazards** : Not classified as flammable but will burn.

**Environmental Hazards** : Not classified as dangerous for the environment.

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**4. FIRST AID MEASURES**

**General Information** : Not expected to be a health hazard when used under normal conditions.

**Inhalation** : No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.

**Skin Contact** : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.

**Eye Contact** : Flush eye with copious quantities of water. If persistent

**Material Safety Data Sheet**

- Ingestion** : irritation occurs, obtain medical attention.  
: In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
- Advice to Physician** : Treat symptomatically.

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**5. FIRE FIGHTING MEASURES**

Clear fire area of all non-emergency personnel.

- Specific Hazards** : Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
- Extinguishing Media** : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
- Unsuitable Extinguishing Media** : Do not use water in a jet.
- Protective Equipment for Firefighters** : Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

---

**6. ACCIDENTAL RELEASE MEASURES**

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe all relevant local and international regulations.

- Protective measures** : Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
- Clean Up Methods** : Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
- Additional Advice** : Local authorities should be advised if significant spillages cannot be contained.

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**7. HANDLING AND STORAGE**

- General Precautions** : Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
- Handling** : Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
- Storage** : Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Storage

**Material Safety Data Sheet**

Temperature: 0 - 50°C / 32 - 122°F

The storage of this product may be subject to the Control of Pollution (Oil Storage) (England) Regulations. Further guidance maybe obtained from the local environmental agency office.

- Recommended Materials** : For containers or container linings, use mild steel or high density polyethylene.
- Unsuitable Materials** : PVC.
- Additional Information** : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion. Exposure to this product should be reduced as low as reasonably practicable. Reference should be made to the Health and Safety Executive's publication "COSHH Essentials".

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Occupational Exposure Limits**

- Exposure Controls** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
- Personal Protective Equipment** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Respiratory Protection** : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point <65 °C (149 °F)] meeting EN371.
- Hand Protection** : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
- Eye Protection** : Wear safety glasses or full face shield if splashes are likely to occur. Approved to EU Standard EN166.

**Material Safety Data Sheet**

<b>Protective Clothing</b>	: Skin protection not ordinarily required beyond standard issue work clothes.
<b>Monitoring Methods</b>	: Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
<b>Environmental Exposure Controls</b>	: Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	: Brown. Liquid.
Odour	: Slight hydrocarbon.
pH	: Not applicable.
Boiling point	: > 280 °C / 536 °F estimated value(s)
Pour point	: Typical -24 °C / -11 °F
Flash point	: Typical 195 °C / 383 °F (COC)
Explosion / Flammability limits in air	: Typical 1 - 10 %(V) (based on mineral oil)
Auto-ignition temperature	: > 320 °C / 608 °F
Vapour pressure	: < 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Density	: Typical 891 kg/m <sup>3</sup> at 15 °C / 59 °F
Water solubility	: Negligible.
n-octanol/water partition coefficient (log Pow)	: > 6 (based on information on similar products)
Kinematic viscosity	: Typical 100 mm <sup>2</sup> /s at 40 °C / 104 °F
Vapour density (air=1)	: > 1 (estimated value(s))
Evaporation rate (nBuAc=1)	: Data not available

**10. STABILITY AND REACTIVITY**

<b>Stability</b>	: Stable.
<b>Conditions to Avoid</b>	: Extremes of temperature and direct sunlight.
<b>Materials to Avoid</b>	: Strong oxidising agents.
<b>Hazardous Decomposition Products</b>	: Hazardous decomposition products are not expected to form during normal storage.

**11. TOXICOLOGICAL INFORMATION**

<b>Basis for Assessment</b>	: Information given is based on data on the components and the toxicology of similar products.
<b>Acute Oral Toxicity</b>	: Expected to be of low toxicity: LD50 >2000 mg/kg , Rat
<b>Acute Dermal Toxicity</b>	: Expected to be of low toxicity: LD50 >2000 mg/kg , Rabbit
<b>Acute Inhalation Toxicity</b>	: This product is not expected to pose an inhalation hazard under conditions of foreseeable use.
<b>Skin Irritation</b>	: Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
<b>Eye Irritation</b>	: Expected to be slightly irritating.
<b>Respiratory Irritation</b>	: Inhalation of vapours or mists may cause irritation.
<b>Sensitisation</b>	: Not expected to be a skin sensitiser.



**Material Safety Data Sheet**

<b>Repeated Dose Toxicity</b>	:	Not expected to be a hazard.
<b>Mutagenicity</b>	:	Not considered a mutagenic hazard.
<b>Carcinogenicity</b>	:	Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC). Other components are not known to be associated with carcinogenic effects.
<b>Reproductive and Developmental Toxicity</b>	:	Not expected to be a hazard.
<b>Additional Information</b>	:	Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible.

**12. ECOLOGICAL INFORMATION**

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

<b>Acute Toxicity</b>	:	Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract). Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.
<b>Mobility</b>	:	Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.
<b>Persistence/degradability</b>	:	Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.
<b>Bioaccumulation</b>	:	Contains components with the potential to bioaccumulate.
<b>Other Adverse Effects</b>	:	Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

**13. DISPOSAL CONSIDERATIONS**

<b>Material Disposal</b>	:	Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.
<b>Container Disposal</b>	:	Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
<b>Local Legislation</b>	:	Disposal should be in accordance with applicable regional, national, and local laws and regulations.

**Material Safety Data Sheet**

EU Waste Disposal Code (EWC): 13 02 05 mineral-based non-chlorinated engine, gear and lubricating oils. Classification of waste is always the responsibility of the end user.

**14. TRANSPORT INFORMATION****ADR**

This material is not classified as dangerous under ADR regulations.

**RID**

This material is not classified as dangerous under RID regulations.

**ADNR**

This material is not classified as dangerous under ADNR regulations.

**IMDG**

This material is not classified as dangerous under IMDG regulations.

**IATA (Country variations may apply)**

This material is not classified as dangerous under IATA regulations.

**15. REGULATORY INFORMATION**

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

EC Classification	:	Not classified as dangerous under EC criteria.
EC Symbols	:	No Hazard Symbol required
EC Risk Phrases	:	Not classified.
EC Safety Phrases	:	Not classified.
EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
Other Information	:	Environmental Protection Act 1990 (as amended). Health and Safety at Work Act 1974. Consumers Protection Act 1987. Control of Pollution Act 1974. Environmental Act 1995. Factories Act 1961. Carriage of Dangerous Goods by Road and Rail (Classification, Packaging and Labelling) Regulations. Chemicals (Hazard Information and Packaging for Supply) Regulations 2002. Control of Substances Hazardous to Health Regulations 1994 (as amended). Road Traffic (Carriage of Dangerous Substances in Packages) Regulations. Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations. Road Traffic (Carriage of Dangerous Substances in Road Tankers in Tank Containers) Regulations. Road Traffic (Training of Drivers of Vehicles Carrying Dangerous Goods) Regulations. Reporting of Injuries, Diseases and Dangerous

## Material Safety Data Sheet

Occurrences Regulations. Health and Safety (First Aid) Regulations 1981. Personal Protective Equipment (EC Directive) Regulations 1992. Personal Protective Equipment at Work Regulations 1992.

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### 16. OTHER INFORMATION

R-phrases(s)

Not classified.

- MSDS Version Number** : 1.1
- MSDS Effective Date** : 05.03.2007
- MSDS Revisions** : A vertical bar (|) in the left margin indicates an amendment from the previous version.
- MSDS Regulation** : The content and format of this safety data sheet is in accordance with Commission Directive 2001/58/EC of 27 July 2001, amending for the second time Commission Directive 91/155/EEC.
- MSDS Distribution** : The information in this document should be made available to all who may handle the product.
- Disclaimer** : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

REVISION DATE: 29th January 2008

## WHITE SPIRIT MSDS

### White Spirit

#### 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

**PRODUCT NAME** White Spirit  
**SYNONYMS, TRADE NAMES** 100,  
**SUPPLIER** Abbey Chemicals  
 27-30 North River Road  
 Great Yarmouth  
 Norfolk  
 NR30 1SH  
 Tel: +44 1493 850303  
 Fax: +44 1493 330909  
 www.abbey-chemicals.co.uk  
**SDS No.** W003  
**Emergency Contact Number (Office Hours)** +441493 850303

#### 2 HAZARDS IDENTIFICATION

Flammable. Repeated exposure may cause skin dryness or cracking. Harmful: may cause lung damage if swallowed. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**CLASSIFICATION** Xn;R65. N;R51/53. R10, R66.

#### 3 COMPOSITION/INFORMATION ON INGREDIENTS

Name	EC No.	CAS-No.	Content	Classification
BENZENE	200-753-7	71-43-2	<0.1	F;R11 Carc1;R45 T;R48/23/24/25
Naphtha(Petroleum) Hydroesulphurised Heavy	265-185-4	64742-82-1	50-100%	Xn;R65. N;R51/53. R10,R66.

The Full Text for all R-Phrases are Displayed in Section 16

#### 4 FIRST-AID MEASURES

##### NOTES TO THE PHYSICIAN

Treat according to symptoms:

##### INHALATION

Move the exposed person to fresh air at once. Get medical attention.

##### INGESTION

Provide rest, warmth and fresh air. Immediately rinse mouth and drink plenty of water (200-300 ml). Get medical attention.

##### SKIN CONTACT

Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention immediately.

##### EYE CONTACT

Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention immediately. Continue to rinse.

#### 5 FIRE-FIGHTING MEASURES

##### EXTINGUISHING MEDIA

Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

##### SPECIFIC HAZARDS

Oxides of: Carbon.

REVISION DATE: 29th January 2008

## White Spirit

### PROTECTIVE MEASURES IN FIRE

Self contained breathing apparatus and full protective clothing must be worn in case of fire.

## 6 ACCIDENTAL RELEASE MEASURES

### PERSONAL PRECAUTIONS

Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of spray mist and contact with skin and eyes. Provide adequate ventilation.

### ENVIRONMENTAL PRECAUTIONS

Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

### SPILL CLEAN UP METHODS

Absorb with inert, damp, non-combustible material, then flush area with water. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.

## 7 HANDLING AND STORAGE

### USAGE PRECAUTIONS

Avoid spilling, skin and eye contact. Keep away from heat, sparks and open flame. Eliminate all sources of ignition. Provide good ventilation. Avoid inhalation of vapours and spray mists.

### STORAGE PRECAUTIONS

Keep containers tightly closed. Keep in original container. Keep away from heat, sparks and open flame.

### STORAGE CLASS

Flammable liquid storage.

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	Std	LT - ppm	LT - mg/m3	ST - ppm	ST - mg/m3
BENZENE	ME	1 ppm(Sk)			

### PROTECTIVE EQUIPMENT



### RESPIRATORY EQUIPMENT

If ventilation is insufficient, suitable respiratory protection must be provided.

### HAND PROTECTION

Neoprene gloves are recommended.

### EYE PROTECTION

Wear approved safety goggles.

### OTHER PROTECTION

Wear rubber apron. Wear rubber footwear.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Liquid		
COLOUR	Colourless		
SOLUBILITY	Slightly soluble in water.		
BOILING POINT (°C)	150 - 200	MELTING POINT (°C)	<-20
RELATIVE DENSITY	0.778 15	VAPOUR PRESSURE	0.44 kPa 20
FLASH POINT (°C)	38	AUTO IGNITION TEMPERATURE (°C)	230

## 10 STABILITY AND REACTIVITY

REVISION DATE: 29th January 2008

## White Spirit

## STABILITY

Stable under normal temperature conditions and recommended use.

## CONDITIONS TO AVOID

Avoid excessive heat for prolonged periods of time. Avoid heat, flames and other sources of ignition.

## MATERIALS TO AVOID

Strong oxidising substances.

## HAZARDOUS DECOMPOSITION PRODUCTS

Oxides of: Carbon.

## 11 TOXICOLOGICAL INFORMATION

## INHALATION

Irritating to respiratory system.

## INGESTION

Irritating. May be absorbed in the body and cause dizziness, nausea and vomiting. Diarrhoea.

## SKIN CONTACT

Irritating to skin.

## EYE CONTACT

Irritating and may cause redness and pain.

## MEDICAL SYMPTOMS

Pulmonary oedema, frothy sputum.

## 12 ECOLOGICAL INFORMATION

## ECOTOXICITY

The product contains substances which are toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

## MOBILITY

The product has poor water-solubility.

## DEGRADABILITY

The product is not readily biodegradable.

## 13 DISPOSAL CONSIDERATIONS

## GENERAL INFORMATION

Waste to be treated as controlled waste. Disposal to licensed waste disposal site in accordance with local Waste Disposal Authority. Do not puncture or incinerate even when empty. Rags and the like, moistened with flammable liquids, must be discarded into designated fireproof bucket.

## DISPOSAL METHODS

Dispose of waste and residues in accordance with local authority requirements.

## 14 TRANSPORT INFORMATION



UK ROAD CLASS	3		
PROPER SHIPPING NAME	TURPENTINE SUBSTITUTE		
UN NO. ROAD	1300	UK ROAD PACK GR.	III
ADR CLASS NO.	3	ADR CLASS	Class 3: Flammable liquids.
ADR PACK GROUP	III	HAZARD No. (ADR)	30

REVISION DATE: 29th January 2008

## White Spirit

ADR LABEL NO.	3	HAZCHEM CODE	3Y
CEPIC TEC(R) NO.	30GF1-III	RID CLASS NO.	3
RID PACK GROUP	III	UN NO. SEA	1300
IMDG CLASS	3	IMDG PACK GR.	III
EMS	F-E, S-E	MFAG	See Guide
MARINE POLLUTANT	No.	UN NO. AIR	1300
AIR CLASS	3	AIR PACK GR.	III

## 15 REGULATORY INFORMATION

## LABELLING



Harmful



Dangerous for the environment

## CONTAINS

Naphtha(Petroleum) Hydroesulphurised Heavy

## RISK PHRASES

R10	Flammable.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65	Harmful: may cause lung damage if swallowed.
R66	Repeated exposure may cause skin dryness or cracking.

## SAFETY PHRASES

S23	Do not breathe vapour/spray.
S24	Avoid contact with skin.
S43	In case of fire, use alcohol-resistant foam, carbon dioxide or dry powder. Never use water.
S57	Use appropriate containment to avoid environmental contamination.
S62	If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

## STATUTORY INSTRUMENTS

Chemicals (Hazard Information and Packaging) Regulations.

## APPROVED CODE OF PRACTICE

Safety Data Sheets for Substances and Preparations. Classification and Labelling of Substances and Preparations Dangerous for Supply. DSEAR

## GUIDANCE NOTES

CHIP for everyone HSG(108). Workplace Exposure Limits EH40.

## 16 OTHER INFORMATION

REVISION DATE	29th January 2008
REV. NO./REPL. SDS GENERATED	09
SDS NO.	W003
SAFETY DATA SHEET STATUS	Approved.
DATE	29th January 2008
SIGNATURE	Thomas Tailford

REVISION DATE: 29th January 2008

## White Spirit

### RISK PHRASES IN FULL

R10	Flammable.
R11	Highly flammable.
R45	May cause cancer.
R48/23/24/25	Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R65	Harmful: may cause lung damage if swallowed.
R66	Repeated exposure may cause skin dryness or cracking.



# ENERGY PARK

volume 4 // appendix 5.3 // materials data sheets - TGL

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# COOLFLOW NTP

# SAFETY DATA SHEET

## I. PRODUCT AND COMPANY IDENTIFICATION

Product Name	CoolFlow NTP		
Supplier	Cool Energy Ltd		
Address	ICS House, Stephenson Road, Calmore Industrial Estate, Totton, Southampton, SO40 3RY		
Telephone No.	023 8052 7300	Facsimile No.	023 8042 8366
E-Mail	<a href="mailto:info@icstemp.com">info@icstemp.com</a>		

## 2. COMPOSITION / INFORMATION ON PRODUCT COMPONENTS

Hazardous Components for EC

COMPONENT NAME	CAS no	CONCENTRATION	R PHASES	CLASSIFICATION
I. Propane-1,2-diol with corrosion inhibitors.	57-55-6	10-100%	Not Classified	

## 3. HAZARD IDENTIFICATION

Main Hazards Not classified as a hazard or environmental hazard under current legislation

## 4. FIRST AID MEASURES

Health effects - Eyes	Wash eyes promptly and rinse for 15 minutes. Get medical attention.
Health effects - Skin	Remove affected person from source of contamination. Wash skin with soap or mild detergent.
Health effects - Ingestion	Get medical attention. Rinse mouth thoroughly. DO NOT induce vomiting.
First Aid - Inhalation	Remove person to fresh air at once. Perform artificial respiration if breathing has stopped. Keep the affected person warm and at rest. Get medical attention.

## 5. FIRE FIGHTING MEASURES

Extinguishing Media	Alcohol resistant foam. Carbon Dioxide (CO2). Dry chemicals, sand and dolomite etc
Special Hazards of Product	Acrid smoke/fumes. Carbonyl compounds. Acetic acid.
Protective equipment for fire fighting.	Wear self contained breathing apparatus.

## 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	No special precautions necessary.
Environmental Precautions	Prevent the material from entering drains or water courses without pre-treatment.
Spillage's	Clean with absorbent material and dispose.

## 7. HANDLING AND STORAGE

Handling	No special measures necessary. Protect against fire and explosion. Take precautionary measures against static discharge.
Storage	Containers should be : tightly sealed and dry. Can be made from stainless steel. Do not use zinc.

## 8. EXPOSURE CONTROL/PERSONAL PROTECTION

See section 7	
Engineering Control Measures	Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (dilution and local exhaust), and control of process conditions.
Respiratory Protection	Respiratory protection if there is a risk of exposure to high vapour concentrations.
Hand Protection	PVC gloves
Eye Protection	Chemical goggles or face shield must be worn.
Body protection	Wear overall or apron.

## COOLFLOW NTP

## SAFETY DATA SHEET

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid. Blue
Colour	Clear. Almost
Odour	odourless
pH at 500g/l, 20°C	Range between 7.5 - 9.5
Density (g/cm <sup>3</sup> )	1.04 - 1.10 depending on inhibitors and additives.

### 10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions.
Conditions to Avoid	Heat, flames sparks.
Materials to Avoid	Powerful oxidising agents
Hazardous Decomposition Products	None provided product is correctly processed.

### 11. TOXICOLOGICAL INFORMATION

Acute Toxicity	LD 50/oral/rat:>20000 mg/kg
Irritancy - Eyes	This material is irritating to mucous membrane/eyes.
Irritancy - Skin	This material is non-irritant (Draize test) to the skin.

### 12. ECOLOGICAL INFORMATION

Mobility	The product will dissolve rapidly in water.
Ecotoxicity	The product is rated as : Algae EC <sub>50</sub> (72h):>100mg/l. Fish : LC <sub>50</sub> (96h):100mg/l, Oncorhynchus mykiss Bacteria: >1000 mg/l Daphnids (acute) EC <sub>50</sub> (48h):>100mg/l

### 13. DISPOSAL

Product Disposal	Dump according to local regulations use EWC-no:070104
Container Disposal	Containers should be cleaned by appropriate methods and then re-used or disposed in same manner as contents.

### 14. TRANSPORT INFORMATION

UN Number	n/a
UN Class	n/a
UN Packaging Group	n/a
ADR/RID Substance ID No.	n/a
ADR/RID - Class	n/a

### 15. REGULATORY INFORMATION

Labeling Information	According to EEC directives - not subject to labelling
R Phases	n/a
S Phrases	n/a
EC Annex I Classification	n/a

### 16. OTHER INFORMATION

MSDS first issued	01-May-01
MSDS data revised	02-Feb-10
Footnote	The above information is believed to be accurate. The sole purpose of the datasheet is to provide guidance on the safehandling and use of the respective product. It does not form part of any product specification or contract. It is not practical for the information to cover every conceivable application of the product. It is the responsibility of the user to evaluate the information for their own particular purpose. In no event shall the company beheld liable for any injury, loss or damage resulting from its use.



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## 6 ACCIDENTAL RELEASE MEASURES

Contain and recover spilled material using sand or other suitable inert absorbent material. It is advised that stocks of suitable absorbent material should be held in quantities sufficient to deal with any spillage which may be reasonably anticipated.

Spilled material may make surfaces slippery.

Protect drains from potential spills to minimise contamination. Do not wash product into drainage system. In the case of large spills contact the appropriate authorities.

In the case of spillage on water, prevent the spread of product by the use of suitable barrier equipment. Recover product from the surface. Protect environmentally sensitive areas and water supplies.

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## 7 HANDLING AND STORAGE

### HANDLING PRECAUTIONS

Avoid contact with eyes. If splashing is likely to occur wear a full face visor or chemical goggles as appropriate. Avoid frequent or prolonged skin contact with fresh or used product.

Good working practices, high standards of personal hygiene and plant cleanliness must be maintained at all times.

Wash hands thoroughly after contact.

Use disposable cloths and discard when soiled. Do not put soiled cloths into pockets.

### FIRE PREVENTION

Product contaminated rags, paper or material used to absorb spillages, represent a fire hazard, and should not be allowed to accumulate. Dispose of safely immediately after use.

### STORAGE CONDITIONS

Store under cover away from heat and sources of ignition.

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### EXPOSURE LIMITS

There is no appropriate occupational exposure limit for this material. Ensure good ventilation. Avoid, as far as reasonably practicable, inhalation of vapour, mists or fumes generated during use. If vapour, mists or fumes are generated, their concentration in the workplace air should be controlled to the lowest reasonably practicable level.

### RESPIRATORY PROTECTION

Respiratory protection is unnecessary, provided the concentration of vapour, mists or fumes is adequately controlled. The use of respiratory equipment must be strictly in accordance with the manufacturers' instructions and any statutory requirements governing its selection and use.

### PROTECTIVE CLOTHING

Wear face visor or goggles in circumstances where eye contact can accidentally occur. If skin contact is likely, wear impervious protective clothing and/or gloves.

Protective clothing should be regularly dry cleaned. Change heavily contaminated clothing as soon as reasonably practicable; dry clean, launder and preferably starch before re-use. Wash any contaminated underlying skin with soap and water.

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## 9 PHYSICAL AND CHEMICAL PROPERTIES

### Typical Values

	Test Method:	Units:	
Physical state			Liquid
Colour			Amber
Odour			Oily
Density @ 20°C	ASTM D 1298	kg/m <sup>3</sup>	0.891
Kinematic viscosity @ 40°C	ASTM D445	mm <sup>2</sup> /s	151.21
Kinematic viscosity @ 100°C	ASTM D445	mm <sup>2</sup> /s-	
Flash point (COC)	ASTM D 92 •C-		

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## 10 STABILITY AND REACTIVITY

### STABILITY

Products of this type are stable and unlikely to react in a hazardous manner under normal conditions of use. This material is combustible.

### MATERIALS TO AVOID

Avoid contact with strong oxidizing agents.

### HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition products will vary with conditions. Incomplete combustion will generate smoke, carbon dioxide and hazardous gases, including carbon monoxide and hydrogen sulphide and oxides of sulphur and phosphorus.

Page 3/3

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## 111 TOXICOLOGICAL INFORMATION

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### EYES

Unlikely to cause more than transient stinging or redness if accidental eye contact occurs.

### SKIN

Unlikely to cause harm to the skin on brief or occasional contact but prolonged or repeated exposure may lead to dermatitis.

### INGESTION

Unlikely to cause harm if accidentally swallowed in small doses, though larger quantities may cause nausea and diarrhoea.

### INHALATION

At normal ambient temperatures this product will be unlikely to present an inhalation hazard because of its low volatility. May cause irritation to eyes, nose and throat due to exposure to vapour, mists or fumes. May be harmful by inhalation if exposure to vapour, mists or fumes resulting from thermal decomposition products occurs.

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## 112 ECOLOGICAL INFORMATION

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### MOBILITY

Spillages may penetrate the soil causing ground water contamination.

### PERSISTENCE AND DEGRADABILITY

This product is Inherently biodegradable.

### BIOACCUMULATIVE POTENTIAL

There is no evidence to suggest bioaccumulation will occur.

### AQUATIC TOXICITY

Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

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## 113 DISPOSAL CONSIDERATIONS

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Where possible, arrange for product to be recycled. Dispose of via an authorised person /licensed waste disposal contractor in accordance with local regulations. Incineration may be carried out under controlled conditions provided that local regulations for **emissions are met.**

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## 114 TRANSPORT INFORMATION

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Not classified as hazardous for transport (ADR, RID, UN , IMO, IATNICA0)

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## 15 REGULATORY INFORMATION

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) Not classified as hazardous for supply No Statutory label required

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## 116 OTHER INFORMATION

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This data sheet and the health, safety and environmental information it contains is considered to be accurate as of the date specified below. We have reviewed any information contained herein which we received from sources outside of the Company. However, no warranty or representation, express or implied is made as to the accuracy or completeness of the data and information contained in this data sheet.

Health and safety precautions and environmental advice noted in this data sheet may not be accurate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission, recommendation or authorisation given or implied to practise any patented Invention without a valid licence. The Company shall not be responsible for any damage or injury resulting from abnormal use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material.

①

# MIIII'T'BIJIIM 111£11

Product Name: GOLDLJNE HPX 32

Revision Date: 11/08/09

Page 1 of3

## MATERIAL SAFETY DATA SHEET

### 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT NAME	GOLDLINE HPX 32
SUPPLIER	NORTHERN OILS INDULF HOUSE LINTMILL AB564XQ T: (+44)(0)1542 832465 F: (+44)(0)1542 833550 sales@northernolls.co.uk

### 2 HAZARDS IDENTIFICATION

This material is not considered to be hazardous, but should be handled in accordance with good industrial hygiene and safety practices.

Note: High Pressure Applications - Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency.

See 'Medical Advice' under First-Aid Measures, Section 4 of this Safety Data Sheet.

### 3 COMPOSITION/INFORMATION ON INGREDIENTS

#### CHEMICAL COMPOSITION

Highly refined mineral oil (IP 346 DMSO extract < 3%)

Proprietary performance additives.

#### HAZARDOUS COMPONENTS

**No component is present at sufficient concentration to require a hazardous classification.**

### 4 FIRST AID MEASURES

#### EYES

Wash eye thoroughly with copious quantities of water, ensuring eyelids are held open.

Obtain medical advice if any pain or redness develops or persists.

#### SKIN

Wash skin thoroughly with soap and water as soon as reasonably practicable. Remove heavily contaminated clothing and wash underlying skin.

#### INGESTION

**If contamination of the mouth occurs, wash out thoroughly with water. Except as a deliberate act, the ingestion of large amounts of product is unlikely. If it should occur, do not induce vomiting; obtain medical advice.**

#### INHALATION

**If inhalation of mists, fumes or vapour causes irritation to the nose or throat, or coughing, remove to fresh air. If symptoms persist obtain medical advice.**

#### MEDICAL ADVICE

Treatment should in general be symptomatic and directed to relieving any effects.

#### NOTE:

High Pressure Applications

Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency.

**Injuries may not appear serious at first but within a few hours tissue becomes swollen, discoloured and extremely painful with extensive subcutaneous necrosis. Surgical exploration should be undertaken without delay. Thorough and extensive debridement of the wound and underlying tissue is necessary to minimise tissue loss and prevent or limit permanent damage.**

Note that high pressure may force the product considerable distances along tissue planes.

### 5 FIRE-FIGHTING MEASURES

Use foam, dry powder or water fog. DO NOT USE water jets.

Fires in confined spaces should be dealt with by trained personnel wearing approved breathing apparatus. Water may be used to cool nearby heat exposed areas/objects/packages. Avoid spraying directly into storage containers because of the danger of boilover.

#### COMBUSTION PRODUCTS

**Toxic fumes may be evolved on burning or exposure to heat See Stability and Reactivity, Section 10 of this Safety Data Sheet.**

### 6 ACCIDENTAL RELEASE MEASURES

Contain and recover spilled material using sand or other suitable inert absorbent material.

Page 2/3

It is advised that stocks of suitable absorbent material should be held in quantities sufficient to deal with any spillage which may be reasonably anticipated.

Spilled material may make surfaces slippery.

**Protect drains from potential spills to minimise contamination. Do not wash product into drainage system.**

In the case of large spills contact the appropriate authorities

In the case of spillage on water, prevent the spread of product by the use of suitable barrier equipment. Recover product from the surface.

**Protect environmentally sensitive areas and water supplies.**

## 7 HANDLING AND STORAGE

### HANDLING PRECAUTIONS

Avoid contact with eyes. If splashing is likely to occur wear a full face visor or chemical goggles as appropriate. Avoid frequent or prolonged skin contact with fresh or used product. Good working practices, high standards of personal hygiene and plant cleanliness must be maintained at all times. Wash hands thoroughly after contact. Use disposable cloths and discard when soiled. Do not put soiled cloths into pockets.

### FIRE PREVENTION

Product contaminated rags, paper or material used to absorb spillages, represent a fire hazard, and should not be allowed to accumulate. Dispose of safely immediately after use.

### STORAGE CONDITIONS

**Store under cover away from heat and sources of ignition.**

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### EXPOSURE LIMITS

There is no appropriate occupational exposure limit for this material. Ensure good ventilation. Avoid, as far as reasonably practicable, inhalation of vapour, mists or fumes generated during use. If vapour, mists or fumes are generated, their **concentration in the workplace air should be controlled to the lowest reasonably practicable level.**

### PROTECTIVE CLOTHING

**Wear face visor or goggles in circumstances where eye contact can accidentally occur. If skin contact is likely, wear impervious protective clothing and/or gloves.**

Protective clothing should be regularly dry cleaned. Change heavily contaminated clothing as soon as reasonably practicable; **dry clean, launder and preferably starch before re-use. Wash any contaminated underlying skin with soap and water.**

### RESPIRATORY PROTECTION

**Respiratory protection is unnecessary, provided the concentration of vapour, mists or fumes is adequately controlled. The use of respiratory equipment must be strictly in accordance with the manufacturers' instructions and any statutory requirements governing its selection and use.**

## 9 PHYSICAL AND CHEMICAL PROPERTIES

### Typical Values

Grades: HPX 32

	Test Methods	Units	
Physical state			liquid
Colour			amber
Odour			oily
Density @ 20°C	ASTM D 1298	kg/m <sup>3</sup>	0.876
Kinematic viscosity @ 40°C	ASTM D445	mm <sup>2</sup> /s	32.02
Kinematic viscosity @ 100°C	ASTM D445	mm <sup>2</sup> /s	5.4
Flash point (COC)	ASTM D92	°C	215
Pour point	ASTM D97	°C	-30

## 10 STABILITY AND REACTIVITY

### STABILITY

**Products of this type are stable and unlikely to react in a hazardous manner under normal conditions of use. Hazardous polymerisation reactions will not occur.**

**This material is combustible.**

### MATERIALS TO AVOID

**Avoid contact with strong oxidizing agents.**

### HAZARDOUS DECOMPOSITION PRODUCTS

**Thermal decomposition products will vary with conditions. Incomplete combustion will generate smoke, carbon dioxide and hazardous gases, including carbon monoxide.**

## 11 TOXICOLOGICAL INFORMATION

### EYES

**Unlikely to cause more than transient stinging or redness if accidental eye contact occurs.**

### SKIN

**Unlikely to cause harm to the skin on brief or occasional contact but prolonged or repeated exposure may lead to dermatitis.**

### INGESTION



Unlikely to cause harm if accidentally swallowed in small doses, though larger quantities may cause nausea and diarrhoea.

Page 3/3

#### INHALATION

At normal ambient temperatures this product will be unlikely to present an inhalation hazard because of its low volatility.

**May cause irritation to eyes, nose and throat due to exposure to vapour, mists or fumes. resulting from thermal decomposition products occurs.**

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#### 112 ECOLOGICAL INFORMATION

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##### MOBILITY

Spillages may penetrate the soil causing ground water contamination.

##### PERSISTENCE/DEGRADABILITY

This product is inherently biodegradable.

##### BIO-ACCUMULATION

**There is no evidence to suggest bioaccumulation will occur.**

##### AQUATIC TOXICITY

**Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.**

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#### 113 DISPOSAL CONSIDERATIONS

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Where possible, arrange for product to be recycled.

Dispose of via an authorised person/licensed waste disposal contractor in accordance with local regulations.

Incineration may be carried out under controlled conditions provided that local regulations for emissions are met.

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#### 114 TRANSPORT INFORMATION

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Not classified as hazardous for transport (ADR, RID, UN, IMO, IATA/ICAO).

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#### 15 REGULATORY INFORMATION

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##### LABELLING INFORMATION

**Not classified as hazardous for supply.**

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#### 116 OTHER INFORMATION

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**This data sheet and the health, safety and environmental information it contains is considered to be accurate as of the date specified below. We have reviewed any information contained herein which we received from sources outside of the Company. However, no warranty or representation, express or implied is made as to the accuracy or completeness of the data and information contained in this data sheet.**

# TECHNICAL DATA/SPECIFICATION SHEET



**GDLDLtnE**

## **HPX HYDRAULIC OILS** **Mineral oil based hydraulic oils**

### **Product Description:**

Goldline HPX grades are a range of premium quality inhibited anti-wear hydraulic fluids.

The economical operation of a hydraulic system is dependent on the correct hydraulic oil being used. Many modern machines use hydraulic oils for the transmission of power from one component to another. This method is used in industry in areas such as Engineering Machine Shops, where large numbers of small moving parts have to be provided with power from one main source, Hydraulic Presses which are used to shape, extrude or stamp metals under high pressures and Hydraulic Jacks which are used to lift heavy loads.

The Goldline HPX range of hydraulic fluids are manufactured from highly refined base oils, which have good oxidation resistance lowering the possibility of gums and lacquers, which would prevent the moving of the working parts. They contain carefully selected additives such as anti oxidant; anticorrosion to protect the system from corrosion should water be present and anti-wear to reduce wear in rotary pumps used in hydraulic systems.

### **Benefits:**

- Incorporates the latest corrosion inhibitors for protection against all forms of corrosion
- Highly shear stable
- Good anti foaming and air release properties
- Good demulsification characteristics
- Good anti-wear performance for reduced wear in highly stressed vane pumps, highly loaded areas such as swash plates
- High oxidation and thermal stability
- Suitable for the majority of hose materials

### **Application:**

Suitable for most hydraulic power transmission systems where reciprocating or rotary fluid pumps are used. This includes reciprocating and axial piston units, rotary gear and vane pumps.

The main applications for Goldline Hydraulic HPX will be found in static industrial hydraulics and mobile earth moving plant.

Goldline Hydraulic HPX oils are also suitable as lubricating oils in an extensive range of varied applications such as airline lubricants, bearing gear boxes, fluid couplings and general circulating system.

### **Product Specification-**

DIN	51524 Part 2
Sperry Vickers	M-2950-S, 1-286-S
US Steel	127
Thyssen	TH N-256132
SEB	181.222
NOMA	24318
Afnor	NF E48-600
Denison filterability	TP 02100
FXG	II
NAS*	1638 (5)
NAS*	10 OR BETTER

\* National Aerospace Society

Continued...

# TECHNICAL DATA/SPECIFICATION SHEET

## HPX HYDRAULIC OILS (Page 2)

### Typical Test Data:

ISO Grade:	SG@ 15.6-C	KV@40-C (eSt)	KV@100-C (eSt)	VI	Flash Point ICI
3	0.822	3.01	-	-	-
5	0.827	5.08	-	-	-
10	0.850	9.8	-	90	162
15	0.860	15.09	-	95	183
22	0.865	21.99	4.3	101	195
32	0.873	32.02	5.4	102	215
37	0.875	36.97	5.9	101	217
46	0.878	46.03	6.8	102	220
68	0.880	68.06	8.8	102	224
100	0.889	100.04	11.4	100	228
150	0.890	150.11	15.1	101	231
220	0.893	219.98	19.4	100	233
320	0.895	319.97	25.0	100	235
460	0.901	462.1	31.3	98	245

### Health & Safety: (Group 38)

Please refer to the relevant health and safety data sheet, a copy of which is freely available to all of our customers.

### **Availability:**

HPX grades are available in 1000l IBC's, 205l barrels & 251l drums.



# liiii'I'IIIJII ..W 111£11

Product Name: GOLDLINE TRANSFORMER OIL  
Revision Date: 23/05/03  
Page 1 of 4

## MATERIAL SAFETY DATA SHEET

### 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT NAME GOLDLINE TRANSFORMER OIL

SUPPLIER NORTHERN OILS  
46-50 LOW STREET  
BUCKIE  
AB561UX  
T: (+44)(0)1542 832465  
F: (+44)(0)1542 833550  
sales@northernoils.co.uk

### 2 HAZARDS IDENTIFICATION

The product is not classified as dangerous in accordance with directive 1999/45/EC.

**Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment**

### 3 COMPOSITION /INFORMATION ON INGREDIENTS

Name	EC No.	CAS-No.	Content	Classification
Proprietary additives		Mixture	<15.%	
Highly refined mineral oil (C15 - C50)		64741-88-4	>85%	

#### COMPOSITION COMMENTS

**The Data Shown is in accordance with the latest EC Directives.**

### 4 FIRST-AID MEASURES

#### GENERAL INFORMATION

**Get medical attention if any discomfort continues.**

#### INHALATION

**In case of inhalation of spray mist: Move person into fresh air and keep at rest. Get medical attention if any discomfort continues.**

#### INGESTION

**Get medical attention if any discomfort continues. Do not induce vomiting.**

#### SKIN CONTACT

**Remove contaminated clothing immediately and wash skin with soap and water.**

#### EYE CONTACT

**Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention promptly if symptoms occur after washing.**

### 5 FIRE-FIGHTING MEASURES

#### EXTINGUISHING MEDIA

Extinguish with foam, carbon dioxide, dry powder or water fog.

#### SPECIAL FIRE FIGHTING PROCEDURES

**Keep run-off water out of sewers and water sources. Dike for water control.**

#### UNUSUAL FIRE & EXPLOSION HAZARDS

Heat from fire could result in drums bursting

#### PROTECTIVE MEASURES IN FIRE

Self-contained breathing apparatus.

**6 ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS**

**For personal protection, see section 8. In case of spills, beware of slippery floors and surfaces.**

**ENVIRONMENTAL PRECAUTIONS**

**Contain spillage with sand or earth. Do not allow to enter drains, sewers or watercourses. The product is insoluble in water and will spread on the water surface.**

**SPILL CLEAN UP METHODS**

**Contain spillage with sand or earth. Use sealed containers for reclamation or disposal in licensed special waste. Avoid contact with water. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body. In case of spillage on water prevent the spread by use of suitable barrier equipment**

**7 HANDLING AND STORAGE**

**USAGE PRECAUTIONS**

**Avoid spilling, skin and eye contact. Always remove oil with soap and water or skin cleaning agent, never use organic solvents. Do not use oil-contaminated clothing or shoes, and do not put rags moistened with oil into pockets.**

**STORAGE PRECAUTIONS**

Store in tightly closed original container in a dry, cool and well-ventilated place.

**STORAGE CLASS**

**Miscellaneous hazardous material storage.**

**18 EXPOSURE CONTROLS/PERSONAL PROTECTION**

Name	Std	TWA-8hrs	STEL-15min	Notes
Lubricating oil (petroleum) C20-C50 hydrotreated neutral oil based	ACGIH	15mg/m3	110 mg/m3	

ACGIH =American Conference of Governmental Industrial Hygienists.

**PROTECTIVE EQUIPMENT**



**PROCESS CONDITIONS**

**Use engineering controls to reduce air contamination to permissible exposure level.**

**ENGINEERING MEASURES**

**Provide adequate ventilation, including appropriate local extraction, to ensure that the defined workplace exposure limit is not exceeded.**

**RESPIRATORY EQUIPMENT**

**No specific recommendation made, but respiratory protection must be used if the general level exceeds the Recommended Workplace Exposure Limit.**

**HAND PROTECTION**

The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

**EYE PROTECTION**

If risk of splashing, wear safety goggles or face shield.

**OTHER PROTECTION**

**Use barrier creams to prevent skin contact.**

**HYGIENE MEASURES**

Wash promptly with soap & water if skin becomes contaminated

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**9 PHYSICAL AND CHEMICAL PROPERTIES**


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APPEARANCE	Liquid		
COLOUR	Amber to brown		
ODOUR	Characteristic Oil Smell		
SOLUBILITY	<b>Insoluble in water Soluble in Organic solvents</b>		
BOILING POINT	>320°C	MELTING POINT	<-25°C
RELATIVE DENSITY	0.870 @ 15 C	VAPOUR DENSITY (air-1 )	>1
VAPOUR PRESSURE	<0.1 kPa 20	VISCOSITY	10-15 mm/s @ 40° C
FLASH POINT (C)	>150 (Open cup)		

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**110 STABILITY AND REACTIVITY**


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**STABILITY**

**Stable under normal temperature conditions and recommended use.**

**CONDITIONS TO AVOID**

**Avoid heat, flames and other sources of Ignition.**

**MATERIALS TO AVOID**

**Strong oxidising substances.**

**HAZARDOUS DECOMPOSITION PRODUCTS**

**Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.**

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**111 TOXICOLOGICAL INFORMATION**


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**GENERAL INFORMATION**

**This product has low toxicity. Only large volumes may have adverse impact on human health.**

**/ INHALATION**

**Unlikely to be hazardous by inhalation because of the low vapour pressure of the substance at ambient temperature.**

**INGESTION**

No harmful effects expected in amounts likely to be ingested by accident.

**SKIN CONTACT** Skin irritation is not anticipated when used normally. Repeated exposure may cause skin dryness or cracking.

**EYE CONTACT**

**May cause temporary eye irritation.**

**SPECIFIC EFFECTS**

**Prolonged or repeated contact with used oil may cause serious skin diseases, such as dermatitis and skin cancer.**

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**12 ECOLOGICAL INFORMATION**


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**ECOTOXICITY**

**The product contains a substance which is hannful to aquatic organisms and which may cause long term adverse effects in the aquatic environment**

**MOBILITY**

**The product is non-volatile. The product is insoluble in water and will spread on the water surface.**

**BIOACCUMULATION**

**Bioaccumulation is unlikely to be significant because of the low water solubility of this product.**

**DEGRADABILITY**

The product is not readily biodegradable.

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**113 DISPOSAL CONSIDERATIONS**


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**GENERAL INFORMATION**

Waste to be treated as controlled waste. Disposal to licensed waste disposal site in accordance with local Waste Disposal Authority.

**DISPOSAL METHODS**

**Dispose of waste and residues in accordance with local authority requirements.**

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14 TRANSPORT INFORMATION

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GENERAL The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADRIRID).

ROAD TRANSPORT NOTES Not regulated.

RAIL TRANSPORT NOTES Not regulated.

SEA TRANSPORT NOTES Not regulated.

AIR TRANSPORT NOTES Not regulated.

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15 REGULATORY INFORMATION

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SAFETY PHRASES S60 **This material and its container must be disposed of as hazardous waste.**

UK REGULATORY REFERENCES

Health and Safety at Work Act 1974.

EU DIRECTIVES

Dangerous Preparations Directive 1999/45/EC. Dangerous Substance Directive 67/548/EEC.

STATUTORY INSTRUMENTS

Chemicals (Hazard Information and Packaging) Regulations.

APPROVED CODE OF PRACTICE

Safety Data Sheets for Substances and Preparations.

GUIDANCE NOTES

Workplace Exposure Limits EH40.

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16 OTHER INFORMATION

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REVISION COMMENTS

**NOTE: Lines within the margin indicate significant changes from the previous revision.**

REVISION DATE 09/11/08

REV. NO./REPL. SDS GENERATED

RISK PHRASES IN FULL

DISCLAIMER

**This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in a process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.**

# EGQ37L\_A0

## Material Safety Data Sheet INTERZONE 505 YELLOW PART A



Bulk Sales Reference No.:  
MSDS Revision Date:  
MSDS Revision Number:

Sales  
Order: {SalesOrd}  
EGQ37L  
10/02/2012  
A0-

### 1. Identification of the preparation and company

Product Identity INTERZONE 505 YELLOW PART A  
Bulk Sales Reference No. EGQ37L  
Company Name International Paint LLC  
6001 Antoine Drive  
Houston Texas 77091

Emergency  
CHEMTREC (USA) (800) 424-9300  
International Paint (713) 682-1711  
Poison Control Center (800) 854-6813  
Customer Service  
International Paint (800) 589-1267  
Fax No. (800) 631-7481

### 2. Hazard identification of the product



Warning

#### GHS Classification:

Item	Category	Hazard
Flammability	3	Flammable liquid and vapor
Acute Toxicity (mouth)	Not classified	Not applicable
Acute Toxicity (skin)	Not classified	Not applicable
Acute Toxicity (inhalation)	Not classified	Not applicable
Acute Toxicity (ingestion)	Not classified	Not applicable
Skin corrosion/irritation	2	Causes skin irritation
Eye damage/irritation	2A	Causes serious eye irritation
Sensitization (respiratory)	Not classified	Not applicable
Sensitization (skin)	1	May cause allergic reaction.
Germ toxicity	Not classified	Not applicable
Specific target organ systemic toxicity (single exposure)	1	central nerve system, kidneys, liver, respiratory system
	2	Not applicable
	3	narcotic effects, respiratory tract irritation
Specific target organ systemic Toxicity (repeated exposure)	1	central nerve system, lung, respiratory system
	2	Not applicable
Aspiration hazard	Not classified	Not applicable
Harmfulness to aquatic Environment (acute)	2	Toxic to aquatic life.
Harmfulness to aquatic Environment (long term effect)	2	Toxic to aquatic life with long lasting effects



## EGQ37L\_A0

Carcinogenicity	Not classified	Not applicable
Reproductive Toxicity	Not classified	Not applicable
Organic Peroxide	Not classified	Not applicable

### Safety Phrases:

- S1: Keep locked up.
- S23: Do not breathe vapor/spray.
- S24: Avoid contact with skin.
- S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S27: Take off immediately all contaminated clothing.
- S28: After contact with skin, wash immediately with plenty of soap and water.
- S37: Wear suitable gloves.
- S39: Wear eye/face protection.
- S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S51: Use only in well-ventilated areas.
- S61: Avoid release to the environment. Refer to special instructions/Safety data sheets.
- S62: If swallowed, do not induce vomiting; seek medical advice immediately and show this container or label.

Overview	NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Avoid contact with eyes, skin and clothing.			
Inhalation	Harmful if inhaled. Causes nose and throat irritation. Vapors may affect the brain or nervous system causing dizziness, headache or nausea.			
Eyes	Risk of serious damage to eyes. Do not get in eyes. Protective equipment should be selected to provide protection from exposure to the chemicals listed in Section 3 of this document. Depending on the site-specific condition of use, safety glasses, chemical goggles, and/or head and face protection may be required to prevent contact. The equipment must be thoroughly cleaned, or discarded after each use.			
Skin	Causes skin irritation. May cause delayed skin irritation. May cause allergic skin reaction. May be harmful if absorbed through the skin.			
Ingestion	Harmful if swallowed. May cause abdominal pain, nausea, vomiting, diarrhea, or drowsiness.			
Chronic effects	Possible cancer hazard. Contains an ingredient which may cause cancer based on animal data (See Section 2 and Section 15 for each ingredient). Risk of cancer depends on duration and level of exposure.			
HMIS Rating	Health: 2*	Flammability: 3	Reactivity: 0	PPE: X

### 3. Composition/information on ingredients

Ingredient	CAS No.	Percent
Benzene, ethyl-	0000100-41-4	0.10 - 1.0
Benzyl alcohol	0000100-51-6	1.0 - 10
Propylene glycol monomethyl ether	0000107-98-2	1.0 - 10
Xylenes (o-, m-, p- isomers)	0001330-20-7	1.0 - 10
Titanium dioxide	0013463-67-7	1.0 - 10
Silica, cristobalite	0014464-46-1	0.10 - 1.0
Bisphenol A - Epichlorohydrin	0025068-38-6	50 - 75
Nepheline syenite	0037244-96-5	10 - 25
Glass, oxide, chemicals	0065997-17-3	1.0 - 10

### 4. First aid measures

General	Remove contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean or destroy contaminated shoes.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

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Eyes	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
Skin	In case of contact, immediately flush skin with soap and plenty of water. Get medical attention immediately.
Ingestion	If swallowed, immediately contact Poison Control Center at 1-800-854-6813. DO NOT induce vomiting unless instructed to do so by medical personnel. Never give anything by mouth to an unconscious person.

<b>5. Fire-fighting measures</b>
----------------------------------

Flash Point	F: 129 C: 54
Lower Explosive Limit (LEL)	.43 (%vol in air) at Normal Atmospheric Temp and Pressure
ERG Guide No.	128

<b>6. Accidental release measures</b>
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Spill Response Procedures	ELIMINATE ALL IGNITION SOURCES (no smoking, flares, sparks or flames in immediate area). Use only non-sparking equipment to handle spilled material and absorbent. Do not touch or walk through spilled material. Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand, or other non-combustible material and transfer to containers. Use non-sparking tools to collect absorbed material.
Public Safety	CALL CHEMTREC at (800)-424-9300 for emergency response. Isolate spill or leak area immediately for at least 50 meters (150 feet) in all directions. Keep unauthorized personnel away. Stay upwind. Keep out of low areas. Ventilate closed spaces before entering. LARGE SPILLS: Consider initial downwind evacuation for at least 300 meters (1000 feet).
ERG Guide No.	128

<b>7. Handling and storage</b>
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Storage Temperature	Store between 40-100F (4-38C).
Handling and Storage Precautions	Keep away from heat, sparks and flame. Do not smoke. Extinguish all flames and pilot lights, and turn off stoves, heaters, electric motors and other sources of ignition during use and until all vapors are gone. Vapors may cause flash fire or ignite explosively. Prevent build-up of vapors by opening all windows and doors to achieve cross-ventilation. Do not get in eyes, on skin or clothing. Close container after each use. Wash thoroughly after handling.

<b>8. Exposure controls and personal protection</b>
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Exposure			
CAS No.	Ingredient	Source	Value
0000100-41-4	Benzene, ethyl-	OSHA	100 ppm TWA; 435 mg/m3 TWA125 ppm STEL; 545 mg/m3 STEL
		ACGIH	100 ppm TWA125 ppm STEL
		NIOSH	100 ppm TWA; 435 mg/m3 TWA125 ppm STEL; 545 mg/m3 STEL800 ppm IDLH (10% LEL)
		Supplier	No Established Limit
		OHSA, CAN	100 ppm TWA125 ppm STEL
		Mexico	100 ppm TWA; 435 mg/m3 TWA125 ppm STEL; 545 mg/m3 STEL
		Brazil	78 ppm TWA; 340 mg/m3 TWA
0000100-51-6	Benzyl alcohol	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit

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		Supplier	No Established Limit
		OHSA, CAN	No Established Limit
		Mexico	No Established Limit
		Brazil	No Established Limit
0000107-98-2	Propylene glycol monomethyl ether	OSHA	150 ppm STEL; 540 mg/m3 STEL
		ACGIH	100 ppm TWA150 ppm STEL
		NIOSH	100 ppm TWA; 360 mg/m3 TWA150 ppm STEL; 540 mg/m3 STEL
		Supplier	No Established Limit
		OHSA, CAN	100 ppm TWA150 ppm STEL
		Mexico	No Established Limit
		Brazil	No Established Limit
0001330-20-7	Xylenes (o-, m-, p- isomers)	OSHA	100 ppm TWA; 435 mg/m3 TWA150 ppm STEL; 655 mg/m3 STEL
		ACGIH	100 ppm TWA150 ppm STEL
		NIOSH	No Established Limit
		Supplier	No Established Limit
		OHSA, CAN	100 ppm TWA150 ppm STEL
		Mexico	100 ppm TWA; 435 mg/m3 TWA150 ppm STEL; 655 mg/m3 STEL
		Brazil	78 ppm TWA; 340 mg/m3 TWA
0013463-67-7	Titanium dioxide	OSHA	15 mg/m3 TWA (total dust)
		ACGIH	10 mg/m3 TWA
		NIOSH	5000 mg/m3 IDLH
		Supplier	No Established Limit
		OHSA, CAN	10 mg/m3 TWA (total dust)
		Mexico	10 mg/m3 TWA (as Ti)20 mg/m3 STEL (as Ti)
		Brazil	No Established Limit
0014464-46-1	Silica, cristobalite	OSHA	No Established Limit
		ACGIH	0.025 mg/m3 TWA (respirable fraction)
		NIOSH	0.05 mg/m3 TWA (respirable dust)25 mg/m3 IDLH (respirable dust)
		Supplier	No Established Limit
		OHSA, CAN	0.05 mg/m3 TWA (designated substance regulation, respirable)0.05 mg/m3 TWA (respirable fraction)
		Mexico	0.05 mg/m3 TWA (respirable fraction)
		Brazil	No Established Limit
0025068-38-6	Bisphenol A - Epichlorohydrin	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
		OHSA, CAN	No Established Limit
		Mexico	No Established Limit
		Brazil	No Established Limit
0037244-96-5	Nepheline syenite	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
		OHSA, CAN	10 mg/m3 TWA (total dust)
		Mexico	No Established Limit
		Brazil	No Established Limit
0065997-17-3	Glass, oxide, chemicals	OSHA	No Established Limit
		ACGIH	No Established Limit

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		NIOSH	No Established Limit
		Supplier	No Established Limit
		OHSA, CAN	No Established Limit
		Mexico	No Established Limit
		Brazil	No Established Limit

## Health Data

CAS No.	Ingredient	Source	Value
0000100-41-4	Benzene, ethyl-	NIOSH	Eye skin
0000100-51-6	Benzyl alcohol	NIOSH	No Established Limit
0000107-98-2	Propylene glycol monomethyl ether	NIOSH	Eye nose
0001330-20-7	Xylenes (o-, m-, p- isomers)	NIOSH	Central nervous system depressant; respiratory and eye irritation
0013463-67-7	Titanium dioxide	NIOSH	Lung tumors in animals
0014464-46-1	Silica, cristobalite	NIOSH	Chronic lung disease (silicosis)
0025068-38-6	Bisphenol A - Epichlorohydrin	NIOSH	No Established Limit
0037244-96-5	Nepheline syenite	NIOSH	No Established Limit
0065997-17-3	Glass, oxide, chemicals	NIOSH	No Established Limit

## Carcinogen Data

CAS No.	Ingredient	Source	Value
0000100-41-4	Benzene, ethyl-	OSHA	Select Carcinogen: Yes
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: Yes; Group 3: No; Group 4: No;
0000100-51-6	Benzyl alcohol	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0000107-98-2	Propylene glycol monomethyl ether	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0001330-20-7	Xylenes (o-, m-, p- isomers)	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: Yes; Group 4: No;
0013463-67-7	Titanium dioxide	OSHA	Select Carcinogen: Yes
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: Yes; Group 3: No; Group 4: No;
0014464-46-1	Silica, cristobalite	OSHA	Select Carcinogen: Yes
		NTP	Known: No; Suspected: No
		IARC	Group 1: Yes; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0025068-38-6	Bisphenol A - Epichlorohydrin	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0037244-96-5	Nepheline syenite	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0065997-17-3	Glass, oxide, chemicals	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

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Respiratory	Select equipment to provide protection from the ingredients listed in Section 3 of this document. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates dust, vapor, or mist levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH approved) during and after application. Follow respirator manufacturer's directions for respirator use. FOR USERS OF 3M RESPIRATORY PROTECTION ONLY: For information and assistance on 3M occupational health and safety products, call OH&ESD Technical Service toll free in U.S.A. 1-800-243-4630, in Canada call 1-800-267-4414. Please do not contact these numbers regarding other manufacturer's respiratory protection products. 3M does not endorse the accuracy of the information contained in this Material Safety Data Sheet.
Eyes	Do not get in eyes. Protective equipment should be selected to provide protection from exposure to the chemicals listed in Section 3 of this document. Depending on the site-specific condition of use, safety glasses, chemical goggles, and/or head and face protection may be required to prevent contact. The equipment must be thoroughly cleaned, or discarded after each use. Protective equipment should be selected to provide protection from exposure to the chemicals listed in Section 3 of this document. Depending on the site-specific conditions of use, safety glasses, chemical goggles, and/or head and face protection may be required to prevent contact. The equipment must be thoroughly cleaned, or discarded after each use.
Skin	Protective equipment should be selected to provide protection from exposure to the chemicals listed in Section 3 of this document. Depending on the site-specific conditions of use, protective gloves, apron, boots, head and face protection may be required to prevent contact. The equipment must be thoroughly cleaned, or discarded after each use.
Engineering Controls	Prevent build-up of vapors by opening all windows and doors to achieve cross-ventilation.
Other Work Practices	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use good personal hygiene practices. Wash hands before eating, drinking, using toilet facilities, etc. Promptly remove soiled clothing and wash clothing thoroughly before reuse. Shower after work using plenty of soap and water.

9. Physical and chemical properties
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Physical State	Liquid Coloured
pH	No Established Limit
Specific Gravity	1.35
Boiling Point F	194
Vapor Density	Heavier than air
VOC %	Refer to the Technical Data Sheet or label where information is available.
Evaporation Rate	Slower than ether

10. Stability and reactivity
------------------------------

General	This product is stable and hazardous polymerization will not occur. Not sensitive to mechanical impact. Excessive heat and fumes generation can occur if improperly handled.
Incompatible Materials	Strong oxidizing agents.
Hazardous Decomposition	May produce hazardous fumes when heated to decomposition as in welding. Fumes may produce Carbon Dioxide and Carbon Monoxide.

11. Toxicological information
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Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LD50, mg/L/4hr
Benzene, ethyl- - (0000100-41-4)	3,500.00, Rat - Category: 5	15,354.00, Rabbit - Category: NA	17.20, Rat - Category: 4
Benzyl alcohol - (0000100-51-6)	1,230.00, Rat - Category: 4	2,000.00, Rabbit - Category: 4	8.80, Rat - Category: 3
Propylene glycol monomethyl ether - (0000107-98-2)	5,200.00, Rat - Category: NA	13,000.00, Rabbit - Category: NA	54.60, Rat - Category: NA
Xylenes (o-, m-, p- isomers) - (0001330-20-7)	4,300.00, Rat - Category: 5	1,700.00, Rabbit - Category: 4	29.08, rat - Category: NA

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Titanium dioxide - (0013463-67-7)	10,000.00, Rat - Category: NA	10,000.00, Rabbit - Category: NA	6,082.00, Rat - Category: NA
Silica, cristobalite - (0014464-46-1)	-----	-----	-----
Bisphenol A - Epichlorohydrin - (0025068-38-6)	11,400.00, Rat - Category: NA	-----	-----
Nepheline syenite - (0037244-96-5)	-----	-----	-----
Glass, oxide, chemicals - (0065997-17-3)	-----	-----	-----

General                      NOTICE: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. No additional information provided for this product. See Sections 8 and 11 for chemical specific data.

12. Ecological information
----------------------------

Not Defined  
No additional information provided for this product. See Sections 8 and 11 for chemical specific data.

13. Disposal considerations
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Dispose of in accordance with local, state and federal regulations. (Also reference RCRA information in Section 15 if listed).

14. Transport information
---------------------------

DOT (Domestic Surface Transportation)		IMO / IMDG (Ocean Transportation)	
DOT Proper Shipping Name	PAINT	IMDG Proper Shipping Name	PAINT
DOT Hazard Class	3	IMDG Hazard Class	3 - Flammable and Combustible liquid
UN / NA Number	UN 1263	UN / NA Number	UN 1263
DOT Packing Group	III	IMDG Packing Group	III
CERCLA/DOT RQ	343 gal. / 3870 lbs.	System Reference Code	2

15. Regulatory information
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Regulatory Overview                      The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented. All ingredients of this product are listed on the TSCA (Toxic Substance Control Act) Inventory or are not required to be listed on the TSCA Inventory.

WHMIS Classification                      B3:D2B

DOT Marine Pollutants (10%):  
(No Product Ingredients Listed)

DOT Severe Marine Pollutants (1%):  
(No Product Ingredients Listed)

EPCRA 311/312 Chemicals and RQs (>.1%) :

- Benzene, ethyl- (1000 lb final RQ; 454 kg final RQ)
- Xylenes (o-, m-, p- isomers) (100 lb final RQ; 45.4 kg final RQ)

EPCRA 302 Extremely Hazardous (>.1%) :  
(No Product Ingredients Listed)

EPCRA 313 Toxic Chemicals (>.1%) :

- Benzene, ethyl-
- Xylenes (o-, m-, p- isomers)

Mass RTK Substances (>1%) :

- Benzyl alcohol
- Propylene glycol monomethyl ether
- Titanium dioxide
- Xylenes (o-, m-, p- isomers)

Mass Extraordinarily Haz Sub (>.01%) :

Quartz  
Silica, cristobalite

Penn RTK Substances (>1%) :

Benzyl alcohol  
Propylene glycol monomethyl ether  
Titanium dioxide  
Xylenes (o-, m-, p- isomers)

Penn Special Hazardous Substances (>.01%) :  
(No Product Ingredients Listed)

Rhode Island Hazardous Substances (>.1%) :

Benzene, ethyl-  
Propylene glycol monomethyl ether  
Titanium dioxide  
Xylenes (o-, m-, p- isomers)

RCRA Status:

(No Product Ingredients Listed)

N.J. RTK Substances (>1%) :

Propylene glycol monomethyl ether  
Titanium dioxide  
Xylenes (o-, m-, p- isomers)

N.J. Special Hazardous Substances (>.01%) :

Benzene, ethyl-  
Propylene glycol monomethyl ether  
Quartz  
Silica, cristobalite  
Xylenes (o-, m-, p- isomers)

N.J. Env. Hazardous Substances (>.1%) :

Benzene, ethyl-  
Xylenes (o-, m-, p- isomers)

Proposition 65 – Carcinogens (>0%):

Benzene, ethyl-  
Nickel  
Quartz

Proposition 65 – Female Repro Toxins (>0%):

(No Product Ingredients Listed)

Proposition 65 – Male Repro Toxins (>0%):

(No Product Ingredients Listed)

Proposition 65 – Developmental Toxins (>0%):

(No Product Ingredients Listed)

Risk Phrases:

R36/38: Irritating to eyes and skin.

R43: May cause sensitisation by skin contact.

R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

16. Other information
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The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.



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## Mobilgear SHC 320

### 1. Product and Company identification

**Trade Name:**

Mobilgear SHC 320

**Supplier:**

ALFA LAVAL Tumba AB

Hans Stahles väg

**Product Type:**

Gear oil

SE-147 80 Tumba

Sweden

Tel: +46 8 53 06 50 00

Fax: +46 8 53 06 52 59

**E-mail**[sds.question@alfalaval.com](mailto:sds.question@alfalaval.com)**Emergency number: +46 8 33 12 31 open 24 h**

### 2. Hazard Identification

This material is not considered to be hazardous according to regulatory guidelines  
Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

### 3. Composition and Information on the Components

No Reportable Hazardous Substance(s) or Complex Substance(s).



## Mobilgear SHC 320

### 4. First Aid Measurements

First aid – Eye contact	Flush thoroughly with water. If irritation occurs, call a physician.
First aid – Skin contact	Remove contaminated cloths and wash contact areas with soap and water. Injection injury: If product is injected onto or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.
First aid – Inhalation	Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.
First aid – Ingestion	Not expected to be a problem. Seek medical attention if discomfort occurs. Do not induce vomiting.

### 5. Fire Fighting Measurements

Extinguishing media	Carbon dioxide, foam, dry chemical and water fog. Special
fire fighting procedures	Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.
Combustion products	Fumes, smoke, carbon monoxide, aldehydes and other decomposition products, in case of incomplete combustion.
Protective equipment for fire fighting	For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.

## Mobilgear SHC 320

### 6. Accidental Release Measures

Notification procedures	Report spills/releases as required to appropriate authorities. U.S. Coast Guard and EPA regulations require immediate reporting of spills/release that could reach any waterway including intermittent dry creeks. Report spill/release to Coast Guard National.
Procedures if material is released or spilled	<p>Land spill: Shut off source taking normal safety precautions. Take measures to minimize the effects on ground water. Recover by pumping or contain spilled material with sand or other suitable absorbent and remove mechanically into containers. If necessary, dispose of adsorbed residues as directed in section 13.</p> <p>Water spill: Confine the spill immediately with booms. Warn other ships in the vicinity. Notify port and other relevant authorities. Remove from the surface by skimming or with suitable absorbents. If permitted by regulatory authorities the use of suitable dispersants should be considered where recommended in local oil spill procedures.</p>
Environmental precautions	Prevent material from entering sewers, water sources or low lying areas. Advise the relevant authorities if it has, or if it contaminates soil/vegetation.

### 7. Handling and Storage

Handling	No special precautions are necessary beyond normal good hygiene practises.
Storage	Keep containers closed when not in use. Do not store in open or unlabelled containers. Store away from strong oxidizing agents and combustible materials. Do not store near heat, sparks, flame or strong oxidants.
Special precautions	Prevent small spills and leakages to avoid slip hazard.

## Mobilgear SHC 320

### 8. Exposure Control / Personal Protection

Occupational exposure limits	ACGIH Threshold Limit Value (TLV): 10 mg/m <sup>3</sup> as oil mist. ACGIH Short Term Exposure Limit (STEL): 5 mg/m <sup>3</sup> as oil mist.
Ventilation	If mists are generated, use adequate ventilation, local exhaust or enclosures to control below exposure limits.
Respiratory protection	If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.
Eye protection	If eye contact is likely, safety glasses with side shields or chemical type goggles should be worn.
Skin protection	Not normally required. When splashing or liquid contact can occur frequently, wear oil resistant gloves and/or other protective clothing. Good personal hygiene practices should always be followed.

### 9. Physical and Chemical Properties

Appearance	Liquid
Colour	Amber
Odour	Characteristic
Boiling point °C (F)	>316 (600)
Flash point °C (F)	205 (401) (ASTM D-93)
Vapour pressure mm Hg at 20°C	<0.1
Solubility in water	Negligible
Partition coefficient	>3.5
Viscosity at 40°C cSt	335
Viscosity at 100°C cSt	38,3
Pour point °C (F)	-32 (-26)
DMSO-extract	<3, for mineral oil only
Relative Density (at 15.6 °C)	0.86

## Mobilgear SHC 320

### 10. Stability and Reactivity

Stability	Stable.
Conditions to avoid	Extreme heat and high energy sources of ignition.
Materials to avoid	Strong oxidizers.
Hazardous decomposition products	Product does not decompose at ambient temperatures. Hazardous polymerisation will not occur.

### 11. Toxicological Information

Ingestion	Practically non-toxic. LD50: >2000 mg/kg (rats), based on testing of similar products and/or the components.
Skin	Repeated and/or prolonged exposure may cause irritation. Practically non-toxic. LD50: >2000 mg/kg (rabbits), based on testing of similar products and/or the components.
Inhalation	Practically non-toxic. LD50: >5 mg/l (rats), based on testing of similar products and/or the components. Repeated and/or prolonged exposure may cause irritation. Although an acute inhalation study was not performed with this product, a variety of mineral and synthetic oils, such as those in this product, have been tested. These samples had virtually no effect other than a non-specific inflammatory response in the lung to the aerosolised mineral oil. The presence of additives in other tested formulations (in approximately the same amounts as in the present formulation) did not alter the observed effects.
Eye	Practically non-irritating. Based on testing of similar products and/or the components.
Sub chronic toxicology	No significant adverse effects were found in studies using repeated dermal applications of similar formulations to the skin of laboratory animals for 13 weeks at doses significantly higher than those expected during normal industrial exposure. The animals were evaluated extensively for effects of exposure ( haematology, serum chemistry, urinalysis, organ weights, microscopic examination of tissues etc.).
Reproductive toxicology	No teratogenic effects would be expected from dermal exposure, based on laboratory developmental toxicity studies of major components in this formulation and/or materials of similar composition.

## Mobilgear SHC 320

### 11. Toxicological Information, Continued

Chronic toxicology	Overexposure to oil mist may result in oil droplet deposition and/or granuloma formation. For mineral base oils: Base oil in this product is severely solvent refined and/or severely hydrotreated. Chronic mouse skin painting studies of severely treated oils showed no evidence of carcinogenic effects. These results are confirmed on a continuing basis using various screening methods such as Modified Ames Test, IP-346, and/or other analytical methods. For synthetic base oils: The base oils in this product have been tested in the Ames assay and other tests of mutagenicity with negative results. These base oils are not expected to be carcinogenic with chronic dermal exposures.
Sensitization	Not expected to be sensitising based on tests of this product, components or similar products.

### 12. Eco-toxicological Information

Environmental fate and effects	In the absence of specific environmental data for this product, this assessment is based on information for representative products.
Ekotoxicity	Available ecotoxicity data (LL50: >1000 mg/l) indicates that adverse effects to aquatic organisms are not expected from this product.
Mobility	Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.
Persistence and degradability	This product is expected to be inherently biodegradable.
Bioaccumulative potential	Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

### 13. Disposal

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

## Mobilgear SHC 320

European Waste Code	13 02 06
	<p>NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).</p> <p>This material is considered as hazardous waste pursuant to Directive 91/689/EEC on hazardous waste, and subject to the provisions of that Directive unless Article 1(5) of that Directive applies.</p>
Empty Container Warning	<p>Empty containers may retain residue and can be dangerous. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.</p>

### 14. Transport Information

Not dangerous goods with regards to transport regulations.

### 15. Regulatory Information

Hazard Classification/Label	Not classified.
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### 16. Other Information

Important changes have been made in section: 1, 2, 4, 5, 8, 9, 12 and 13.

### DISCLAIM OF RESPONSIBILITY

Alfa Laval provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is only a guide to the potential hazards of the product. All individuals working with or around the product should be properly trained. Persons coming into contact with the product must be capable of exercising their own independent judgment concerning the conditions or methods of handling, storage and usage of the product. Alfa Laval will not be responsible for claims, losses, or damages of any kind resulting from the information provided in this Safety Data Sheet or the use, handling, storage or disposal of the product. **Alfa Laval makes no representations or warranties, either express or implied, including without limitation any warranties of merchantability or fitness for a particular purpose with respect to the information set out herein or the product to which the information refers.**

# SAFETY DATA SHEET

Q8 El Greco 320



## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Product name : Q8 El Greco 320  
 Viscosity or Type : ISO VG 320  
 Material uses : Lubricating oil for industrial gears

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

### 1.3 Details of the supplier of the safety data sheet

Manufacturer / Distributor : Kuwait Petroleum International Lubricants (UK) Ltd.  
 Knowsthorpe Gate  
 Cross Green Industrial Estate  
 Leeds LS9 0NP  
 United Kingdom  
 Tel. +44 113 2350 555, Fax +44 113 2485 026

e-mail address of person responsible for this SDS : SDSinfo@Q8.com, communication preferably in English only.

### 1.4 Emergency telephone number

Europe : 0044 (0) 1235 239 670  
 Global (English only) : 0044 (0) 1865 407 333



## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

Product definition : Mixture

#### Classification according to Directive 1999/45/EC [DPD]

The product is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Not classified.

See Section 16 for the full text of the R-phrases declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

Hazard symbol or symbols :

Indication of danger :

Risk phrases : This product is not classified according to EU legislation.

Safety phrases : Not applicable.

Hazardous ingredients :

Supplemental label elements : Safety data sheet available for professional user on request.

#### Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

### 2.3 Other hazards

Q8 El Greco 320

**SECTION 2: Hazards identification**

Other hazards which do not result in classification : Defatting to the skin.

**SECTION 3: Composition/information on ingredients**

Substance/mixture : Mixture

The mineral oils in the product contain < 3% DMSO extract (IP 346).

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

**SECTION 4: First aid measures****4.1 Description of first aid measures**

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- Skin contact** : Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- Ingestion** : Wash out mouth with water. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

**4.2 Most important symptoms and effects, both acute and delayed**Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
dryness  
cracking
- Ingestion** : No specific data.

**4.3 Indication of any immediate medical attention and special treatment needed**

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.



## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media : Use dry chemical, CO<sub>2</sub>, alcohol-resistant foam or water spray (fog).

Unsuitable extinguishing media : Do not use water jet.

### 5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
sulfur oxides

### 5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also Section 8 for additional information on hygiene measures.

6.2 Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### 6.3 Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8).
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### 7.2 Conditions for safe storage, including any incompatibilities

- : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

### 7.3 Specific end use(s)

- Recommendations** : Not available.
- Industrial sector specific solutions** : Not available.

## SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 8.1 Control parameters

#### Occupational exposure limits

No exposure limit value known.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

#### Derived effect levels

No DELs available.

#### Predicted effect concentrations

No PECs available.

### 8.2 Exposure controls

- Appropriate engineering controls** : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

#### Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

**SECTION 8: Exposure controls/personal protection**Skin protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Wear suitable gloves tested to EN374.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**SECTION 9: Physical and chemical properties**

## 9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Liquid. [Oily liquid.]
- Appearance** : Clear.
- Colour** : Brown. Green.
- Odour** : Slight
- Odour threshold** : Not available.
- pH** : Not available.
- Melting point/freezing point** : <-21°C
- Initial boiling point and boiling range** : >300°C
- Flash point** : Open cup: >220°C [ASTM D92.]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not applicable.
- Upper/lower flammability or explosive limits** : Not available.
- Vapour pressure** : <0.01 kPa [20°C]
- Vapour density** : Not available.
- Relative density** : 0.86
- Solubility(ies)** : Insoluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : >300°C
- Decomposition temperature** : >300°C
- Viscosity (40°C)** : 320 cSt
- Viscosity (100°C)** : 31.7 cSt
- Explosive properties** : Not applicable.
- Oxidising properties** : Not applicable.

## 9.2 Other information

No additional information.

Q8 El Greco 320

## SECTION 10: Stability and reactivity

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : The product is stable.
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : No specific data.
- 10.5 Incompatible materials** : Reactive or incompatible with the following materials:  
Strong oxidising materials
- 10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Residual oils (petroleum), solvent-dewaxed	LC50 Inhalation Dusts and mists	Rat - Male, Female	5.53 mg/l	4 hours

**Conclusion/Summary** : Not available.

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Residual oils (petroleum), solvent-dewaxed	Skin - Erythema/Eschar	Rabbit	0.17	72 hours	7 days
	Skin - Oedema	Rabbit	0	72 hours	7 days
	Eyes - Iris lesion	Rabbit	0	48 hours	72 hours
	Eyes - Redness of the conjunctivae	Rabbit	0.33	48 hours	72 hours

**Conclusion/Summary** : Not available.

#### Sensitisation

Product/ingredient name	Route of exposure	Species	Result
Residual oils (petroleum), solvent-dewaxed	skin	Guinea pig	Not sensitizing

**Conclusion/Summary** : Not available.

#### Mutagenicity

Product/ingredient name	Test	Experiment	Result
Residual oils (petroleum), solvent-dewaxed	474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic	Negative

**Conclusion/Summary** : Not available.

#### Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Residual oils (petroleum), solvent-dewaxed	Negative - Dermal - TC	Mouse - Female	-	78 weeks

**Conclusion/Summary** : Not available.

#### Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Developmental toxin	Species	Dose	Exposure

Q8 EI Greco 320

## SECTION 11: Toxicological information

Residual oils (petroleum), solvent-dewaxed	Negative	Negative	Negative	Rat - Male, Female	Oral: 1000 mg/kg	-
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**Conclusion/Summary** : Not available.

### Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Residual oils (petroleum), solvent-dewaxed	Negative - Dermal	Rat	2000 mg/kg	7 days per week

**Conclusion/Summary** : Not available.

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- Ingestion** : No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
dryness  
cracking
- Ingestion** : No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

#### Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

### Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Residual oils (petroleum), solvent-dewaxed	Sub-chronic NOAEL Oral	Rat - Male, Female	>=2000 mg/kg	13 weeks; 5 days per week
	Sub-acute LOAEL Oral	Rat - Male	125 mg/kg	13 weeks; 5 hours per day
	Sub-acute NOAEL Inhalation Dusts and mists	Rat - Male	>980 mg/m <sup>3</sup>	4 weeks; 5 days per week

**Conclusion/Summary** : Not available.

**General** : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

**Carcinogenicity** : No known significant effects or critical hazards.

**Mutagenicity** : No known significant effects or critical hazards.

**Teratogenicity** : No known significant effects or critical hazards.

**Developmental effects** : No known significant effects or critical hazards.

**Fertility effects** : No known significant effects or critical hazards.

Q8 El Greco 320

## SECTION 11: Toxicological information

Other information : Not available.

## SECTION 12: Ecological information

### 12.1 Toxicity

Conclusion/Summary : Not available.

### 12.2 Persistence and degradability

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Residual oils (petroleum), solvent-dewaxed	-	-	Inherent

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Residual oils (petroleum), solvent-dewaxed	>3	-	high

### 12.4 Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>) : Not available.

Mobility : Not available.

### 12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Hazardous waste : Yes.

#### European waste catalogue (EWC)

Waste code	Waste designation
13 02 05*	mineral-based non-chlorinated engine, gear and lubricating oils

#### Packaging

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Q8 El Greco 320

## SECTION 13: Disposal considerations

**Special precautions** : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

	ADR/RID	ADN/ADNR	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
14.6 Special precautions for user	Not available.	Not available.	Not available.	Not available.
Additional information	-	-	-	-

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

## SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture  
[EU Regulation \(EC\) No. 1907/2006 \(REACH\)](#)

[Annex XIV - List of substances subject to authorisation](#)

[Substances of very high concern](#)

None of the components are listed.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

[Other EU regulations](#)

**National Inventory List** : Australia inventory (AICS): Not determined.  
 China inventory (IECSC): Not determined.  
 Japan inventory: Not determined.  
 Korea inventory: Not determined.  
 New Zealand Inventory of Chemicals (NZIoC): Not determined.  
 Philippines inventory (PICCS): Not determined.  
 United States inventory (TSCA 8b): Not determined.  
 Europe inventory: Not determined.  
 Canada inventory: Not determined.

**Black List Chemicals** : Not listed

**Priority List Chemicals** : Not listed

**SECTION 15: Regulatory information**

Integrated pollution prevention and control list (IPPC) - Air : Not listed

Integrated pollution prevention and control list (IPPC) - Water : Not listed

International regulations

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

15.2 Chemical Safety Assessment : This product contains substances for which Chemical Safety Assessments are still required.

**SECTION 16: Other information**

✔ Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate  
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
 DNEL = Derived No Effect Level  
 EUH statement = CLP-specific Hazard statement  
 PNEC = Predicted No Effect Concentration  
 RRN = REACH Registration Number

Full text of abbreviated R phrases : Not applicable.

Full text of classifications [DSD/DPD] : Not applicable.

Date of printing : 19-10-2011.

Date of issue/ Date of revision : 19-10-2011.

Date of previous issue : No previous validation.

Version : 1

Prepared by : Kuwait Petroleum Research & Technology B.V., The Netherlands

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



# SAFETY DATA SHEET

## Q8 Goya NT 220



### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Product name : Q8 Goya NT 220  
Viscosity or Type : ISO VG 220  
Material uses : Lubricating oil for industrial gears

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

#### 1.3 Details of the supplier of the safety data sheet

Manufacturer / Distributor : Kuwait Petroleum International Lubricants (UK) Ltd.  
Knowsthorpe Gate  
Cross Green Industrial Estate  
Leeds LS9 0NP  
United Kingdom  
Tel. +44 113 2350 555, Fax +44 113 2485 026

e-mail address of person responsible for this SDS : SDSinfo@Q8.com, communication preferably in English only.

#### 1.4 Emergency telephone number

Europe : 0044 (0) 1235 239 670  
Global (English only) : 0044 (0) 1865 407 333



### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Product definition : Mixture

##### Classification according to Directive 1999/45/EC [DPD]

The product is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Not classified.

See Section 16 for the full text of the R-phrases declared above.

See Section 11 for more detailed information on health effects and symptoms.

#### 2.2 Label elements

Hazard symbol or symbols :

Indication of danger :

Risk phrases : This product is not classified according to EU legislation.

Safety phrases : Not applicable.

Hazardous ingredients :

Supplemental label elements : Safety data sheet available for professional user on request.

##### Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

#### 2.3 Other hazards

Q8 Goya NT 220

**SECTION 2: Hazards identification**

Other hazards which do not result in classification : Defatting to the skin.

**SECTION 3: Composition/information on ingredients**

Substance/mixture : Mixture

Ingredient name	CAS number	%	Number	Classification (according to REACH)
Distillates (petroleum), solvent-dewaxed heavy paraffinic	64742-65-0	25-35	01-2119471299-27	Not classified. [2]

The mineral oils in the product contain < 3% DMSO extract (IP 346).

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

Occupational exposure limits, if available, are listed in Section 8.

**SECTION 4: First aid measures****4.1 Description of first aid measures**

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- Skin contact** : Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- Ingestion** : Wash out mouth with water. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

**4.2 Most important symptoms and effects, both acute and delayed**Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
dryness  
cracking
- Ingestion** : No specific data.

**4.3 Indication of any immediate medical attention and special treatment needed**

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Q8 Goya NT 220

## SECTION 4: First aid measures

**Specific treatments** : No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, alcohol-resistant foam or water spray (fog).

**Unsuitable extinguishing media** : Do not use water jet.

### 5.2 Special hazards arising from the substance or mixture

**Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
sulfur oxides

### 5.3 Advice for firefighters

**Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

**For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also Section 8 for additional information on hygiene measures.

### 6.2 Environmental precautions

: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### 6.3 Methods and materials for containment and cleaning up

**Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill** : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

### 6.4 Reference to other sections

: See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

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**SECTION 6: Accidental release measures****SECTION 7: Handling and storage**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**7.1 Precautions for safe handling**

- Protective measures** : Put on appropriate personal protective equipment (see Section 8).
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**7.2 Conditions for safe storage, including any incompatibilities**

- : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

**7.3 Specific end use(s)**

- Recommendations** : Not available.
- Industrial sector specific solutions** : Not available.

**SECTION 8: Exposure controls/personal protection**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**8.1 Control parameters****Occupational exposure limits**

Product/ingredient name	Exposure limit values
Distillates (petroleum), solvent-dewaxed heavy paraffinic	EU OEL (Europe). TWA: 5 mg/m <sup>3</sup> , (oil Mist)

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

**Derived effect levels**

No DELs available.

**Predicted effect concentrations**

No PECs available.

**8.2 Exposure controls**

- Appropriate engineering controls** : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

**Individual protection measures**

**SECTION 8: Exposure controls/personal protection**

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Wear suitable gloves tested to EN374.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**SECTION 9: Physical and chemical properties**

## 9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Liquid. [Oily liquid.]
- Appearance** : Clear.
- Colour** : Brown. Green.
- Odour** : Slight
- Odour threshold** : Not available.
- pH** : 7
- Melting point/freezing point** : <-12°C
- Initial boiling point and boiling range** : >300°C
- Flash point** : Open cup: >216°C [ASTM D92.]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not applicable.
- Upper/lower flammability or explosive limits** : Not available.
- Vapour pressure** : <0.01 kPa [20°C]
- Vapour density** : Not available.
- Relative density** : 0.89
- Solubility(ies)** : Insoluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : >300°C
- Decomposition temperature** : >300°C
- Viscosity (40°C)** : 220 cSt
- Viscosity (100°C)** : 18.9 cSt
- Explosive properties** : Not applicable.

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**SECTION 9: Physical and chemical properties****Oxidising properties** : Not applicable.**9.2 Other information**

No additional information.

**SECTION 10: Stability and reactivity****10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.**10.2 Chemical stability** : The product is stable.**10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.**10.4 Conditions to avoid** : No specific data.**10.5 Incompatible materials** : Reactive or incompatible with the following materials:  
Strong oxidising materials**10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.**SECTION 11: Toxicological information****11.1 Information on toxicological effects**Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Residual oils (petroleum), solvent-dewaxed	LC50 Inhalation Dusts and mists	Rat - Male, Female	5.53 mg/l	4 hours
Distillates (petroleum), solvent-dewaxed heavy paraffinic	LC50 Inhalation Dusts and mists	Rat - Male, Female	5.53 mg/l	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-

**Conclusion/Summary** : Not available.Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Residual oils (petroleum), solvent-dewaxed	Skin - Erythema/Eschar	Rabbit	0.17	72 hours	7 days
	Skin - Oedema	Rabbit	0	72 hours	7 days
	Eyes - Iris lesion	Rabbit	0	48 hours	72 hours
	Eyes - Redness of the conjunctivae	Rabbit	0.33	48 hours	72 hours
Distillates (petroleum), solvent-dewaxed heavy paraffinic	Skin - Erythema/Eschar	Rabbit	0.17	72 hours	7 days
	Skin - Oedema	Rabbit	0	72 hours	7 days
	Eyes - Iris lesion	Rabbit	0	48 hours	72 hours
	Eyes - Redness of the conjunctivae	Rabbit	0.33	48 hours	72 hours

**Conclusion/Summary** : Not available.Sensitisation

Product/ingredient name	Route of exposure	Species	Result

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## SECTION 11: Toxicological information

Residual oils (petroleum), solvent-dewaxed	skin	Guinea pig	Not sensitizing
Distillates (petroleum), solvent-dewaxed heavy paraffinic	skin	Guinea pig	Not sensitizing

**Conclusion/Summary** : Not available.

### Mutagenicity

Product/ingredient name	Test	Experiment	Result
Residual oils (petroleum), solvent-dewaxed	474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic	Negative
Distillates (petroleum), solvent-dewaxed heavy paraffinic	474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic	Negative

**Conclusion/Summary** : Not available.

### Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Residual oils (petroleum), solvent-dewaxed	Negative - Dermal - TC	Mouse - Female	-	78 weeks
Distillates (petroleum), solvent-dewaxed heavy paraffinic	Negative - Dermal - TC	Mouse - Female	-	78 weeks

**Conclusion/Summary** : Not available.

### Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Developmental toxin	Species	Dose	Exposure
Residual oils (petroleum), solvent-dewaxed	Negative	Negative	Negative	Rat - Male, Female	Oral: 1000 mg/kg	-
Distillates (petroleum), solvent-dewaxed heavy paraffinic	Negative	Negative	Negative	Rat - Male, Female	Oral: 1000 mg/kg	-

**Conclusion/Summary** : Not available.

### Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Residual oils (petroleum), solvent-dewaxed	Negative - Dermal	Rat	2000 mg/kg	7 days per week
Distillates (petroleum), solvent-dewaxed heavy paraffinic	Negative - Dermal	Rat	2000 mg/kg	7 days per week

**Conclusion/Summary** : Not available.

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Defatting to the skin. May cause skin dryness and irritation.
- Ingestion** : No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : No specific data.
- Inhalation** : No specific data.

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## SECTION 11: Toxicological information

- Skin contact** : Adverse symptoms may include the following:  
irritation  
dryness  
cracking
- Ingestion** : No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

#### Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

#### Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Residual oils (petroleum), solvent-dewaxed	Sub-chronic NOAEL Oral	Rat - Male, Female	>=2000 mg/kg	13 weeks; 5 days per week
	Sub-acute LOAEL Oral	Rat - Male	125 mg/kg	13 weeks; 5 hours per day
	Sub-acute NOAEL Inhalation Dusts and mists	Rat - Male	>980 mg/m <sup>3</sup>	4 weeks; 5 days per week
Distillates (petroleum), solvent-dewaxed heavy paraffinic	Sub-chronic NOAEL Oral	Rat - Male, Female	>=2000 mg/kg	13 weeks; 5 days per week
	Sub-acute LOAEL Oral	Rat - Male	125 mg/kg	13 weeks; 5 hours per day
	Sub-acute NOAEL Inhalation Dusts and mists	Rat - Male	>980 mg/m <sup>3</sup>	4 weeks; 5 days per week

- Conclusion/Summary General** : Not available.
- General** : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

**Other information** : Not available.

## SECTION 12: Ecological information

### 12.1 Toxicity

**Conclusion/Summary** : Not available.

### 12.2 Persistence and degradability

**Conclusion/Summary** : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Residual oils (petroleum), solvent-dewaxed	-	-	Inherent
Distillates (petroleum), solvent-dewaxed heavy paraffinic	-	-	Inherent



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**SECTION 12: Ecological information****12.3 Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Residual oils (petroleum), solvent-dewaxed	>3	-	high
Distillates (petroleum), solvent-dewaxed heavy paraffinic	>3	-	high

**12.4 Mobility in soil**

Soil/water partition coefficient (K<sub>oc</sub>) : Not available.

Mobility : Not available.

**12.5 Results of PBT and vPvB assessment**

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

**SECTION 13: Disposal considerations**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**13.1 Waste treatment methods****Product**

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

**Hazardous waste** : Yes.

**European waste catalogue (EWC)**

Waste code	Waste designation
13 02 05*	mineral-based non-chlorinated engine, gear and lubricating oils

**Packaging**

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special precautions** : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

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**SECTION 14: Transport information**

	ADR/RID	ADN/ADNR	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)	-	-	-	-
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
14.6 Special precautions for user	Not available.	Not available.	Not available.	Not available.
Additional information	-	-	-	-

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

**SECTION 15: Regulatory information**

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

[EU Regulation \(EC\) No. 1907/2006 \(REACH\)](#)

[Annex XIV - List of substances subject to authorisation](#)

[Substances of very high concern](#)

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

[Other EU regulations](#)

National Inventory List : Australia inventory (AICS): Not determined.  
China inventory (IECSC): Not determined.  
Japan inventory: Not determined.  
Korea inventory: Not determined.  
New Zealand Inventory of Chemicals (NZIoC): Not determined.  
Philippines inventory (PICCS): Not determined.  
United States inventory (TSCA 8b): Not determined.  
Europe inventory: Not determined.  
Canada inventory: Not determined.

Black List Chemicals : Not listed

Priority List Chemicals : Not listed

Integrated pollution prevention and control list (IPPC) - Air : Not listed

Integrated pollution prevention and control list (IPPC) - Water : Not listed

[International regulations](#)

Date of issue/Date of revision : 19-10-2011.

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**SECTION 15: Regulatory information**

Chemical Weapons : Not listed  
 Convention List Schedule I  
 Chemicals

Chemical Weapons : Not listed  
 Convention List Schedule II  
 Chemicals

Chemical Weapons : Not listed  
 Convention List Schedule III  
 Chemicals

15.2 Chemical Safety Assessment : This product contains substances for which Chemical Safety Assessments are still required.

**SECTION 16: Other information**

✔ Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate  
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
 DNEL = Derived No Effect Level  
 EUH statement = CLP-specific Hazard statement  
 PNEC = Predicted No Effect Concentration  
 RRN = REACH Registration Number

Full text of abbreviated R phrases : Not applicable.

Full text of classifications [DSD/DPD] : Not applicable.

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Date of previous issue : No previous validation.

Version : 1

Prepared by : Kuwait Petroleum Research & Technology B.V., The Netherlands

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

**Material Safety Data Sheet**

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**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING**

**Material Name** : Shell Naturelle Gear Fluid EP 220  
**Uses** : Gear lubricant.  
**Product Code** : 001A9764

**Manufacturer/Supplier** : Shell Deutschland Oil GmbH  
Suhrenkamp 71-77  
D-22335 Hamburg

**Telephone** : (+49) 40 6324-6255  
**Fax** : (+49) 40 6321-051  
**Email Contact for MSDS** : If you have any enquiries about the content of this MSDS please email lubricantSDS@shell.com

**Emergency Telephone Number** : +49 (0)40 6324-5110

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**2. HAZARDS IDENTIFICATION**

**EC Classification** : Not classified as dangerous under EC criteria.

**Health Hazards** : Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. Used oil may contain harmful impurities.

**Signs and Symptoms** : Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.

**Safety Hazards** : Not classified as flammable but will burn.  
**Environmental Hazards** : Not classified as dangerous for the environment.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Preparation description** : Blend of synthetic esters and additives.

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**4. FIRST AID MEASURES**

**General Information** : Not expected to be a health hazard when used under normal conditions.

**Inhalation** : No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.

**Skin Contact** : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.

**Eye Contact** : Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.

**Ingestion** : In general no treatment is necessary unless large quantities

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**Advice to Physician** : are swallowed, however, get medical advice.  
: Treat symptomatically.

---

**5. FIRE FIGHTING MEASURES**

Clear fire area of all non-emergency personnel.

**Specific Hazards** : Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.

**Suitable Extinguishing Media** : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

**Unsuitable Extinguishing Media** : Do not use water in a jet.

**Protective Equipment for Firefighters** : Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

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**6. ACCIDENTAL RELEASE MEASURES**

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe all relevant local and international regulations.

**Protective measures** : Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.

**Clean Up Methods** : Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.

**Additional Advice** : Local authorities should be advised if significant spillages cannot be contained.

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**7. HANDLING AND STORAGE**

**General Precautions** : Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

**Handling** : Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.

**Storage** : Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Storage Temperature: 0 - 50°C / 32 - 122°F

**Recommended Materials** : For containers or container linings, use mild steel or high

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- density polyethylene.
- Unsuitable Materials** : PVC.
- Additional Information** : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.  
Storage class: 10  
Fire hazard classification: B.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Occupational Exposure Limits**

- Exposure Controls** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
- Personal Protective Equipment** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Respiratory Protection** : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65 °C (149 °F)] meeting EN141.
- Hand Protection** : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
- Eye Protection** : Wear safety glasses or full face shield if splashes are likely to occur. Approved to EU Standard EN166.
- Protective Clothing** : Skin protection not ordinarily required beyond standard issue work clothes.
- Monitoring Methods** : Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.

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**Environmental Exposure Controls** : Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : Brown. Liquid at room temperature.  
Odour : Slight hydrocarbon.  
pH : Not applicable.  
Initial Boiling Point and Boiling Range : > 280 °C / 536 °F estimated value(s)  
Pour point : Typical -39 °C / -38 °F  
Flash point : > 220 °C / 428 °F (COC)  
Upper / lower Flammability or Explosion limits : Typical 1 - 10 %(V)  
Auto-ignition temperature : > 320 °C / 608 °F  
Vapour pressure : < 0,5 Pa at 20 °C / 68 °F (estimated value(s))  
Density : Typical 948 kg/m<sup>3</sup> at 15 °C / 59 °F  
Water solubility : Negligible.  
n-octanol/water partition coefficient (log Pow) : > 6 (based on information on similar products)  
Kinematic viscosity : Typical 220 mm<sup>2</sup>/s at 40 °C / 104 °F  
Vapour density (air=1) : > 1 (estimated value(s))  
Evaporation rate (nBuAc=1) : Data not available

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**10. STABILITY AND REACTIVITY**

**Stability** : Stable.  
**Conditions to Avoid** : Extremes of temperature and direct sunlight.  
**Materials to Avoid** : Strong oxidising agents.  
**Hazardous Decomposition Products** : Hazardous decomposition products are not expected to form during normal storage.

---

**11. TOXICOLOGICAL INFORMATION**

**Basis for Assessment** : Information given is based on data on the components and the toxicology of similar products.  
**Acute Oral Toxicity** : Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat  
**Acute Dermal Toxicity** : Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit  
**Acute Inhalation Toxicity** : Not considered to be an inhalation hazard under normal conditions of use.  
**Skin Irritation** : Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.  
**Eye Irritation** : Expected to be slightly irritating.  
**Respiratory Irritation** : Inhalation of vapours or mists may cause irritation.  
**Sensitisation** : Not expected to be a skin sensitiser.  
**Repeated Dose Toxicity** : Not expected to be a hazard.  
**Mutagenicity** : Not considered a mutagenic hazard.  
**Carcinogenicity** : Components are not known to be associated with carcinogenic effects.  
**Reproductive and Developmental Toxicity** : Not expected to be a hazard.

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**Additional Information** : Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible.

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**12. ECOLOGICAL INFORMATION**

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

**Acute Toxicity** : Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).

**Mobility** : Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

**Persistence/degradability** : Readily biodegradable.

**Bioaccumulation** : Not expected to bioaccumulate significantly.

**Other Adverse Effects** : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

---

**13. DISPOSAL CONSIDERATIONS**

**Material Disposal** : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.

**Container Disposal** : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

**Local Legislation** : Disposal should be in accordance with applicable regional, national, and local laws and regulations.  
EU Waste Disposal Code (EWC): 13 02 06 synthetic engine, gear and lubricating oils. Classification of waste is always the responsibility of the end user.

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**14. TRANSPORT INFORMATION****ADR**

This material is not classified as dangerous under ADR regulations.

**RID**

This material is not classified as dangerous under RID regulations.



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### ADNR

This material is not classified as dangerous under ADNR regulations.

### IMDG

This material is not classified as dangerous under IMDG regulations.

### IATA (Country variations may apply)

This material is not classified as dangerous under IATA regulations.

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## 15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

EC Classification	:	Not classified as dangerous under EC criteria.
EC Symbols	:	No Hazard Symbol required
EC Risk Phrases	:	Not classified.
EC Safety Phrases	:	Not classified.
EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
National Legislation		
Water Pollution Class	:	WGK 1 - low hazard to waters (appendix 4, VwVwS, preparations).
Other Information	:	Technische Anleitung Luft: Product not listed by name. Observe section 5.2.5 in connection with section 5.4.9

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## 16. OTHER INFORMATION

R-phrases)

Not classified.

<b>MSDS Version Number</b>	:	1.1
<b>MSDS Effective Date</b>	:	09.11.2009
<b>MSDS Revisions</b>	:	A vertical bar ( ) in the left margin indicates an amendment from the previous version.
<b>MSDS Regulation</b>	:	Regulation 1907/2006/EC
<b>MSDS Distribution</b>	:	The information in this document should be made available to all who may handle the product.
<b>Disclaimer</b>	:	This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property

## **Material Safety Data Sheet**

of the product.

**Material Safety Data Sheet****1. MATERIAL AND COMPANY IDENTIFICATION**

**Material Name** : Shell Naturelle Fluid HF-E 32  
**Uses** : Hydraulic oil

**Manufacturer/Supplier** : SOPUS Products  
PO BOX 4427  
Houston, TX 77210-4427  
USA

**MSDS Request** : 877-276-7285

**Emergency Telephone Number**  
**Spill Information** : 877-242-7400  
**Health Information** : 877-504-9351

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Blend of synthetic esters and additives.

**3. HAZARDS IDENTIFICATION**

<b>Emergency Overview</b>	
<b>Appearance and Odour</b>	: Colourless. Liquid at room temperature. Slight hydrocarbon.
<b>Health Hazards</b>	: High-pressure injection under the skin may cause serious damage including local necrosis.
<b>Safety Hazards</b>	: Not classified as flammable but will burn.
<b>Environmental Hazards</b>	: Not classified as dangerous for the environment.

**Health Hazards** : Not expected to be a health hazard when used under normal conditions.

**Health Hazards**  
**Inhalation** : Under normal conditions of use, this is not expected to be a primary route of exposure.

**Skin Contact** : Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

**Eye Contact** : May cause slight irritation to eyes.

**Ingestion** : Low toxicity if swallowed.

**Other Information** : High-pressure injection under the skin may cause serious damage including local necrosis. Used oil may contain harmful impurities.

**Signs and Symptoms** : Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection. Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.

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- Aggravated Medical Conditions** : Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Skin.
- Environmental Hazards** : Not classified as dangerous for the environment.
- Additional Information** : Under normal conditions of use or in a foreseeable emergency, this product does not meet the definition of a hazardous chemical when evaluated according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**4. FIRST AID MEASURES**

- General Information** : Not expected to be a health hazard when used under normal conditions.
- Inhalation** : No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
- Skin Contact** : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.
- Eye Contact** : Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
- Ingestion** : In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
- Advice to Physician** : Treat symptomatically. High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

**5. FIRE FIGHTING MEASURES**

Clear fire area of all non-emergency personnel.

- Flash point** : Typical 246 °C / 475 °F (COC)
- Upper / lower Flammability or Explosion limits** : Typical 1 - 10 %(V)
- Auto ignition temperature** : > 320 °C / 608 °F
- Specific Hazards** : Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic

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- compounds.
- Suitable Extinguishing Media** : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
- Unsuitable Extinguishing Media** : Do not use water in a jet.
- Protective Equipment for Firefighters** : Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

**6. ACCIDENTAL RELEASE MEASURES**

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe the relevant local and international regulations.

- Protective measures** : Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
- Clean Up Methods** : Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
- Additional Advice** : Local authorities should be advised if significant spillages cannot be contained.

**7. HANDLING AND STORAGE**

- General Precautions** : Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
- Handling** : Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
- Storage** : Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Store at ambient temperature.
- Recommended Materials** : For containers or container linings, use mild steel or high density polyethylene.
- Unsuitable Materials** : PVC.
- Additional Information** : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Occupational Exposure Limits**

**Material Safety Data Sheet**

Contains no components with occupational exposure limit values.

- Exposure Controls** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
- Personal Protective Equipment** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Respiratory Protection** : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
- Hand Protection** : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
- Eye Protection** : Wear safety glasses or full face shield if splashes are likely to occur.
- Protective Clothing** : Skin protection not ordinarily required beyond standard issue work clothes.
- Monitoring Methods** : Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
- Environmental Exposure Controls** : Minimise release to the environment. An environmental assessment must be made to ensure compliance with local

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environmental legislation.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	: Colourless. Liquid at room temperature.
Odour	: Slight hydrocarbon.
pH	: Not applicable.
Initial Boiling Point and Boiling Range	: > 280 °C / 536 °F estimated value(s)
Pour point	: Typical -42 °C / -44 °F
Flash point	: Typical 246 °C / 475 °F (COC)
Upper / lower Flammability or Explosion limits	: Typical 1 - 10 %(V)
Auto-ignition temperature	: > 320 °C / 608 °F
Vapour pressure	: < 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	: Typical 0.918 at 15 °C / 59 °F
Density	: Typical 918 kg/m <sup>3</sup> at 15 °C / 59 °F
Water solubility	: Negligible.
n-octanol/water partition coefficient (log Pow)	: > 6 (based on information on similar products)
Kinematic viscosity	: Typical 32.5 mm <sup>2</sup> /s at 40 °C / 104 °F
Vapour density (air=1)	: > 1 (estimated value(s))
Evaporation rate (nBuAc=1)	: Data not available

**10. STABILITY AND REACTIVITY**

<b>Stability</b>	: Stable.
<b>Conditions to Avoid</b>	: Extremes of temperature and direct sunlight.
<b>Materials to Avoid</b>	: Strong oxidising agents.
<b>Hazardous Decomposition Products</b>	: Hazardous decomposition products are not expected to form during normal storage.

**11. TOXICOLOGICAL INFORMATION**

<b>Basis for Assessment</b>	: Information given is based on data on the components and the toxicology of similar products.
<b>Acute Oral Toxicity</b>	: Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat
<b>Acute Dermal Toxicity</b>	: Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit
<b>Acute Inhalation Toxicity</b>	: Not considered to be an inhalation hazard under normal conditions of use.
<b>Skin Irritation</b>	: Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
<b>Eye Irritation</b>	: Expected to be slightly irritating.
<b>Respiratory Irritation</b>	: Inhalation of vapours or mists may cause irritation.
<b>Sensitisation</b>	: Not expected to be a skin sensitiser.
<b>Repeated Dose Toxicity</b>	: Not expected to be a hazard.
<b>Mutagenicity</b>	: Not considered a mutagenic hazard.
<b>Carcinogenicity</b>	: Components are not known to be associated with carcinogenic effects.

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- Reproductive and Developmental Toxicity Additional Information** : Not expected to be a hazard.
- : Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed.

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**12. ECOLOGICAL INFORMATION**

Information given is based on product data, a knowledge of the components and the ecotoxicology of similar products.

- Acute Toxicity** : Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract.)
- Mobility** : Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.
- Persistence/degradability** : Readily biodegradable.
- Bioaccumulation** : Contains components with the potential to bioaccumulate.
- Other Adverse Effects** : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

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**13. DISPOSAL CONSIDERATIONS**

- Material Disposal** : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.
- Container Disposal** : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
- Local Legislation** : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

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**14. TRANSPORT INFORMATION****US Department of Transportation Classification (49CFR)**



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This material is not subject to DOT regulations under 49 CFR Parts 171-180.

### IMDG

This material is not classified as dangerous under IMDG regulations.

### IATA (Country variations may apply)

This material is either not classified as dangerous under IATA regulations or needs to follow country specific requirements.

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## 15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

### Federal Regulatory Status

#### Notification Status

DSL	All components listed.
EINECS	All components listed or polymer exempt.
TSCA	All components listed.

Shell classifies this material as an "oil" under the CERCLA Petroleum Exclusion, therefore releases to the environment are not reportable under CERCLA.

#### SARA Hazard Categories (311/312)

No SARA 311/312 Hazards.

### State Regulatory Status

#### California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

This material does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

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## 16. OTHER INFORMATION

## Material Safety Data Sheet

- NFPA Rating (Health, Fire, Reactivity)** : 0, 1, 0
- MSDS Version Number** : 5.3
- MSDS Effective Date** : 02/01/2012
- MSDS Revisions** : A vertical bar (|) in the left margin indicates an amendment from the previous version.
- MSDS Regulation** : The content and format of this MSDS is in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
- MSDS Distribution** : The information in this document should be made available to all who may handle the product.
- Disclaimer** : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

**Material Safety Data Sheet****1. MATERIAL AND COMPANY IDENTIFICATION**

**Material Name** : **Shell Tellus Oil T 15**  
**Uses** : Hydraulic oil

**Manufacturer/Supplier** : **SOL PUERTO RICO LIMITED**  
Torre De La Reina Bldg. 2nd. Floor  
Ave. Constitución #450  
San Juan  
Puerto Rico

**MSDS Request** : (787) 289-2961

**Emergency Telephone Number**  
**Spill Information** : (787) 289-2961  
**Health Information** :

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Highly refined mineral oils and additives.  
The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

**3. HAZARDS IDENTIFICATION**

<b>Emergency Overview</b>	
<b>Appearance and Odour</b>	: Amber. Liquid at room temperature. Slight hydrocarbon.
<b>Health Hazards</b>	: Harmful: may cause lung damage if swallowed. High-pressure injection under the skin may cause serious damage including local necrosis.
<b>Safety Hazards</b>	: Not classified as flammable but will burn.
<b>Environmental Hazards</b>	: Not classified as dangerous for the environment.

**Health Hazards**

**Inhalation** : Under normal conditions of use, this is not expected to be a primary route of exposure.

**Skin Contact** : Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

**Eye Contact** : May cause slight irritation to eyes.

**Ingestion** : Harmful: may cause lung damage if swallowed.

**Other Information** : High-pressure injection under the skin may cause serious damage including local necrosis. Used oil may contain harmful impurities.

**Signs and Symptoms** : If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure. Local necrosis is evidenced by delayed onset of pain

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- and tissue damage a few hours following injection. Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
- Aggravated Medical Condition** : Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Skin.
- Environmental Hazards** : Not classified as dangerous for the environment.
- Additional Information** : Under normal conditions of use or in a foreseeable emergency, this product meets the definition of a hazardous chemical when evaluated according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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**4. FIRST AID MEASURES**

- Inhalation** : No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
- Skin Contact** : Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.
- Eye Contact** : Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
- Ingestion** : If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (37° C), shortness of breath, chest congestion or continued coughing or wheezing.
- Advice to Physician** : Treat symptomatically. Potential for chemical pneumonitis. Consider: gastric lavage with protected airway, administration of activated charcoal. High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential. Call a doctor or poison control center for guidance.

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**5. FIRE FIGHTING MEASURES**

Clear fire area of all non-emergency personnel.

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<b>Flash point</b>	:	Typical 225 °C / 437 °F (COC)
<b>Upper / lower</b>	:	Typical 1 - 10 %(V)(based on mineral oil)
<b>Flammability or</b>		
<b>Explosion limits</b>		
<b>Auto ignition temperature</b>	:	> 320 °C / 608 °F
<b>Specific Hazards</b>	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
<b>Suitable Extinguishing</b>	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
<b>Media</b>		
<b>Unsuitable Extinguishing</b>	:	Do not use water in a jet.
<b>Media</b>		
<b>Protective Equipment for</b>	:	Proper protective equipment including breathing apparatus
<b>Firefighters</b>	:	must be worn when approaching a fire in a confined space.

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**6. ACCIDENTAL RELEASE MEASURES**

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe the relevant local and international regulations.

<b>Protective measures</b>	:	Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
<b>Clean Up Methods</b>	:	Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
<b>Additional Advice</b>	:	Local authorities should be advised if significant spillages cannot be contained.

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**7. HANDLING AND STORAGE**

<b>General Precautions</b>	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
<b>Handling</b>	:	Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
<b>Storage</b>	:	Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Storage Temperature: 0 - 50 °C / 32 - 122 °F
<b>Recommended Materials</b>	:	For containers or container linings, use mild steel or high

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**Unsuitable Materials** : density polyethylene.  
**Additional Information** : PVC.  
 : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Occupational Exposure Limits**

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA(Mist.)		5 mg/m3	
Oil mist, mineral	ACGIH	STEL(Mist.)		10 mg/m3	

**Exposure Controls** : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

**Personal Protective Equipment** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

**Respiratory Protection** : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].

**Hand Protection** : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

**Eye Protection** : Wear safety glasses or full face shield if splashes are likely to occur.

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- Protective Clothing** : Skin protection is not required under normal conditions of use. It is good practice to wear chemical resistant gloves.
- Monitoring Methods** : Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
- Environmental Exposure Controls** : Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

- Appearance : Amber. Liquid at room temperature.
- Odour : Slight hydrocarbon.
- pH : Not applicable.
- Initial Boiling Point and Boiling Range : > 280 °C / 536 °F estimated value(s)
- Pour point : Typical -42 °C / -44 °F
- Flash point : Typical 225 °C / 437 °F (COC)
- Upper / lower Flammability or Explosion limits : Typical 1 - 10 %(V) (based on mineral oil)
- Auto-ignition temperature : > 320 °C / 608 °F
- Vapour pressure : < 0.5 Pa at 20 °C / 68 °F (estimated value(s))
- Density : Typical 875 kg/m<sup>3</sup> at 15 °C / 59 °F
- Water solubility : Negligible.
- n-octanol/water partition coefficient (log Pow) : > 6 (based on information on similar products)
- Kinematic viscosity : Typical 15 mm<sup>2</sup>/s at 40 °C / 104 °F
- Vapour density (air=1) : > 1 (estimated value(s))
- Evaporation rate (nBuAc=1) : Data not available

**10. STABILITY AND REACTIVITY**

- Stability** : Stable.
- Conditions to Avoid** : Extremes of temperature and direct sunlight.
- Materials to Avoid** : Strong oxidising agents.
- Hazardous Decomposition Products** : Hazardous decomposition products are not expected to form during normal storage.

**11. TOXICOLOGICAL INFORMATION**

- Basis for Assessment** : Information given is based on data on the components and the toxicology of similar products.
- Acute Oral Toxicity** : Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat  
Aspiration into the lungs may cause chemical pneumonitis which can be fatal.
- Acute Dermal Toxicity** : Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit
- Acute Inhalation Toxicity** : Not considered to be an inhalation hazard under normal conditions of use.
- Skin Irritation** : Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin

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	resulting in disorders such as oil acne/folliculitis.
<b>Eye Irritation</b>	: Expected to be slightly irritating.
<b>Respiratory Irritation</b>	: Inhalation of vapours or mists may cause irritation.
<b>Sensitisation</b>	: Not expected to be a skin sensitiser.
<b>Repeated Dose Toxicity</b>	: Not expected to be a hazard.
<b>Mutagenicity</b>	: Not considered a mutagenic hazard.
<b>Carcinogenicity</b>	: Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC). Other components are not known to be associated with carcinogenic effects.
<b>Reproductive and Developmental Toxicity</b>	: Not expected to be a hazard.
<b>Additional Information</b>	: Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed.

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**12. ECOLOGICAL INFORMATION**

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

<b>Acute Toxicity</b>	: Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract). Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.
<b>Mobility</b>	: Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.
<b>Persistence/degradability</b>	: Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.
<b>Bioaccumulation</b>	: Contains components with the potential to bioaccumulate.
<b>Other Adverse Effects</b>	: Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

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**13. DISPOSAL CONSIDERATIONS**

<b>Material Disposal</b>	: Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper
--------------------------	---



## Material Safety Data Sheet

- waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.
- Container Disposal** : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
- Local Legislation** : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

---

### 14. TRANSPORT INFORMATION

#### US Department of Transportation Classification (49CFR)

This material is not subject to DOT regulations under 49 CFR Parts 171-180.

#### IMDG

This material is not classified as dangerous under IMDG regulations.

#### IATA (Country variations may apply)

This material is not classified as dangerous under IATA regulations.

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### 15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

#### Federal Regulatory Status

##### Notification Status

EINECS	All components listed or polymer exempt.
TSCA	All components listed.
DSL	All components listed.

Shell classifies this material as an "oil" under the CERCLA Petroleum Exclusion, therefore releases to the environment are not reportable under CERCLA.

#### SARA Hazard Categories (311/312)

Immediate (Acute) Health Hazard.

#### State Regulatory Status

##### California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

## Material Safety Data Sheet

This material does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

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### 16. OTHER INFORMATION

- NFPA Rating (Health, Fire, Reactivity)** : 0, 1, 0
- MSDS Version Number** : 1.0
- MSDS Effective Date** : 09/22/2010
- MSDS Revisions** : A vertical bar (|) in the left margin indicates an amendment from the previous version.
- MSDS Regulation** : The content and format of this MSDS is in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
- MSDS Distribution** : The information in this document should be made available to all who may handle the product.
- Disclaimer** : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

Product (trade name): AVIA SYNTOFLUID PE-B 30

**1. Identification of the substance/preparation and of the company/undertaking**

Product name: AVIA SYNTOFLUID PE-B 30

Application of the substance / the preparation:  
Hydraulic oilAddress / Supplier:  
AVIA Mineralöl-AG  
Einsteinstraße 169  
D-81677 München  
Phone +49 (0) 89 45 50 45-0Contact numbers: Munich +49 (0) 89 45 50 45-0  
E-Mail: datenblatt@avia.de  
Emergency telephone number: Giftnotruf München/Germany  
+49 (0) 89 19 24 0**2. Hazards Identification**Hazard description:  
Not applicable  
Information concerning particular hazards for humans and environment:  
The product does not have to be labeled due to the calculation procedure of the "General Classification Guideline for Preparations of the EU" in the latest, valid version.Classification system:  
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.**3. Composition / Information on ingredients**Chemical characterization:  
Description:  
Mixture of substances listed below with non hazardous additions.Dangerous components:  
None  
On the basis of available information, the components of this preparation are not expected to impart hazardous properties to this product.Additional information:  
For the wording of the listed risk phrases refer to section 16.  
Components with MAK-value are mentioned under point 8.**4. First-Aid Measures**General information:  
No special measures required.After inhalation:  
Fresh air supply, in case of complaints consult a physician.After skin contact:  
Immediately wash with water and soap and rinse thoroughly.  
Generally the product does not irritate the skin.After eye contact:  
Rinse opened eye for several minutes under running water.After swallowing:  
Seek immediate medical adviceInformation for doctor:  
Treat symptomatically**5. Fire-Fighting Measures**Suitable extinguishing agents:  
Adapt fire-fighting measures to the environment.  
CO<sub>2</sub>, sand, extinguishing powder  
For safety reasons unsuitable extinguishing agents:  
Full water jet.Special hazards caused by the substance, its products of combustion or resulting gases:  
Carbon monoxide (CO). Formation of toxic gases is possible during heating or in case of fire. Do not inhale explosion gases or combustion gases. Wear fully protective suit.Additional information:  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.**6. Accidental Release Measures**Person related safety precautions:  
Not required. Particular danger of slipping on leaked/spilled product. Wear protective clothing.Measures for environmental protection:  
Do not allow to enter sewers / surface or ground water. Prevent from spreading (e.g. damming-in or oil barriers).Measures for cleaning/collecting:  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust). Dispose of the material collected according to regulations.Additional information:  
No dangerous substances are released.**7. Handling and Storage**Handling:  
Suitable tools and safety boots have to be used when handling heavy containers. Do not keep product soaked cloths in pockets. Do not eat, drink, smoke or sniff when working with the product.Information for safe handling:  
No special measures required. Keep receptacles tightly sealed. Store in cool, dry place in tightly closed receptacles.Information about fire and explosion protection:  
The product is not combustible.  
Fire class DIN EN 2: BStorage:  
Requirements to be met by storerooms and receptacles:  
No special requirements. Store only in the original receptacle. Provide floor through without outlet. Prevent any seepage into the ground.  
Information about storage in one common storage facility:  
Store away from foodstuffs, store away from oxidizing agents.

Product (trade name): AVIA SYNTOFLUID PE-B 30

Further information about storage conditions:  
Maximum storage time: 3 years  
Storage class: 10 (Germany)

**8. Exposure Controls / Personal Protection**

Additional information about design of technical facilities:  
No further data, see item 7.

Ingredients with limit values that require monitoring at the workplace:  
Not required.

Additional occupational exposure limit values for possible hazards during processing:  
Complex hydro carbon mixture, group C. Air limit value not applicable.

Additional information:  
The lists valid during the making were used as a basis. If formation of steam, mist or aerosols takes place, the workplace concentration in the air has to be kept at the lowest possible level.

Personal protective equipment:  
General protective and hygienic measures:  
The usual precautionary measures are to be adhered to when handling chemicals

Respiratory protection:  
Not required

Protection of hands:  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.  
Safety gloves of nitrile rubber or Viton. The glove material has to be impermeable and resistant to the product/the substance/ the preparation.  
Material of gloves:  
Fluorocarbon rubber (Viton), nitrile rubber (NBR).  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and therefore has to be checked prior to the application.  
Penetration time of glove material:  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.  
Value for the permeation: level e 6

Eye protection:  
Goggles recommended during refilling  
Body protection:  
Normally not required. In case of frequent splashes or skin contact wear suitable protective work clothing.

**9. Physical and Chemical Properties**

Typical Values:  
Physical state: fluid  
Colour: yellow  
Odour: mild

Change in condition :

Boiling point	>	°C	DIN ISO 3405
		180	
Pour point	<	-40 °C	DIN ISO 3016
Flash point	>	160 °C	DIN ISO 2592
Density at 15 °C	0.83	g/cm <sup>3</sup>	DIN 51757
Viscosity kin. at 40°C	25.3	mm <sup>2</sup> /s	DIN 51562
Vapour pressure at 20 °C	<0.1	hPa	EN 12
Explosion limits			
Lower	0.6	Vol%	
Upper	7.0	Vol%	
Danger of explosion	Product shows no danger of explosion, but it may build explosive mixtures with air (spraying, misting, heating above the flash point)		
Melting point/-area	n.a.		
Self ignition	Product is not self igniting		
Solubility in	Not miscible or difficult to mix		
Miscibility with			

**10. Stability and Reactivity**

Thermal decomposition / Conditions to be avoided:  
No decomposition if used according to specifications

Dangerous reactions:  
Reacts with strong oxidizing agents

Dangerous decomposition products:  
No dangerous decomposition products known.

**11. Toxicological Information:**

Acute toxicity:  
LD/LC 50 values relevant for classification:  
LD50: > 2000 mg/kg (rat, oral)  
Primary irritant effects:  
On the skin: no irritant effect  
On the eye: no irritant effect  
Sensitization: no sensitizing effects known  
Sub-acute to chronic toxicity:  
Prolonged and/or repeated contact may cause degreasing of the skin which can lead to dermatitis and may make the skin more susceptible to irritation and penetration by other materials.

Additional toxicological information:  
The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version. When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

**12. Ecological information**

Information on Elimination (Persistence and degradability):  
The product is biologically degradable.  
Test-method: CEC-L-33-A-93 (21 days).

Behavior in environmental systems:  
Mobility and bioaccumulation potential:  
It may be accumulated in organisms.  
The product is not soluble in water. If it enters soil, it will adsorb

---

Product (trade name): AVIA SYNTOFLUID PE-B 30

---

to soil particles and will not be mobile. The product has potential to bioaccumulate.

features and shall not establish a legally valid contractual relationship.

General notes:

Water hazard class (German Regulations) 1 (Self assessment):  
The product is slightly hazardous for water. Do not allow product to reach ground water, water course or sewage system.

### 13. Disposal considerations

Product:  
European waste catalogue:  
130111 synthetic hydraulic oil

Uncleaned packaging:  
Containers must be emptied completely. Dispose of via a certified disposal contractor.

Recommendation:  
Contaminated packaging must be emptied completely. It may be recycled after thorough and proper cleaning.

### 14. Transport Information

Land transport ADR/RID (cross-border)  
ADR/RID class: -  
No hazardous substance

Designation of the product:  
Limited quantity (LQ): -

Maritime transport IMDG/GGVSee:  
Marine pollutant: No

### 15. Regulatory Information

Labelling according to EU guidelines:  
Observe the general safety regulations when handling chemicals. The product is not subject to identification regulations under EU directives and Ordinance on Hazardous Materials (German GefStoffV).

National regulations:  
Information about limitation of use:  
None

Break down regulations:  
Störfallverordnung; Anhang: nicht genannt (Germany)

Technical instructions (air):  
Class share in %  
Value according to TA Luft of. 24. July 2002. Cap. 5.2.5  
Organic substances

Water hazard class:  
Water hazard class 1 (Self-assessment): slightly hazardous for water.

Other regulations, limitations and prohibitions:  
Is not subject to the VOC-Regulation (31. BImSch).

### 16. Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product

# ENERGY PARK

volume 4 // appendix 5.4 // fluids tables - TGL

*Photograph reproduced from  
The Yachtsman's Pilot Clyde to Colonsay by Martin Lawrence and Imray Laurie Norie and Wilson Ltd.  
Copyright Martin Lawrence 1987.*



Part / system	Liquid Type	Toxicity/ biodegradability properties	Specification (where known)	Volume (litres)	Different to DEEP-Gen III device? (Yes/No)
Pitch Gearboxes in hub (total of 3 gearboxes)	Oil	Low toxicity Not readily biodegradable.	Q8 El Greco 150 (Synthetic oil, GEAR OIL, ISO 150, TO DIN 51517 PT3 CLP)	75	Yes
Pitch Sump	Oil	Low toxicity Not readily biodegradable.	Q8 El Greco 320 (Synthetic oil, GEAR OIL, ISO 320, TO DIN 51517 PT3 CLP)	300	Yes
Main Gearbox in nacelle	Oil	Low toxicity Not readily biodegradable.	Mobil Gear SHC XMP220	300	Yes
Main shaft bearings	Oil	Low toxicity Non-biodegradable	Q8 Goya NT 320, (TO DIN 51517 PT3 CLP or equivalent )	<50	Yes
Cooling system	Coolant	Non-Toxic Biodegradable	Propolyene glycol. Hydratech coolflow NTP	200	Yes – previous Coolflow product was discontinued
Hydraulic system	Hydraulic oil	Low toxicity Biodegradable	Shell Naturelle HF-E 32	200 (estimate)	No
Main Shaft Seal	Oil	Expected to be low toxicity Biodegradable	ISO 68 biodegradable oil, long life, emulsifying.	6	New item
Clamp compensation	Oil	Low toxicity Biodegradable	Shell Naturelle EP 220	20 (estimate)	New item
Thruster compensation	Hydraulic Oil	Low toxicity Not readily Biodegradable	Shell Tellus T15	40	Yes – previously there was approx. 2l of Comma Gear Oil SX75W/90 GL4
Detachable winch	Hydraulic Oil	Low toxicity Biodegradable	Goldline HPX 32	110	Yes
Detachable winch	Oil	Low toxicity Biodegradable	Goldline EP150	25	Yes
Detachable winch	Oil	Low toxicity Biodegradable	Goldline transformer	20	Yes
Emergency clamp release mechanism	Oil	Low toxicity Biodegradable	Shell Naturelle HF-E 32	200 (estimate)	No

# ENERGY PARK

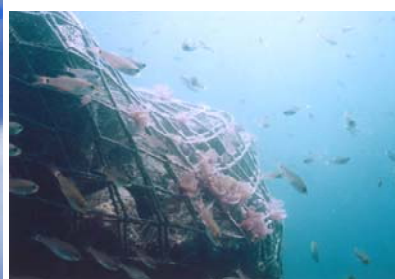
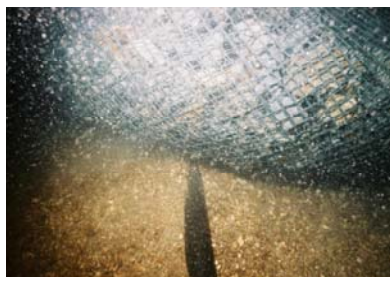
volume 4 // appendix 5.5 // rock bag specification

*Photograph reproduced from  
The Yachtsman's Pilot Clyde to Colonsay by Martin Lawrence and Imray Laurie Norie and Wilson Ltd.  
Copyright Martin Lawrence 1987.*





# KYOWA's Filter Unit



## For Offshore Wind Farm Construction

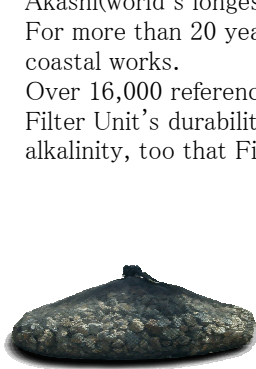
Scour protection at foundation of windmill; Protection of cable between the windmills

Protection of submarine cable; Protection of overhead crossing point for submarine cables

Adjustment of unevenness in rocky seabed; Fill the gap between exit of cable and seabed



# Outline



Filter Unit was used for the first time in 1987, to protect the foundations of the great bridge at Akashi (world's longest span, with a total length of 3,911m). For more than 20 years, the Filter Unit has been widely used in civil engineering for rivers and coastal works. Over 16,000 reference sites in Japan, with over 600,000 Filter Units installed. Filter Unit's durability against ultra-violet rays is 30 years and strong against acidity and alkalinity, too that Filter Unit will keep structure for a long time.



CE Marking  
【Acquired: 2008】



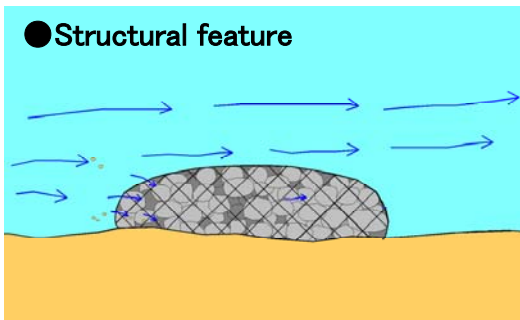
Eco mark  
【Acquired: 2003】



Certificate of Public work  
Research Center  
【Acquired: 1995】

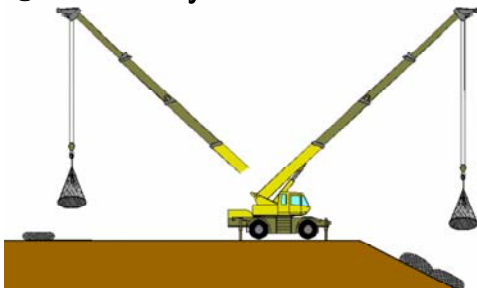
# Characteristics

## ● Structural feature



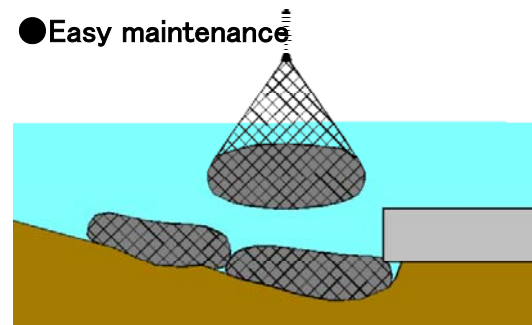
- Due to the flexible structure, Filter Unit fits well with irregular ground.
- Filter Unit has high efficiency of covering the surface that it prevents the ground from suction.

## ● Productivity



- Production (Stuffing of stones into Filter Unit) and most of installation work is easy that works can be done with smaller number of people, shorter construction period and lower cost.

## ● Easy maintenance



- Due to high flexibility, it is possible to fill missing part by additional installation.
- Installation and removal of Filter Unit can be done easily by one point hanging system.

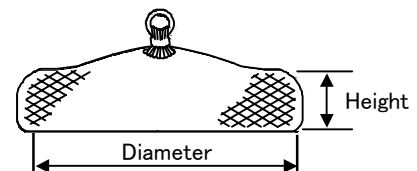
## ● Environmental aspect



- As stuffed stones in the Filter Unit creates porous structure, it is possible to create a space for small creatures such as fish, to live.
- Filter Unit is made of synthetic fiber that it will not rust and toxic substances will not elute.

# Product Specifications

According to the applied places and conditions, Filter Unit can be selected from 2ton type to 8ton type.

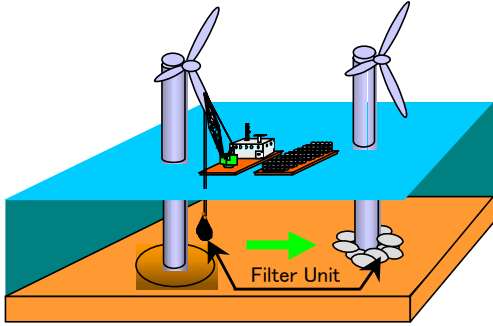


Type	Mesh size	Stuffing stones*1 Particle diameter	Unit weight, Filter Unit empty	Dimensions in meters, Filter Unit installed			Applicable velocity	
				Diameter	Height	Vol	Unit	Grouped
2t type	25mm	50~200mm	6kg	1.9m	0.4m	1.24m <sup>3</sup>	3.1m/sec	4.7m/sec
4t type	25mm	50~200mm	13kg	2.4m	0.6m	2.5m <sup>3</sup>	3.5m/sec	5.3m/sec
8t type	50mm	75~200mm	48kg	3.0m	0.7m	5.0m <sup>3</sup>	3.9m/sec	5.9m/sec

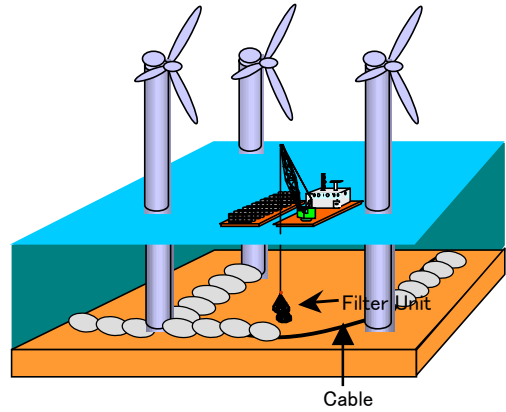
\* 1 : Specific gravity of stuffing stones 2.6-2.65

# Examples of use of Filter Unit for Offshore

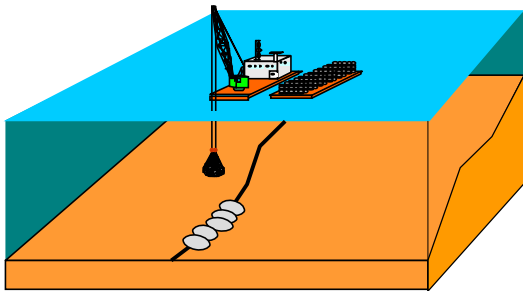
① Scour protection at foundation of windmill



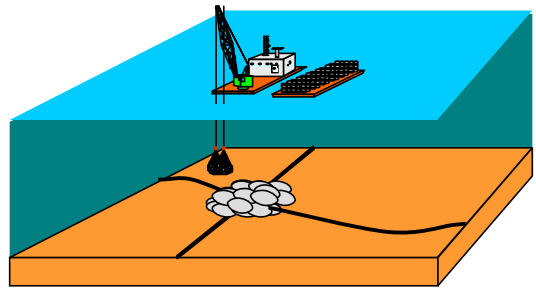
② Protection of cable between the windmills



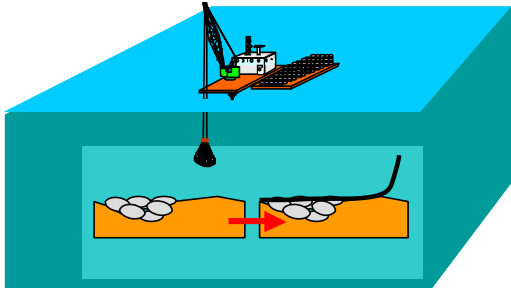
③ Protection of submarine cable



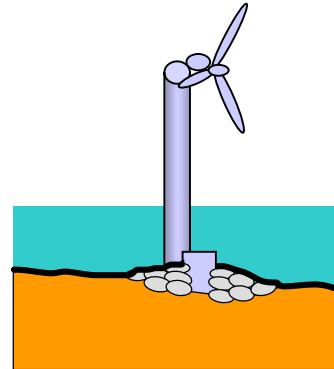
④ Protection of overhead crossing point for submarine cables



⑤ Adjustment of unevenness in rocky seabed



⑥ Fill the gap between exit of cable and seabed



Example of work: Protection of bridge foot



Example of work: Pipeline protection



# Procedure of production of Filter Unit

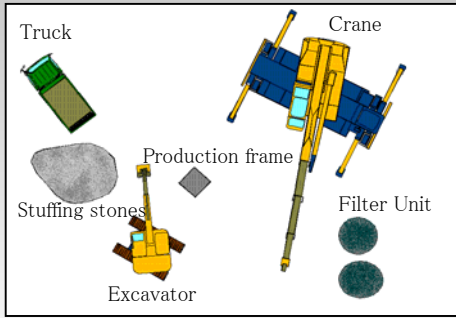


Image of whole view for production yard.



① Set Filter Unit in a production frame. Stuff stones by an excavator.



② Fit the hanging ring. Bind the mouth.



③ Lift up the production frame and leave Filter Unit. Production is finished.

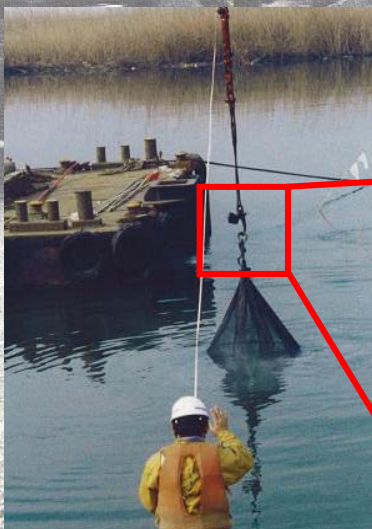


④ Load Filter Unit on a pontoon and bring them to installation area.



⑤ Installation by a crane.

## About Hanging Ring



Installation of Filter Unit into the water can be done without divers by using auto-release hook.

It is possible to install several Filter Units at one time if jig is used.

URL <http://www.kyowa-filterunit.com>



SUMITOMO DEUTSCHLAND GMBH (Stock point: Düsseldorf)

Nu Giang Huong Trung  
DUSKA Section  
Machinery & Electric Unit  
Georg-Glock-Str. 8 40474 Düsseldorf Germany  
Tel. +49 211 4570 307  
Fax +49 211 4570 236  
E-mail: filterunit.sc-osa@sumitomocorp.co.jp



Manufacturer  
KYOWA CO., LTD.  
1-13-20, Minamisenba, Chuo-ku, Osaka, 542-0081, Japan

# ENERGY PARK

volume 4 // appendix 6.1 // metocean tables

*Photograph reproduced from  
The Yachtsman's Pilot Clyde to Colonsay by Martin Lawrence and Imray Laurie Norie and Wilson Ltd.  
Copyright Martin Lawrence 1987.*



Significant Wave Height	Wave Direction (Meteo: North 0, +ve clockwise) °											
	345-15	15-45	45-75	75-105	105-135	135-165	165-195	195-225	225-255	255-285	285-315	315-345
<b>0</b>	3.5	2	1.9	5.9	14.3	17.4	4	3.1	3.3	18.6	6.6	2.1
<b>0.5</b>	35	5.2	4.4	7.5	38.8	98.4	31.8	29.8	38.9	222.4	177.9	71.9
<b>1</b>	29.8	0.9	0.2	1	6.6	110.4	50.4	73.8	141.8	554.5	374.4	103.4
<b>1.5</b>	12.9	0	0	0	2.8	71.6	37.3	77.8	154.4	708.1	387.2	91
<b>2</b>	8.7	0	0	0	0.1	35.2	26.9	57.2	121	729.7	328.9	63.7
<b>2.5</b>	5.4	0	0	0	0.1	16.8	18.1	38.8	79.8	557.1	236.9	48.1
<b>3</b>	0.6	0	0	0	0	7	7.1	24	56.7	444.9	171.9	28.8
<b>3.5</b>	0.6	0	0	0	0	0.3	1.4	14	36.4	327.2	131.9	16.2
<b>4</b>	0.1	0	0	0	0	0	0.5	3.6	21.5	261.1	95	7.2
<b>4.5</b>	0	0	0	0	0	0	0	0.7	6.3	181.6	62.4	3.4
<b>5</b>	0	0	0	0	0	0	0	0.2	7.2	133.1	41.8	4
<b>5.5</b>	0	0	0	0	0	0	0	0	3.7	92.2	28.2	1.7
<b>6</b>	0	0	0	0	0	0	0	0	1.2	67.3	17	0
<b>6.5</b>	0	0	0	0	0	0	0	0	0.1	42.2	15.2	0
<b>7</b>	0	0	0	0	0	0	0	0	0.2	34.5	9.7	0
<b>7.5</b>	0	0	0	0	0	0	0	0	0.4	29	6.9	0
<b>8</b>	0	0	0	0	0	0	0	0	0.5	27.3	4.8	0
<b>8.5</b>	0	0	0	0	0	0	0	0	0	20.6	5.9	0
<b>9</b>	0	0	0	0	0	0	0	0	0	18.6	5.7	0
<b>9.5</b>	0	0	0	0	0	0	0	0	0	15.8	1.5	0
<b>10</b>	0	0	0	0	0	0	0	0	0	6.7	0.5	0
<b>10.5</b>	0	0	0	0	0	0	0	0	0	1.3	0	0
<b>11</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>11.5</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>12</b>	0	0	0	0	0	0	0	0	0	0	0	0

Joint frequency distribution of significant wave height and direction, (cells show yearly average hourly occurrence)

Significant Wave Height	Wave Period Tp (s)																
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
0	0	0	1.8	9	13.5	12.8	12.9	8.8	12.9	7	1.8	1.3	0.8	0.1	0	0	0
0.5	0	0	0.3	38	92.8	64.6	101.1	167.6	131.9	88.2	43.3	27.3	6.3	0.6	0	0	0
1	0	0	0	5.7	79.4	114.6	131.9	309.5	323.7	241.3	141.6	56.9	31.6	11	0	0	0
1.5	0	0	0	0.2	25.2	111.3	97.2	178.6	340.1	367.5	238.1	121.7	43	20.2	0	0	0
2	0	0	0	0	3	47.3	79.2	89.4	200	374.6	289.8	202.7	61.5	23.9	0	0	0
2.5	0	0	0	0	0.3	11.7	57.5	58.7	98.8	211.4	251.1	237.2	53.8	20.6	0	0	0
3	0	0	0	0	0	2.5	23.1	48	42.7	116.3	190.8	239.3	66.1	12.2	0	0	0
3.5	0	0	0	0	0	0	6.2	31.8	26.5	50.3	148.9	196.8	59.8	7.6	0.1	0	0
4	0	0	0	0	0	0	0.5	16.2	17.3	24.6	97.3	188.7	41	3.3	0.1	0	0
4.5	0	0	0	0	0	0	0	3.4	12	16.4	58.4	133.2	30.5	0.5	0	0	0
5	0	0	0	0	0	0	0	0.6	10.8	11.1	30.6	111.3	21.4	0.5	0	0	0
5.5	0	0	0	0	0	0	0	0	5.5	10.7	22.3	75.6	11.3	0.4	0	0	0
6	0	0	0	0	0	0	0	0	1.5	5.1	14.6	56.1	7.3	0.8	0.1	0	0
6.5	0	0	0	0	0	0	0	0	0.2	3.5	10.9	38.7	3.9	0.1	0.2	0	0
7	0	0	0	0	0	0	0	0	0	2.2	7.5	30.2	4.3	0.2	0	0	0
7.5	0	0	0	0	0	0	0	0	0	0.7	6.4	24.8	3.6	0.8	0	0	0
8	0	0	0	0	0	0	0	0	0	0.2	3.9	25	3.3	0.2	0	0	0
8.5	0	0	0	0	0	0	0	0	0	0	3.4	20.8	2.1	0.2	0	0	0
9	0	0	0	0	0	0	0	0	0	0	2	20.4	1.7	0.2	0	0	0
9.5	0	0	0	0	0	0	0	0	0	0	0.1	15.2	1.5	0.5	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	6.2	0.9	0.1	0	0	0
10.5	0	0	0	0	0	0	0	0	0	0	0	0.6	0.7	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Joint frequency distribution of significant wave height and peak period, (cells show yearly average hourly occurrence)

# ENERGY PARK

volume 4 // appendix 7.1 //  
baseline report west Islay tidal energy project

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# DP Marine Energy Project

Occurrence of Marine Mammals and Basking  
Sharks in and around a proposed tidal-energy  
site

Update Report following two years of survey  
effort



Dr Ben Wilson, Jim Elliott & Dr Steven Benjamins  
Oban, Argyll, PA371Q

**Cover picture:** Risso's Dolphins north west of Islay 22-06-10 (Picture: Simon Pinder).

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## Executive Summary

This document sets out the results of two years (2009-2011) of monitoring work to document the occurrence of marine mammals and basking sharks in and around an area to the west of Islay being considered for tidal-energy extraction. The report sets out to develop, test and apply boat-based surveys using standard visual and acoustic methods but tailored to a site where tidal currents are a dominant feature. To develop repeatable transect lines the development site was considered along with a four kilometre buffer zone. Transect lines running away from shore and across the tidal stream were drawn up with 2 km spacing between each leg. These criteria produced seven transect lines with a combined over-the-bottom distance of approximately 115 km. Additional opportunistic visual and acoustic observations were also carried out when the vessels were manoeuvring to and from Port Ellen and between legs and on summer bird surveys to and from Rathlin Island and Colonsay.

The intention was to cover these seven lines each calendar month for two years using vessels capable of providing a stable platform for visual and acoustic (towed) recordings and steaming at 15 - 18.5 km.hr<sup>-1</sup> (8-10 knots). During all legs, two trained marine mammal observers were stationed at suitable height on the observation platform (> 5m bridge roof) with an unobstructed view ahead and to port / starboard to at least 90°. In addition, passive acoustic equipment (towed hydrophone) was also deployed. Surveying commenced in November 2009 and this report summarises 24 months of effort in which 21 surveys were initiated and 20 completed (a further one of which was only partially completed due to poor weather). These included three surveys in autumn, four in winter, six in spring and seven in summer. Given the combination of an inherently high energy site in terms of wind, waves and tides and the logistical challenge of getting survey ships and observers to Islay within brief weather windows, this coverage exceeded our expectations. These surveys resulted in 2,246 km of logged survey effort within and around the development site as well as 1,289 km of comparative effort to and from Colonsay and 88 km of comparative effort to and from Rathlin Island. Average sea states on most surveys were between 2 and 3 (average 2.5) with glassy calm periods (0) up to a 6 on the truncated survey in December 2009. There was almost always an appreciable swell and this ranged up to maximum of 4 metres, with an average of 1.4 metres.

Both cetaceans and pinnipeds representing five species were positively identified on the transect legs within the development site and associated buffer region. The cetaceans were harbour porpoises (*Phocoena phocoena*), bottlenose (*Tursiops truncatus*) and Risso's dolphins (*Grampus griseus*) while the pinnipeds were common (or harbour, *Phoca vitulina*) and grey seals (*Halichoerus grypus*), all of which occur regularly within the UK shelf area. Of the cetaceans the most frequently sighted species was the harbour porpoise. The acoustic recordings also confirmed the widespread presence of this species within the survey area. During surveys, one group of bottlenose dolphins was seen and Risso's dolphins were seen on two occasions. There were no obvious trends in either the seasonality or distribution of sightings of any cetacean species, but there appeared to be a concentration of harbour porpoise acoustic detections in the southern half of the survey area. There was also a suggestion of elevated numbers of seals towards the southeastern portion of the survey area, around the Rhinns of Islay peninsula. Grey seals were not recorded in the survey area at all during winter surveys.

In summer the survey effort was expanded (on behalf of bird surveys) with additional legs being added northward up to Colonsay (visual and acoustic effort) and southward to Rathlin (acoustics only). The seven Colonsay trips added two other species (minke whales and basking sharks) to the sightings list. Sightings rates on these northerly legs were relatively high compared with those

obtained in the development area. For example, harbour porpoises increased from 1.1 to 3.4 per 100 km surveyed and seals from 0.7 to 0.9 per 100 km surveyed. Photo-identification of the bottlenose dolphins was not possible because of the swell and duration of the sightings but ID pictures of the Risso's dolphins in the development site were collected.

In addition to the ship-based surveys, a seabed mounted passive acoustic recorder (C-POD) was tested for three months in the summer of 2010. This proved capable of recording odontocete echolocation sounds and was not overly disrupted by high levels of ambient sound normally experienced in tidal sites. Porpoise click trains were recorded throughout the 94 day deployment and totalled 291 separate detections. Porpoise activity was subtly correlated with the time of day but (surprisingly) not with tidal state. Overall, porpoise detections in the Islay site were relatively uncommon (<3 Detection Positive Minutes per day) compared with around 70 DPM/day recorded in similar deployments north and south of Lismore Island in Loch Linnhe, an area of high porpoise abundance. Dolphins (of unknown species) were also recorded acoustically on four separate days.

Overall, the variety of marine mammals identified using the waters immediately west of Islay is very much as would be expected for this site and habitat. We might have expected to have seen minke whales and basking sharks in the survey area in summer but did not. However, monthly surveys are too sparse to confirm their absence. Bottlenose dolphins are typically very coastal in the west of Scotland so the sightings of this species, several kilometres offshore, were unexpected. At this point, it is difficult to draw conclusions on the origin or activity of these animals as there were just two sightings from a single month. In general the sightings (and detection) rates of all species were not especially high, particularly in comparison to the number of marine mammals seen on the summer legs between northern Islay and Colonsay. The comparatively low detection rates for harbour porpoises in the survey area were also evident on the moored porpoise detector. However, detection rates of some species (harbour porpoise and the two seal species in particular) did appear to be spatially uneven across the survey area, with porpoise vocalisations apparently concentrated in the southern half of the survey area (particularly along the seabed ridge running southwest from Portnahaven) and sightings of seals (especially grey seals) in the southeastern portion of the survey area. Small sample sizes mean that this spatial variability cannot currently be rigorously assessed, but it is suggestive of small-scale heterogeneity in habitat use.

Based on the results presented here, a reasonable understanding of the marine mammal diversity in and around the development site has been achieved. A significant expansion of the perspectives that this dataset provides could only be realised by a substantial increase in survey effort to incorporate either a larger area or a doubling/trebling of effort to provide sufficient data for density estimates for the most common species. Either of these steps would clearly require considerable further investment of time and financial resources. At present, such an investment does not seem warranted in order to achieve the goal of assessing species presence and distribution.

# 1. Background

This document sets out the results of two years' worth of monitoring work (between November 2009 and November 2011) to document the occurrence of marine mammals (cetaceans and pinnipeds) and basking sharks in an area to the west of Islay being considered for tidal-energy extraction. Monitoring was conducted during monthly boat-based surveys using both visual and acoustic methods. In addition, a seabed mounted passive acoustic recorder was also tested. These data were collected to inform an environmental impact assessment (EIA) that will support a planning application for a proposed Islay Tidal-stream Energy development. The Scottish Association for Marine Science (SAMS Research Services Ltd) was contracted to undertake the survey work which was run in tandem with a parallel bird assessment performed by Natural Research Projects Ltd (NRP). This document outlines the key results of the 2009-2011 monitoring effort.

## 1.1. Field Survey Protocols

Protocols for studying the occurrence of large marine vertebrates (i.e. marine mammals [cetaceans and pinnipeds] and basking sharks in this context) around areas suitable for tidal-energy extraction are currently poorly developed and have not yet reached a level that could be considered standardised. Existing surveys have been primarily tailored to suit the specifics of the area of interest. For example, the leading edge developments of Strangford Lough (Marine Current Turbines) and the Fall of Warness (European Marine Energy Centre) have independently developed shore-based watch routines to record marine mammals surfacing in the areas of key interest (summarised in ICES WGMME 2011). Both of these sites are bounded by nearby land vantage points. Unlike these, but like many of the upcoming areas of sector interest, the west of Islay site is, however, too far from land to allow shore based observations. Instead it is akin to many offshore wind development sites, except that for the majority of the time the water mass being surveyed is moving at a considerable speed relative to the sea bed (*i.e.* 7 to 15 km.hr<sup>-1</sup>).

It is presently unknown whether animals using tidal sites focus their distribution around specific seabed features (i.e. habitats correlated with GPS coordinates) or focus their activities on particular masses of water that might move through the site. Clearly surveying only one of these (as is the case in surveys around wind farms) would lead to biased perspectives. To balance the moving-water issue we developed a boat-based survey protocol based on a series of transects that ran at right angles to both the dominant geographic feature (distance from shore) and also across the direction of tidal flow. Thus we drew parallel transect legs that ran through the area of interest running roughly north-east, south-west. In doing so, the survey vessel was forced to crab its way across the current and so ensured that it did not continuously survey the same piece of water (if running with the flow) nor survey substantially more water than ground covered (running against the flow). During survey design, the development site (approximately 8.5 km<sup>2</sup>) was surrounded by a four kilometre buffer zone (totalling approximately 98 km<sup>2</sup>). Within this zone (hereafter referred to as the survey area), seven parallel transects were designed with average lengths of between 13.4-19.7 km with 2 km between each leg (Figure 1), resulting in a combined over-the-bottom distance of 115 km per survey. The intention was to cover these seven lines each calendar month for two years, using vessels capable of providing a stable platform for visual and acoustic (towed) recordings and steaming at 15 - 18.5 km.hr<sup>-1</sup> (8-10 knots). During all legs, two trained marine mammal observers (contracted from either the Hebridean Whale and Dolphin Trust [HWDT] or the Scottish Association for Marine Science [SAMS]) were stationed at suitable height on the observation platform (> 5m above sea surface, on the bridge roof) with an unobstructed view ahead and to port / starboard to at least 90° abeam.

Effort was also put into surveying the eastern part of the likely route of the subsea cable which will connect the proposed development site to the mainland, as a northeasterly extension of T6 (Figure

1); the remainder of the likely subsea cable route was already contained within the survey area. Extra visual and acoustic observations of marine mammals and sharks were also carried out opportunistically when the vessels were manoeuvring between legs, as well as more focused during bird surveys to and from Rathlin Island and Colonsay.

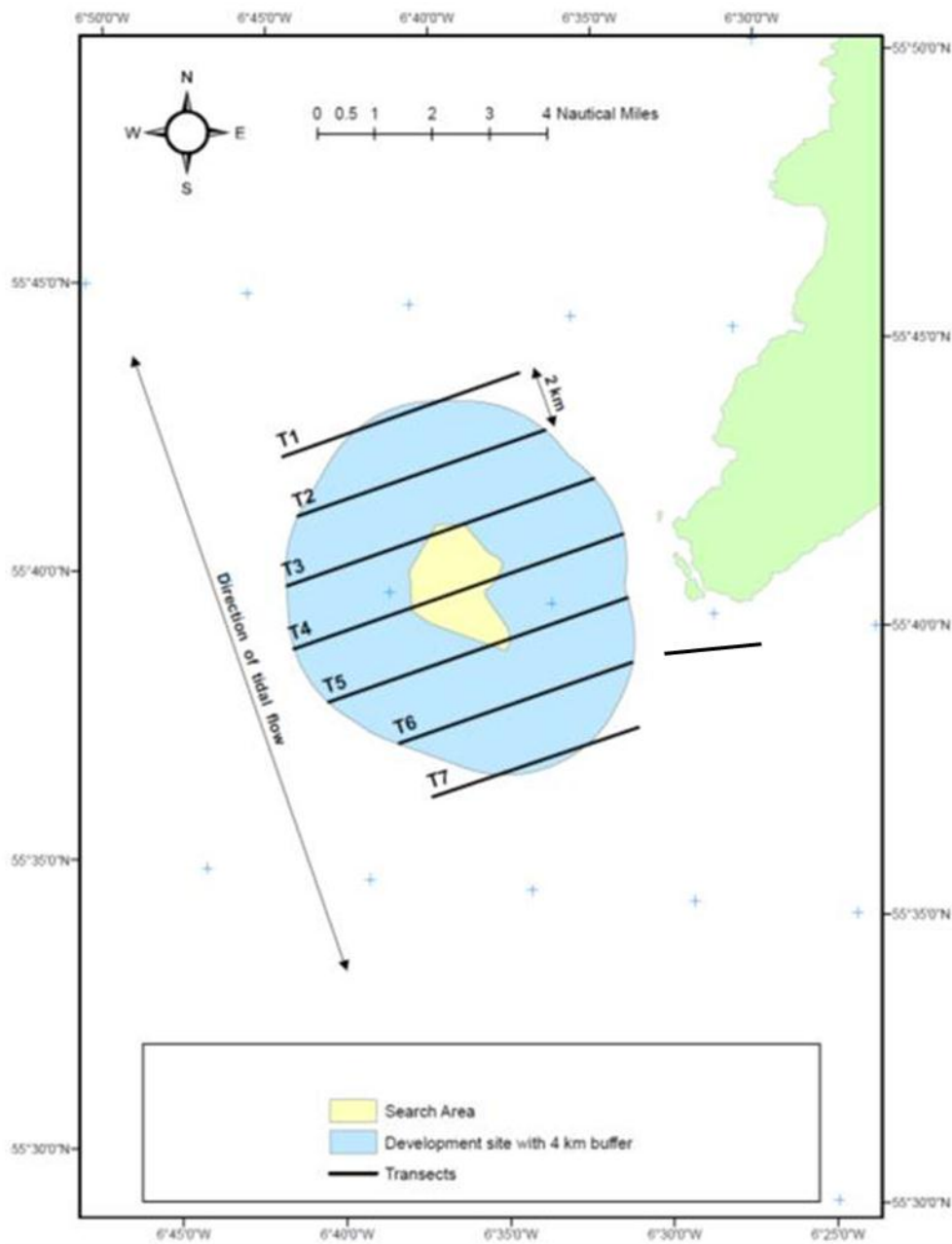


Figure 1. Survey tracks running through the proposed development site including a four kilometre buffer zone. The tracks run directly away from nearest land (Rhinn of Islay) and perpendicular to the tidal flow. Some surveys also included extensive tracks to Colonsay (north of the site) and Rathlin Island (southeast of the site). Trajectory of likely connecting power cable ran ~3km from the easterly end of T6 in a broadly northeasterly direction towards the Islay coast.

Surveys were timed to take advantage of weather windows where the sea state was as low as possible (i.e. at or below Beaufort sea state 3) and to minimise swell conditions. While visual detections of surfacing vertebrates are highly sensitive to Beaufort sea state, they are also influenced by other factors such as swell height, sun glare and presence of mist or fog. Thus the observers regularly recorded both a measure of sea state (Table 1) and a more encompassing sightability score



of whether animals would be observable if present under current conditions, based on the observer’s experience (Table 2).

**Table 1. Beaufort sea states using the standard and working definitions used during the surveys.**

<b>Beaufort Sea State</b>	<b>Standard definition</b>	<b>Working definition</b>
0	Flat	Glassy mirror-like
0.5	-	Faintest ripples
1.0	Ripples without crests	Scale ripples
1.5	-	Glassy wavelets
2.0	Small wavelets. Crests of glassy appearance, not breaking	Small wavelets
2.5	-	No white or large wavelets
3.0	Large wavelets. Crests begin to break; scattered whitecaps	Occasional whitecaps
3.5	-	Persistent whitecaps
4.0	Small waves with breaking crests. Fairly frequent white horses	Numerous whitecaps
5.0	Moderate waves of some length. Many white horses. Small amounts of spray	Many whitecaps & some spray
6.0	Long waves begin to form. White foam crests are very frequent. Some airborne spray is present	Too rough to see animals unless leaping or in large groups.

**Table 2. The marine vertebrate sightability scale used. The experienced observers judged whether animals were likely to be seen if present by merging factors such as Beaufort sea state, swell height, fog and sun glare into five broad bins.**

<b>Sightability</b>	<b>Description</b>
1	Excellent
2	Good
3	Moderate
4	Poor
5	Very poor

Sea state is typically a direct correlate of wind conditions and fetch but is also heavily influenced by the relative direction of the tide versus wind in tidal areas. Accordingly, tidal-energy sites frequency exhibit sea states substantially rougher than prevailing winds would suggest. Because sea state has such a strong influence on sightability of surfacing marine vertebrates, we chose to run the surveys in weather windows that occurred at periods of neap tides (a vertical tidal height change of  $\geq 0.85$  m).

While surveys were targeted to coincide with sea conditions suitable for visual sightings, this was not always possible. Therefore, in addition to the visual observers, the survey vessel towed a four-element hydrophone array (EcoLogic UK 2006) to detect the vocalisations of echolocating odontocete cetaceans (dolphins, porpoises and other toothed whales). This passive acoustic monitoring (PAM) system provided a second means of detecting these animals and also improved cetacean detection probabilities in sea states exceeding Beaufort 3 (up to around 6). Equipment set-up and recordings were conducted by a trained PAM operator (contracted from the HWDT or SAMS).

During each survey, changes to survey track, conditions (sea state, glare, visibility etc.), as well as sightings were recorded using freely available survey software (Logger, IFAW). For each marine mammal or shark sighting, observers recorded:

- Species
- Number of animals
- Distance to survey platform
- Angle from bow
- Magnetic compass angle to observer

The sound data from the PAM equipment was concurrently logged onto a laptop during the entire survey for later analysis.

The density and length of the legs was chosen so that directly comparable surveys could be completed in daylight in all four seasons. As a result there was extra time available on summer surveys, which was used to add bird-survey legs (to Rathlin or Colonsay). Where possible, marine mammal observations were continued on these legs and used for comparison with the tidal site. Data were analysed at the level of individual surveys as well as on a seasonal basis: autumn was considered to run from September to November, winter from December to February, spring from March to May and summer from June to August inclusive.

Recognizing that one-day monthly boat surveys only provide snapshots of animal presence, an acoustic data-logger was tested on the seabed in the centre of the proposed development site from May 12, 2010 until August 15, 2010. Acoustic dataloggers have been developed over a number of years to record/detect the echolocation clicks of odontocetes over extended periods of time. C-PODs (Chelonia Ltd 2011) are the current market leader and are being used widely for monitoring round proposed renewables installations. They have not, however, been proven in tidal areas where background noise associated with high water flow rates may be a significant source of error. It was hoped that using such a device, if successful, could be used to provide an indication of tidal, diel and seasonal trends in odontocete presence at the site. It must, however, be noted that acoustic dataloggers only detect the presence of dolphins or porpoises when they vocalize. Thus these methods cannot provide measures of absolute abundance, nor can they (as yet) distinguish between calls of different dolphin species likely to be in the area. They also cannot be used to detect non-echolocating species such as seals, baleen whales or sharks. They therefore do not replace data gathered during the boat surveys but do potentially offer data with better temporal resolution.

## 2. Results

### 2.1. Survey effort

Three similar vessels were used for the surveys (Figure 2). Each had above-bridge stations (monkey island) for port and starboard observers as well as below decks accommodation for the acoustic monitoring operator and aft access for the towed hydrophone. Each could steam at the required speed and operated on the day of each survey out of Port Ellen on Islay.



Figure 2. The three vessels used for the surveys. MV Aora (top left, LOA 22 m), MV Elizabeth G (middle right, 22.8 m), MV Seahorse (bottom left, 26 m).

Between November 2009 and October 2011, twenty surveys were carried out (Table 3). During all but one survey (#3), all 7 transects were surveyed in their entirety, with only occasional interruptions due to deteriorating weather or malfunctioning equipment. PAM equipment was not deployed during Survey#1 (10 November 2009). Due to the need to carry out surveys in both suitable weather and at neap tides (see above) it was not possible to conduct a survey precisely once each calendar month, but approximately regular spacing was achieved with a mean of 34.9 days between each survey (range: 20-62 days). Several gaps occurred in autumn and winter months, due to either prolonged poor weather or vessel availability: there were 62 days between Survey#12 (October 13, 2010) and Survey#13 (December 14, 2010), and a total of 70 days from the last completed survey (August 23, 2011) to the nominal project end date of November 1, 2011. As a result, the survey dataset effectively runs from November 2009 until August 2011.

A total distance of 2,246.6 km was surveyed on the transects over the potential development area (including the cable run) over the course of this period. A further 88.6 km of survey effort (acoustic only) was undertaken while travelling to and from Rathlin Island during Survey#8 (May 11, 2010) as part of concurrent seabird surveying efforts, and 1,289.5 km of survey effort (combined visual and acoustic data collection for 717.1 km, and acoustic only for 487.5km) was undertaken as part of 7 surveys between the potential development area and Colonsay (Survey# 9-11 in 2010, and Survey# 17-20 in 2011).

Observations were carried out by a pool of 13 observers, while four experienced PAM operators monitored the acoustic array equipment. Excluding time getting into and out of position, surveying all seven transects typically took between four and five hours (range: 3h:57m-4h:47m, Table 3), with a total of 144 transects covered during the entire survey period.

Table 3. Details of the surveys conducted to the west of Islay in 2009-2011. Observers/PAM operators: AM = Andy Mogg, BW = Barbara Weir, CF = Cally Fleming, EH = Erika Hearn, GC = Gemma Cave, JE = Jim Elliott, LM = Laura Mandleberg, ND = Nic Davies, NvG = Nienke van Geel, NW = Natalie Ward, SB = Steven Benjamins, SC = Suzi Calderan, SK = Sandra Koetter. Survey #5 was cancelled due to bad weather. <sup>a</sup> Included bird survey to Rathlin Island; <sup>b</sup> included survey to Colonsay. A = Acoustic survey only; V = Visual survey only; A+V = Acoustic + Visual survey; O = no data collected.

Survey #	Date	Season (A, W, Sp, Su)	Vessel	Observers	PAM	# of legs surveyed	Total length of transects (km)	% of transects surveyed				Total Time on Transect (h:m)	Time on Survey (h:m)
								A	V	A+V	O		
1	10 Nov 2009	A	Aora	ND, EH	-	7	116.4		100			04:07	05:57
2	28 Nov 2009	A	Aora	ND, EH	NvG	7	104.6			100		04:18	07:12
3	15 Dec 2009	W	Seahorse	ND, LM	NvG	4	70.9	13		87		02:51	07:02
4	06 Feb 2010	W	Aora	ND, CF	NvG	7	115.9			100		04:07	07:47
6	09 Mar 2010	Sp	Elizabeth G	ND, EH	NvG	7	114.5	14		81	5	04:47	09:20
7	09 Apr 2010	Sp	Aora	ND, JE	SC	7	115.3			100		04:06	08:02
8	11 May 2010	Sp	Aora	ND, BW	NvG	7	116.5			94	6	04:08	10:28 <sup>a</sup>
9	22 Jun 2010	Su	Aora	ND, JE	SC	7	115.5			100		04:06	13:12 <sup>b</sup>
10	20 Jul 2010	Su	Aora	ND, EH	NvG	7	116.0			100		04:14	12:03 <sup>b</sup>
11	18 Aug 2010	Su	Seahorse	ND, EH	SC	7	115.0			100		04:17	14:01 <sup>b</sup>
12	13 Oct 2010	A	Aora	ND, EH	GC	7	112.8			100		04:02	08:03
13	14 Dec 2010	W	Aora	NW, AM	JE	7	115.7			100		04:00	08:06
14	27 Jan 2011	W	Aora	ND, AM	GC	7	112.9			100		03:56	07:50
15	3 Mar 2011	Sp	Aora	ND, NvG	JE	7	115.7		1	99		04:01	08:07
16	29 Mar 2011	Sp	Aora	JE, SK	GC	7	115.1		1	99		04:15	07:44
17	27 Apr 2011	Sp	Aora	ND, SB	GC	7	115.4			100		03:54	12:45 <sup>b</sup>
18	8 Jun 2011	Su	Aora	JE, ND	NvG	7	115.0	8		92		04:03	12:34 <sup>b</sup>
19	28 Jun 2011	Su	Aora	JE, SK	NvG	7	113.5	6	2	93		04:00	12:44 <sup>b</sup>
20	26 Jul 2011	Su	Aora	ND, JE	GC	7	115.0			100		03:57	12:01 <sup>b</sup>
21	23 Aug 2011	Su	Aora	JE, SK	GC	7	117.0			100		03:57	07:59

## 2.2. Weather conditions on surveys

Sea conditions during surveys are shown in Table 4. On average sea states were between 2 and 3 (average 2.4) with glassy calm periods (0) up to a 6 on the truncated survey in December 2009. There was almost always a swell which ranged up to a maximum of 4 metres, with an average of 1.2 metres. As a result of the care in targeting suitable weather windows, there were few seasonal trends in the sea states used for surveying but they were marginally rougher during the winter surveys (1.8-4.3) and calmest on the autumn surveys (1.6-3.0). Despite sightability scores encompassing more factors than sea state alone, the scores for each survey were directly correlated with sea state suggesting it was the key driver. Dominant weather on surveys was either sunny or overcast (Table 5).

**Table 4. Sea conditions relevant for sighting marine mammals or basking sharks as judged by the on-deck observers.**

Sea state (Beaufort; Table 1)			Swell Height (m)		Sightability (Table 2)	
Date	Average	Min, Max	Average	Min, Max	Average	Min, Max
10 Nov 2009	3	0, 4	2	0, 4	2.7 / Moderate	0, 3
28 Nov 2009	1.6	0, 2	1.5	0.5, 2	1.9 / Good	1, 3
15 Dec 2009	4.3	3, 6	1.5	1, 2	3.6 / Poor	3, 5
06 Feb 2010	1.8	1.5, 2.5	1	0.5, 1	1.9 / Good	1, 3
09 Mar 2010	1.5	0.5, 2	0.5	0.5, 1.5	2.0 / Good	2, 2
09 Apr 2010	2.3	2, 2.5	1	0.5, 1.5	2.9 / Moderate	2, 3
11 May 2010	2.3	1, 3	1	0.5, 2	2.6 / Moderate	2, 3
22 Jun 2010	2	1, 3	0.5	0.5, 1	2.1 / Good	1, 3
20 Jul 2010	1.8	1, 3	2	1.5, 2.5	2.4 / Good	2, 3
18 Aug 2010	3.3	2.5, 4	2	1, 3	3.2 / Moderate	2, 4
13 Oct 2010	2	1.5, 2.5	0.5	0.5, 1	2.0 / Good	2, 3
14 Dec 2010	2	2, 2.5	0.5	0, 0.5	2.0 / Good	2, 3
27 Jan 2011	2	0, 4	1	0, 1	3.0 / Moderate	3, 3
3 Mar 2011	2	1, 3.5	2	1, 3	2.2 / Good	2, 3
29 Mar 2011	3	1.5, 3.5	1	0.5, 1.5	2.4 / Good	2, 3
27 Apr 2011	3	2.5, 5	2	1, 2	3.0 / Moderate	3, 3
8 Jun 2011	2	0.5, 6	2	1, 3	2.8 / Moderate	0, 4
28 Jun 2011	2	1.5, 6	2	0.5, 3	3.1 / Moderate	2, 5
26 Jul 2011	2	2, 3	2	1, 2	1.6 / Good	1, 3
23 Aug 2011	2	1, 2.5	1	0.5, 2	1.7 / Good	1, 3

Table 5. Inclement weather conditions during surveys (per cent of time).

Date	Drizzle	Fair	Overcast	Rain	Sun	Dominant weather
10 Nov 2009		14	16	20	50	Sun
28 Nov 2009		87	>1		12	Fair
15 Dec 2009		2			98	Sun
06 Feb 2010			100			Overcast
09 Mar 2010		>1			99	Sun
09 Apr 2010		61	39			Fair
11 May 2010		3	63		34	Overcast
22 Jun 2010		15			85	Sun
20 Jul 2010	7	11	77	5		Overcast
18 Aug 2010		9	9	15	67	Sun
13 Oct 2010			100			Overcast
14 Dec 2010		31			69	Sun
27 Jan 2011		48	32		20	Fair
3 Mar 2011		15	85			Overcast
29 Mar 2011			100			Overcast
27 Apr 2011		25	4		71	Sun
8 Jun 2011	2	47	31	20		Fair
28 Jun 2011		54			46	Fair
26 Jul 2011		9			91	Sun
23 Aug 2011		47	20		33	Fair

## 2.3. Marine mammal and basking shark sightings

### 2.3.1 On-transect sightings

Five different marine mammal species (three cetaceans, two pinnipeds) were positively identified while surveying the designated transects. The cetaceans were all odontocetes (harbour porpoises [*Phocoena phocoena*], bottlenose dolphins [*Tursiops truncatus*] and Risso's dolphins [*Grampus griseus*]), while the pinnipeds were common (or harbour) seals (*Phoca vitulina*) and grey seals (*Halichoerus grypus*), all of which occur regularly within the UK shelf area. In addition several sightings of seals and dolphins were recorded that could not be resolved to species level (Table 6, 7).

The most frequently sighted cetacean species was the harbour porpoise (12 sightings, involving 18 animals). Most sightings were of individuals or small groups (mean =1.5 individuals). Bottlenose dolphins were seen on transect on one occasion, involving a group of nine animals during Survey#6, on March 9, 2010. Risso's dolphins were seen on two separate surveys, once as a group of six individuals (possibly recorded repeatedly on three successive legs of the same Survey#9, on June 22, 2010, but treated as separate events here), and once as an apparently solitary individual (potentially recorded multiple times on four legs of the same Survey#20, on July 26, 2011, but here treated as separate events). Looking across all the cetacean sightings there were no obvious trends in the seasonality or distribution of sightings. They were seen both near and far from the nearest land and on all transect lines (see Figures 3-11, and maps in Appendix 1). No cetaceans were observed on the cable run. Risso's dolphins were only observed during summer months but sample sizes were too small to analyse this apparent seasonality.

No clear seasonal trend was apparent in sighting rates for harbour porpoise per survey (single-factor ANOVA:  $P = 0.57$ ), with average survey sighting rates per season (all years combined) varying from 0.40 animals/100 km in spring, to 0.70 animals/100 km in summer, to none in autumn, to 0.70 animals/100 km in winter (Table 7). Although sighting rates during spring and autumn were lower compared to summer and winter rates, there was no evidence to suggest that porpoises were seasonally absent from the area as part of seasonal movement offshore (Evans *et al.* 2003; Reid *et al.* 2003). There were no obvious trends in porpoise group sizes during the survey period. When density of sightings was plotted using all porpoise sightings, there was no obvious pattern in their spatial distribution (Figure 12). It is important to note that apparent clumping (as suggested here) may not be indicative of an actual pattern when limited to small sample sizes.

Both seal species were observed approximately equally often (15 sightings of common seals, 14 sightings of grey seals, all involving individual animals apart from one sighting of two common seals during Survey#21). Common seals were recorded in all seasons, but grey seals were not observed along transects during winter surveys (Table 6, 7). When aggregated seasonally, sighting rates of grey seals during spring and summer surveys were comparatively high (0.72 seals/100 km in spring, and 0.99 seals/100 km in summer), but then declined in autumn (0.30 seals/100 km) and disappeared completely in winter (Table 7). Common seal seasonal sighting rates, in contrast, appeared to increase from spring (0.30 animals/100 km) to winter (1.00 animals/100 km; Table 7), but there is no obvious trend when examining the sightings at the level of individual surveys (single-factor ANOVA:  $P=0.58$  for common seals, and  $P= 0.56$  for grey seals, respectively; see also Table 6). Unidentified seals were only reported during winter and summer surveys, on six occasions (*i.e.*, about 17% of the total number of reported sightings; Table 6), without any observable seasonal trend (single-factor ANOVA:  $P=0.35$ ).

Both seal species were observed throughout the survey area, both inshore and offshore. Given that seals were seen in the survey area near the Rhinns peninsula throughout the survey period, there is a suggestion of elevated concentrations around this area, in the southeastern portion of the survey area (more so for grey seals than for common seals; Figure 13, 14). This is not surprising given the fact that a grey seal haulout exists off Portnahaven, adjacent to the eastern end of the cable run. Seals were observed along the cable run transect itself on four occasions (twice for both species) but there were also several additional sightings along transect #6 close to the cable run during other surveys (see Appendix 1).



Table 6. Summary of marine mammal sighting events, and sighting rates (sighting events/100km, and # of animals sighted/100 km) on surveyed transects within the development site, November 2009-August 2011. Numbers between brackets denote total number of individual animals observed during each survey.

Survey #	DATE	Species	Transect								Total # sighting events (animals)	Total sighting rate (# events/100 km)	Total sighting rate (# animals/100 km)
			1	2	3	4	5	6	7	Cable run			
1	10/11/2009	None sighted									0	0.00	0.00
2	28/11/2009	Common seal				1 (1)		1 (1)		1 (1)	3 (3)	2.87	2.87
3	15/12/2009	Common seal					1 (1)			1 (1)	2 (2)	2.82	2.82
		Unidentified seal						1 (1)			1 (1)	1.41	1.41
4	06/02/2010	Common seal					1 (1)				1 (1)	0.86	0.86
		Unidentified seal				1 (1)					1 (1)	0.86	0.86
		Harbour porpoise		1 (3)			1 (1)	1 (1)			3 (5)	2.59	4.31
6	09/03/2010	Common seal			1 (1)						1 (1)	0.87	0.87
		Grey seal					1 (1)	2 (2)			3 (3)	2.62	2.62
		Bottlenose dolphin			1 (9)						1 (9)	0.87	7.86
7	09/04/2010	Grey seal						1 (1)			1 (1)	0.87	0.87
8	11/05/2010	Harbour porpoise	1 (1)								1 (1)	0.86	0.86
9	22/06/2010	Grey seal			2 (2)	2 (2)				1 (1)	5 (5)	4.33	4.33
		Unidentified seal		1 (1)							1 (1)	0.87	0.87
		Harbour porpoise			1 (3)						1 (3)	0.87	2.60
		Risso's dolphin	1 (4)	1 (4)		1 (6)					3 (6)	2.60	12.21
		Unidentified dolphin			1 (1)						1 (1)	0.87	0.87
10	20/07/2010	Common seal				1 (1)					1 (1)	0.86	0.86
		Grey seal		1 (1)							1 (1)	0.86	0.86
		Unidentified seal		1 (1)							1 (1)	0.86	0.86
		Harbour porpoise	1 (1)	1 (1)							2 (2)	1.72	1.72
11	18/08/2010	Grey seal								1 (1)	1 (1)	0.87	0.87
12	13/10/2010	Grey seal				1 (1)					1 (1)	0.89	0.89
13	14/12/2010	Unidentified dolphin						1 (1)			1 (1)	0.86	0.86

14	27/01/2011	Common seal				1 (1)					1 (1)	0.89	0.89
15	03/03/2011	Common seal						1 (1)			1 (1)	0.86	0.86
		Grey seal						1 (1)	1 (1)		2 (2)	1.73	1.73
16	29/03/2011	Harbour porpoise						1 (2)			1 (2)	0.87	1.74
17	27/04/2011	Harbour porpoise	1 (1)								1 (1)	0.87	0.87
18	08/06/2011	Common seal				1 (1)					1 (1)	0.87	0.87
		Harbour porpoise		1 (2)							1 (2)	0.87	1.74
19	28/06/2011	Unidentified seal			1 (1)						1 (1)	0.90	0.90
20	26/07/2011	Common seal							1 (1)		1 (1)	0.87	0.87
		Grey seal	1 (1)								1 (1)	0.87	0.87
		Harbour porpoise			1 (1)	1 (1)					2 (2)	0.87	0.87
		Risso's dolphin				1 (1)	1 (1)	2 (2)			4 (2)	3.48	3.48
21	23/08/2011	Common seal				2 (2)	1 (1)				3 (3)	2.56	3.42

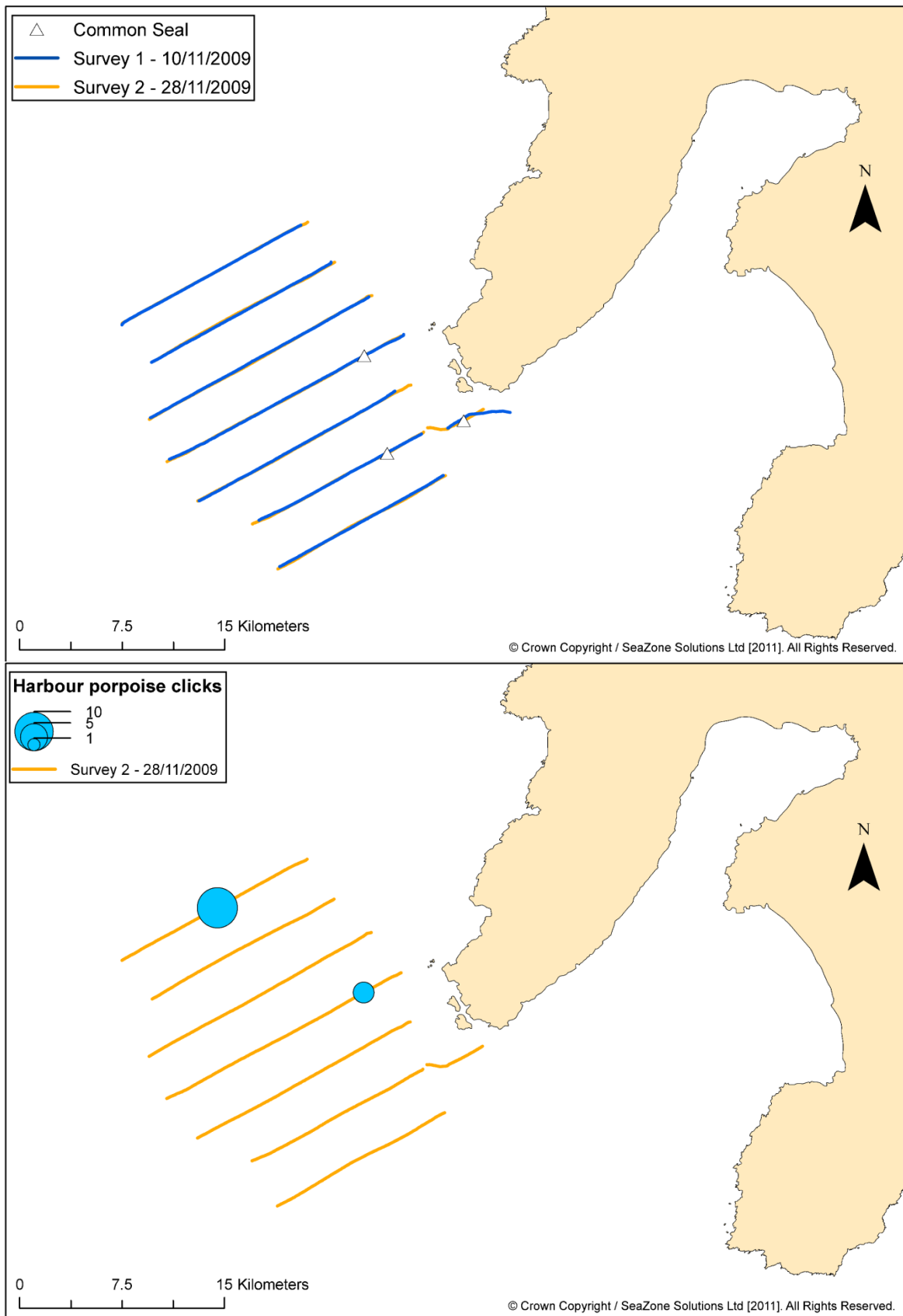


Figure 3. Visual and acoustic detections of marine mammals during autumn 2009 (Survey 1 and 2; no acoustic data collected during Survey 1).

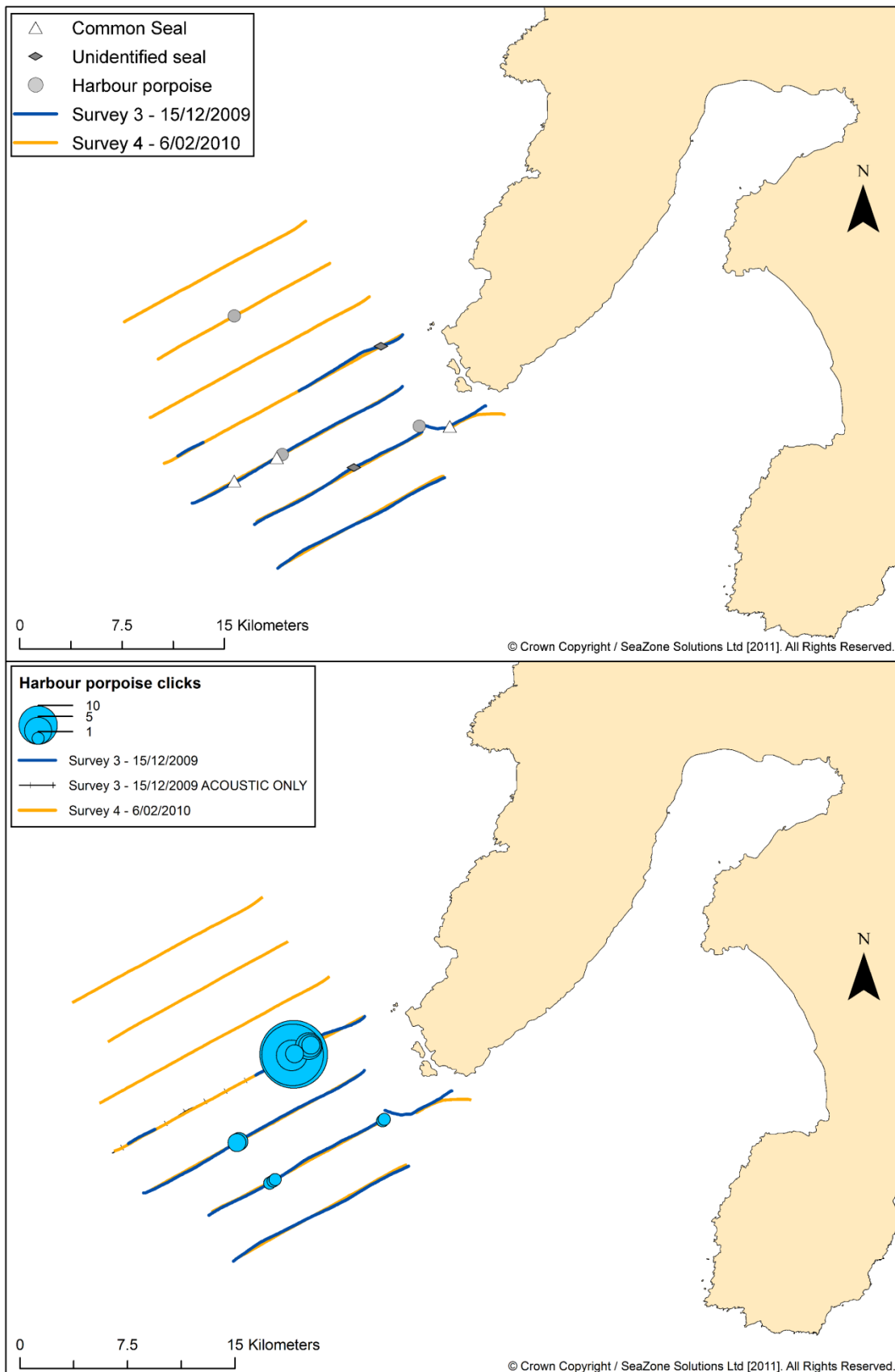


Figure 4. Visual and acoustic detections of marine mammals during winter 2009-2010 (Survey 3 and 4; Survey 3 was not completed, and some sections of Transect #4 were only surveyed acoustically).

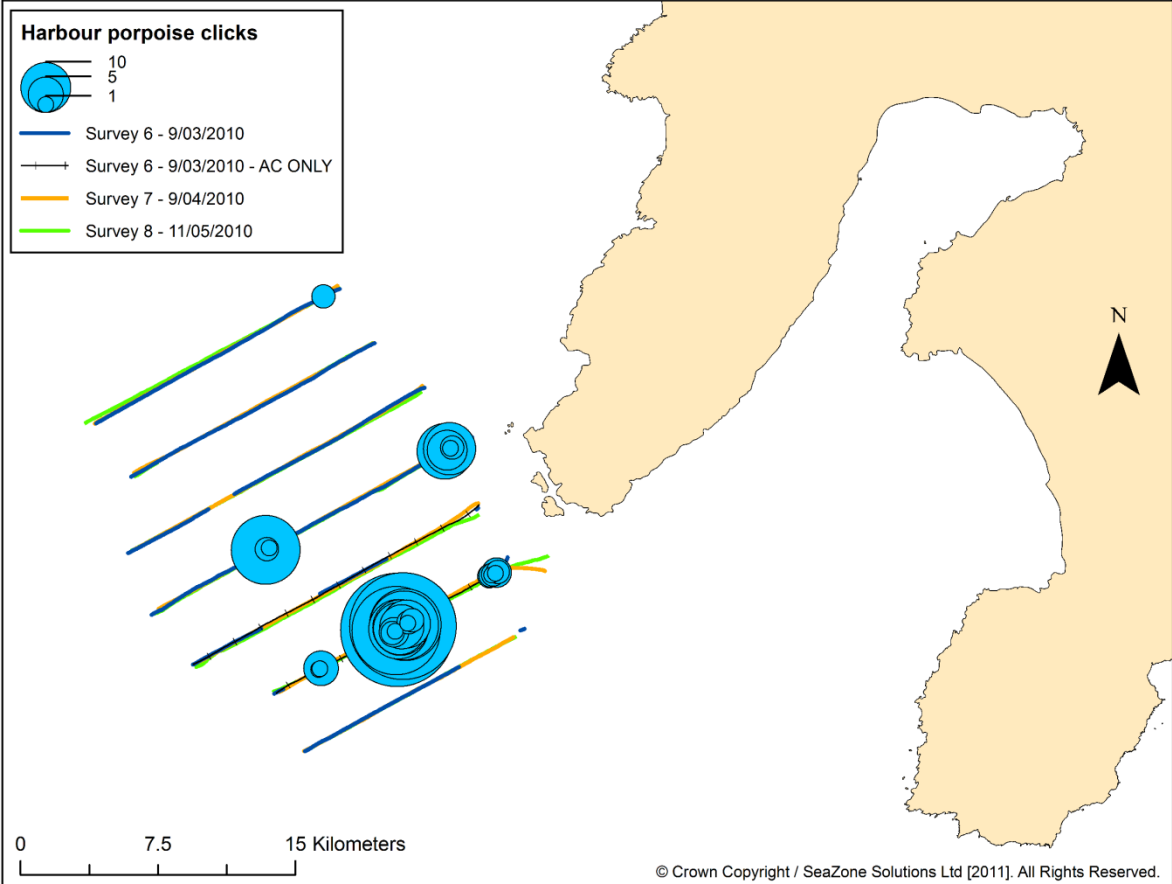
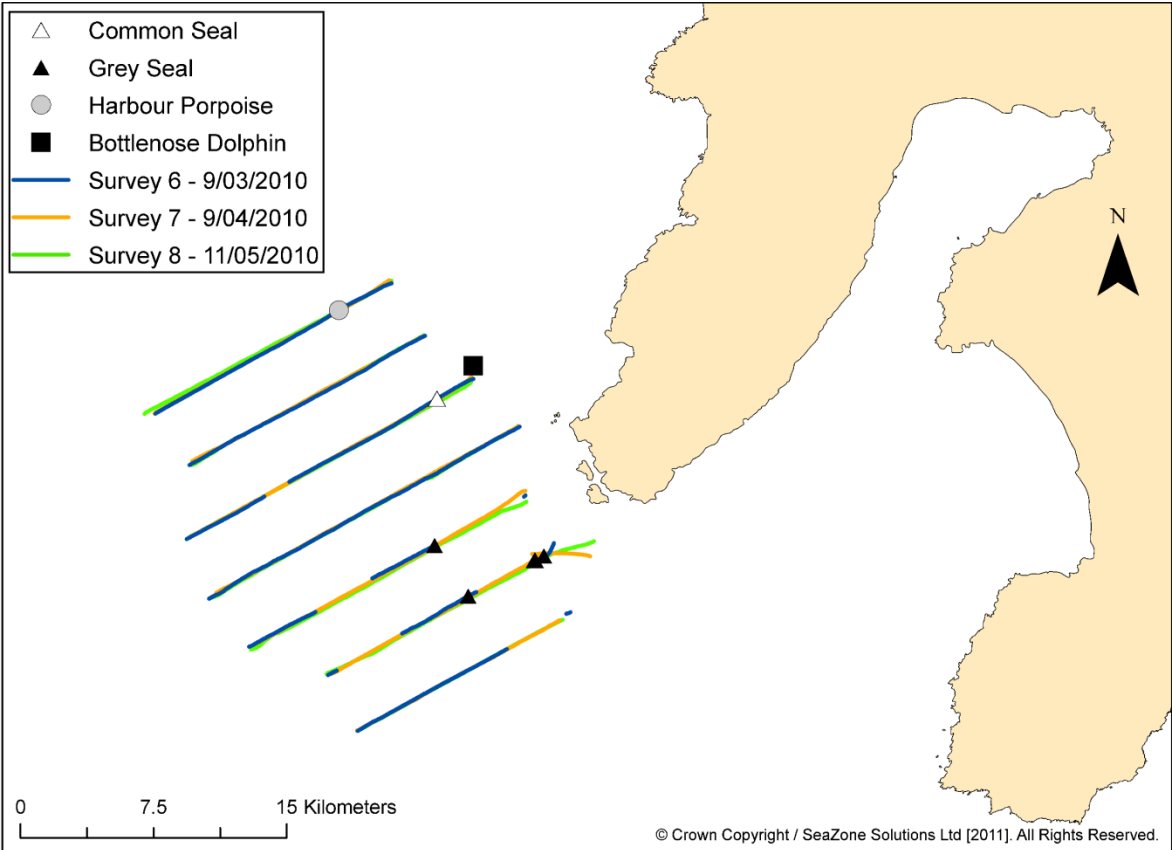


Figure 5. Visual and acoustic detections of marine mammals during spring 2010 (Survey 6, 7 and 8). Note that Survey 6 contained sections of transect (#5 and 6) that were only surveyed acoustically.

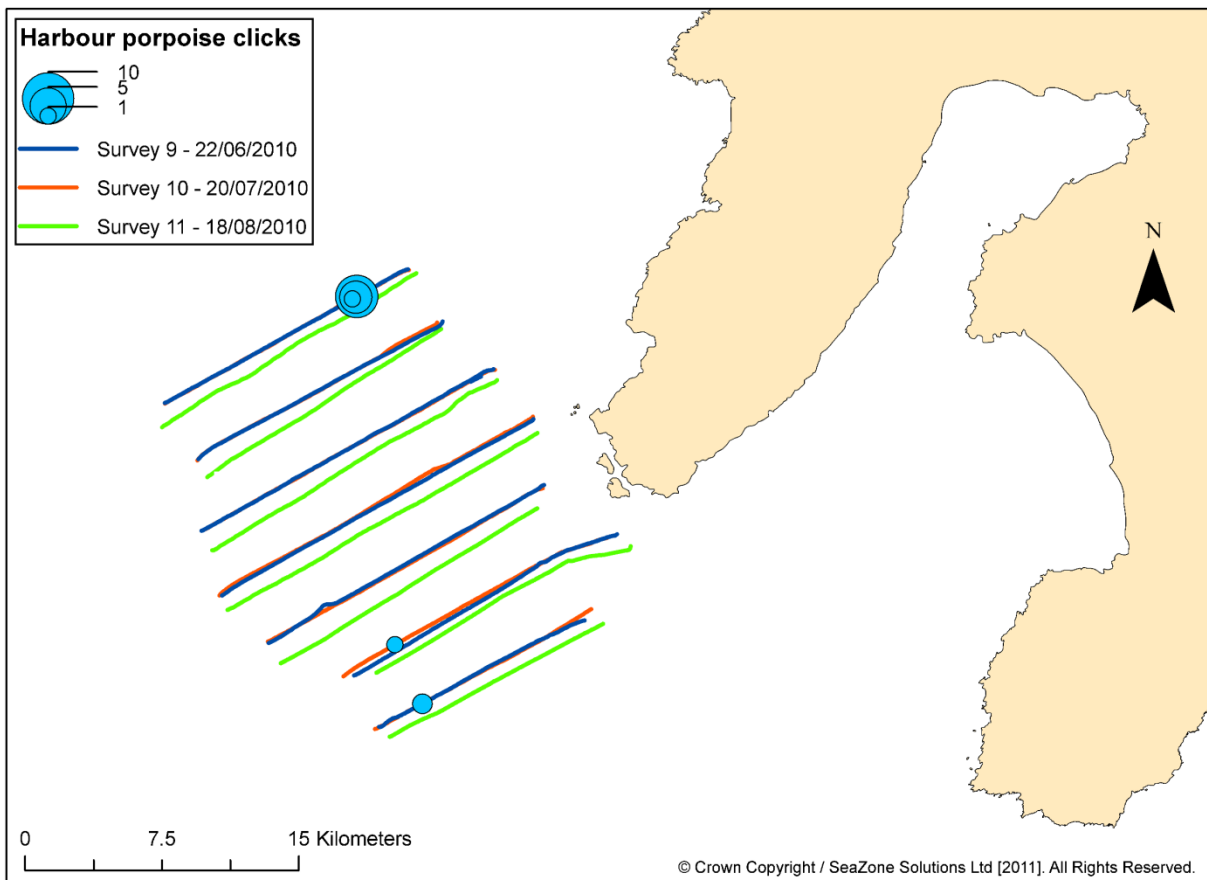
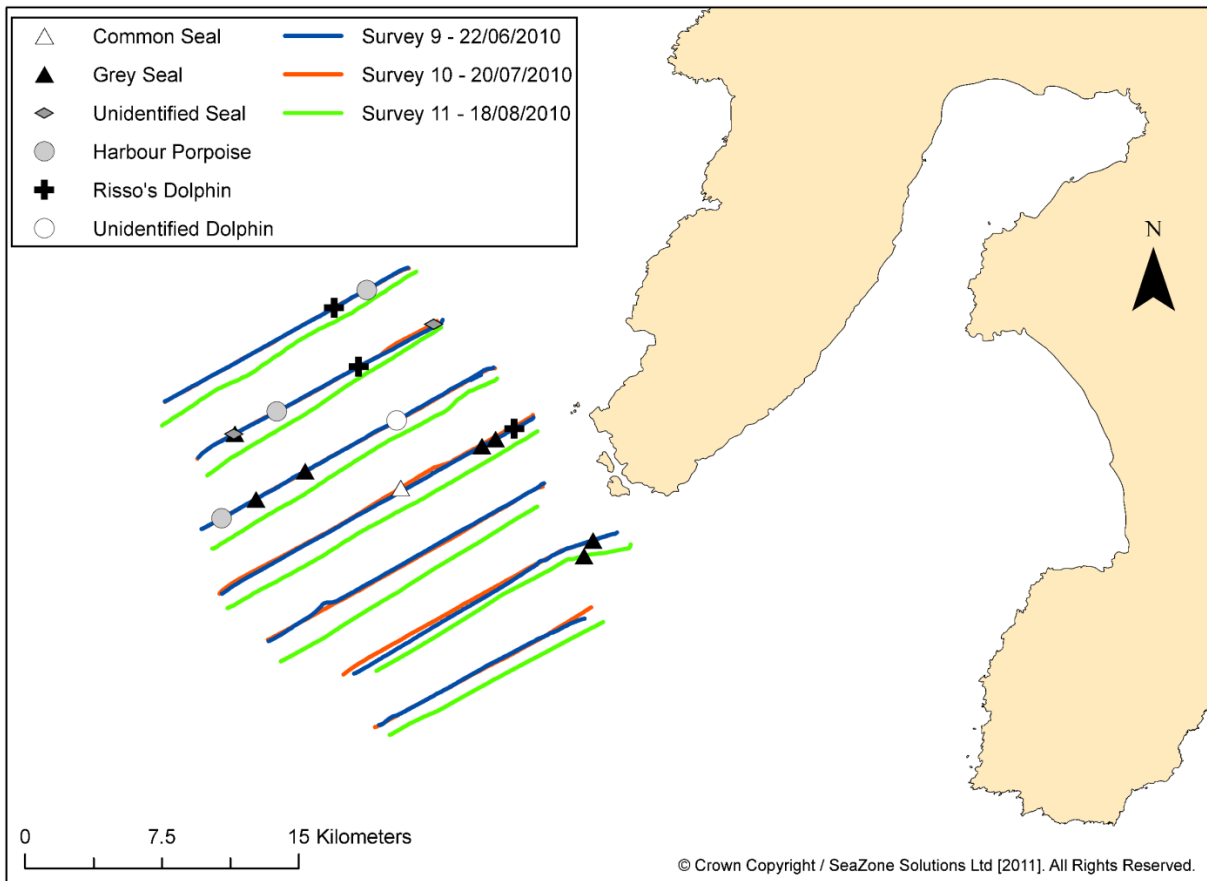


Figure 6. Visual and acoustic detections of marine mammals during summer 2010 (Survey9, 10 and 11).

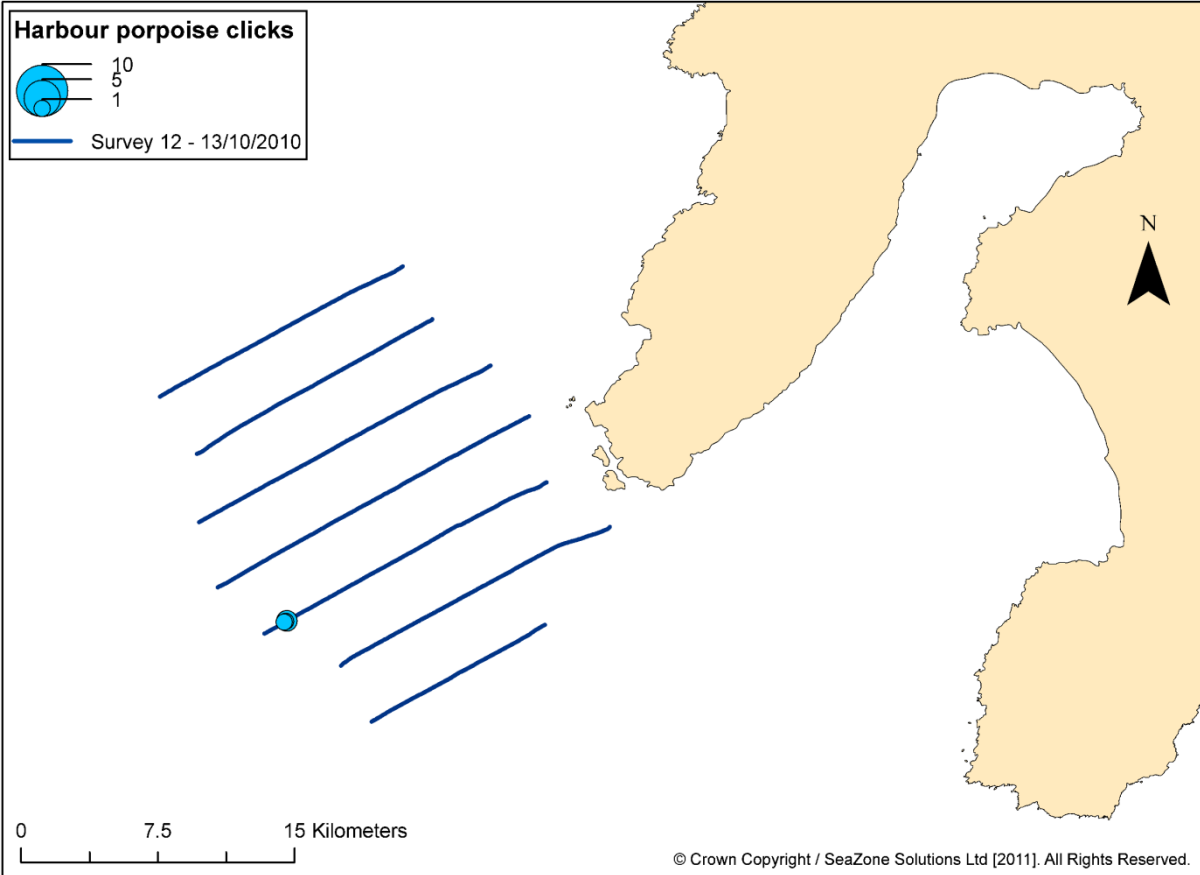
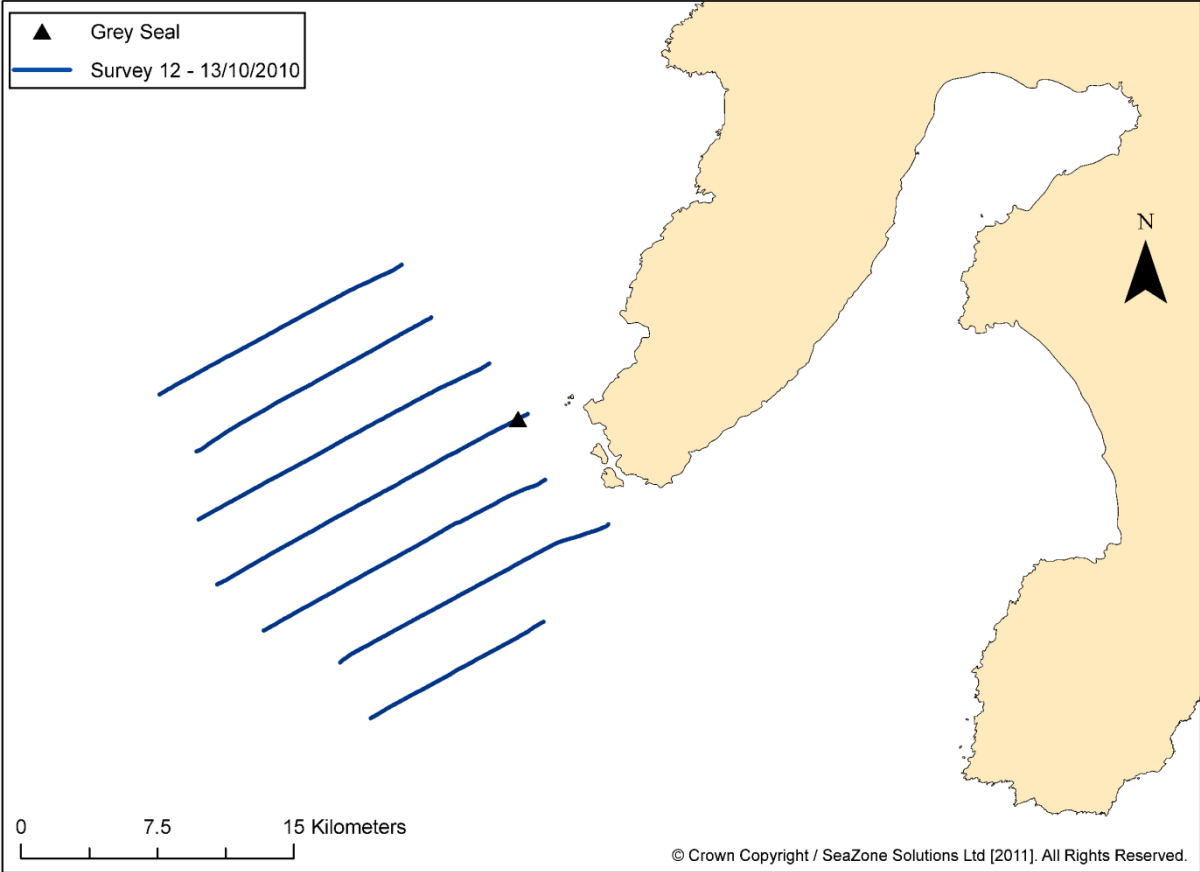


Figure 7. Visual and acoustic detections of marine mammals during autumn 2010 (Survey 12).

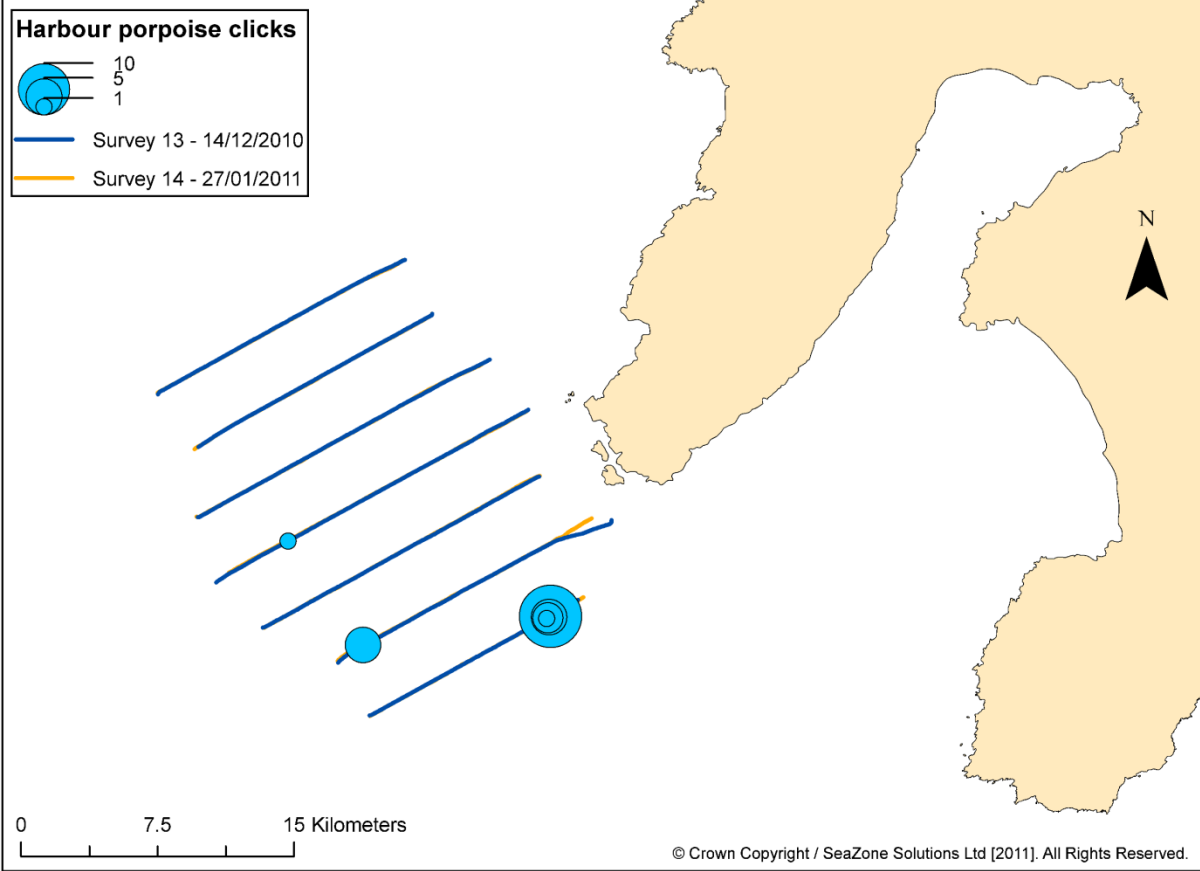
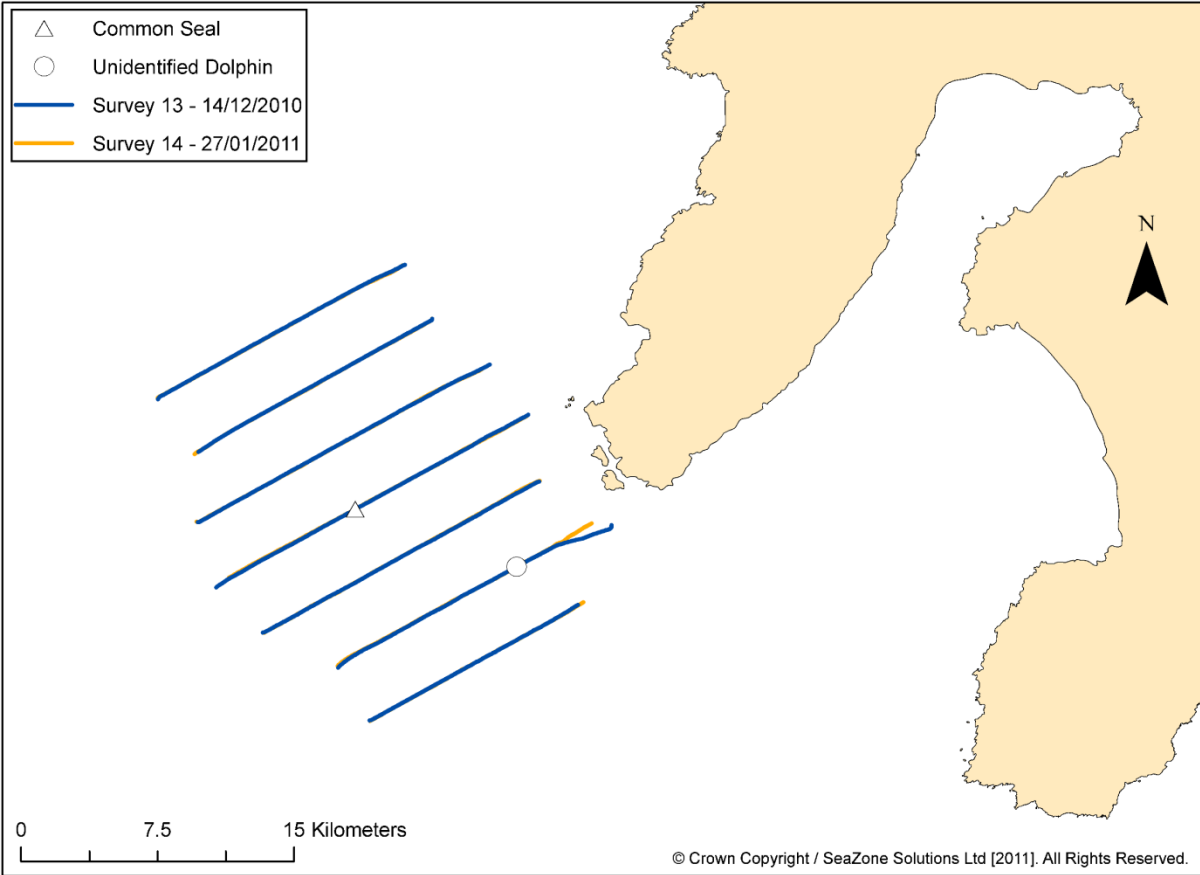


Figure 8. Visual and acoustic detections of marine mammals during winter 2010-2011 (Survey 13 and 14).



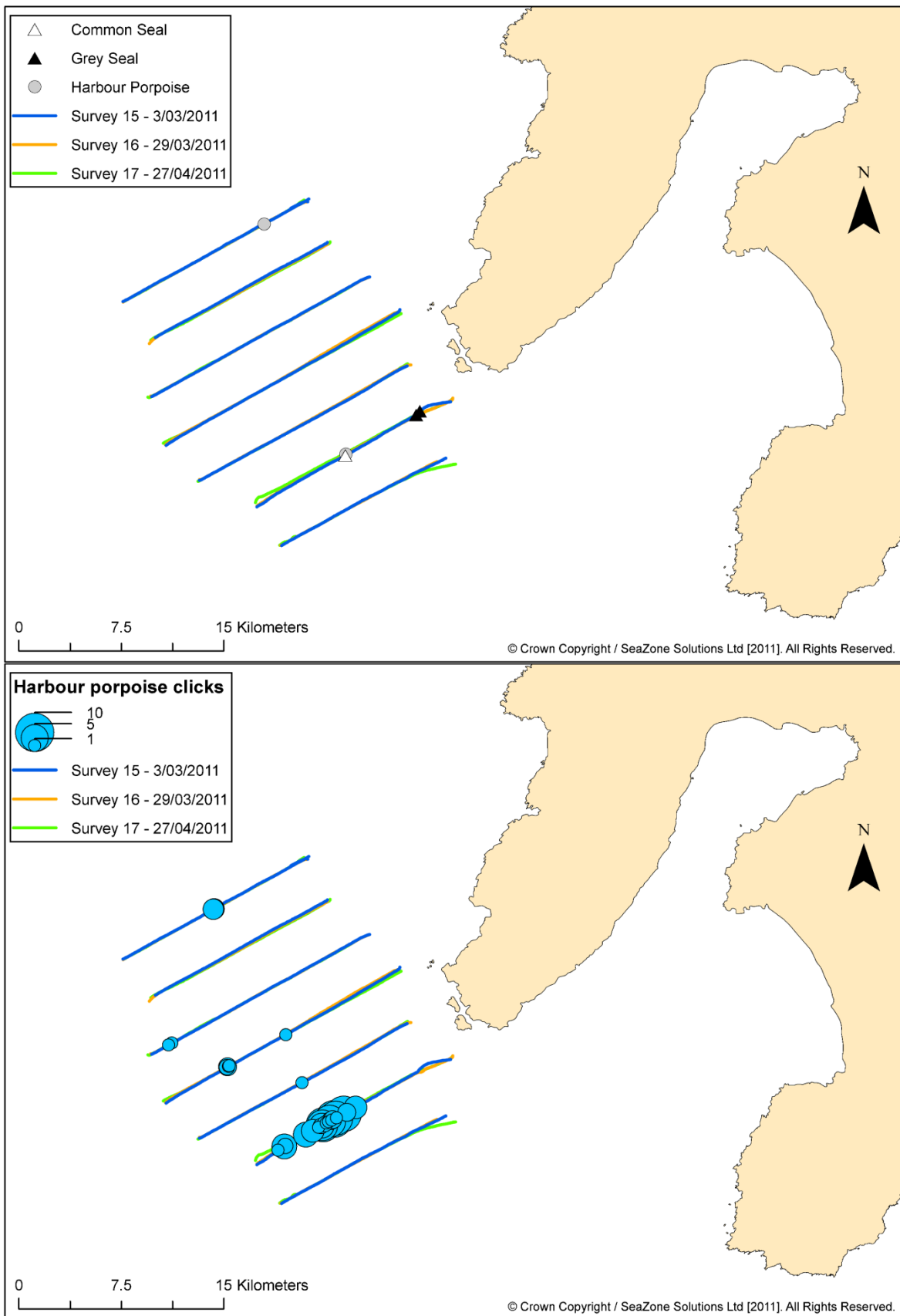


Figure 9. Visual and acoustic detections of marine mammals during spring 2011 (Survey 15, 16, and 17).

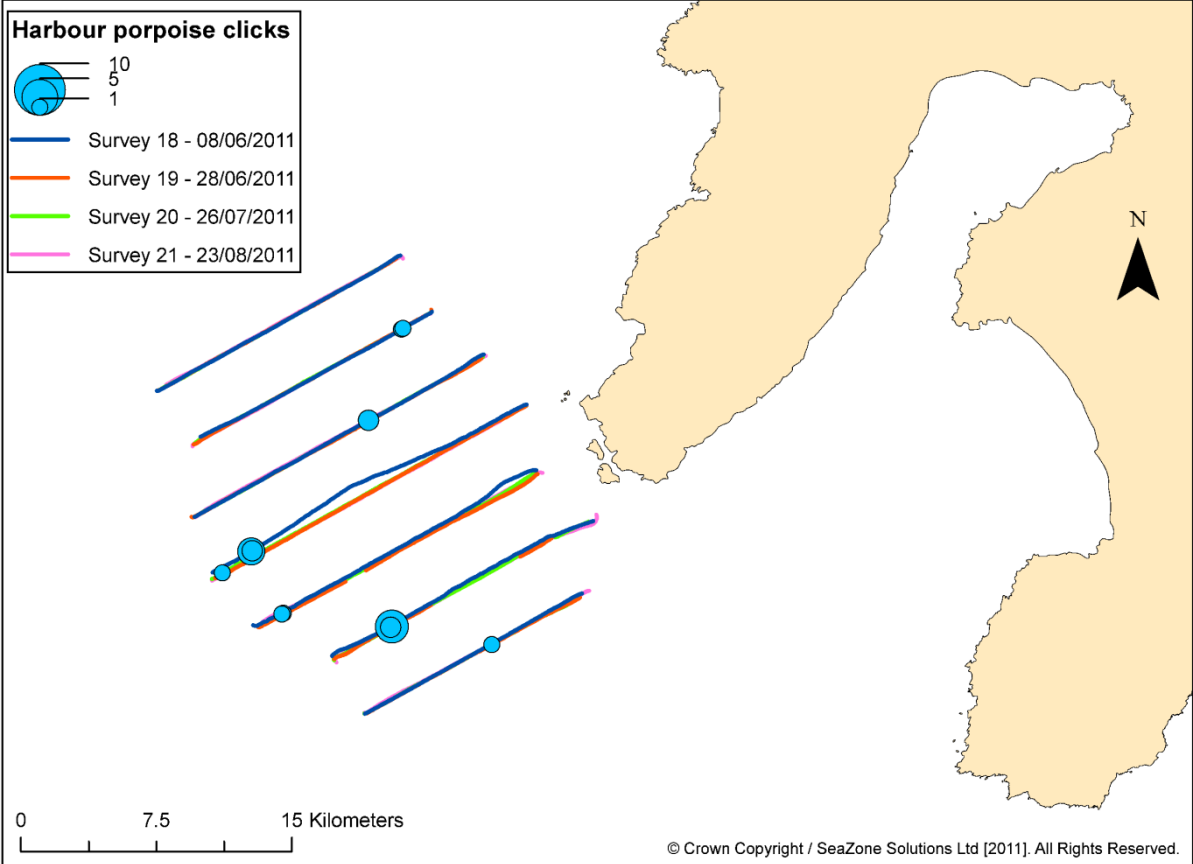
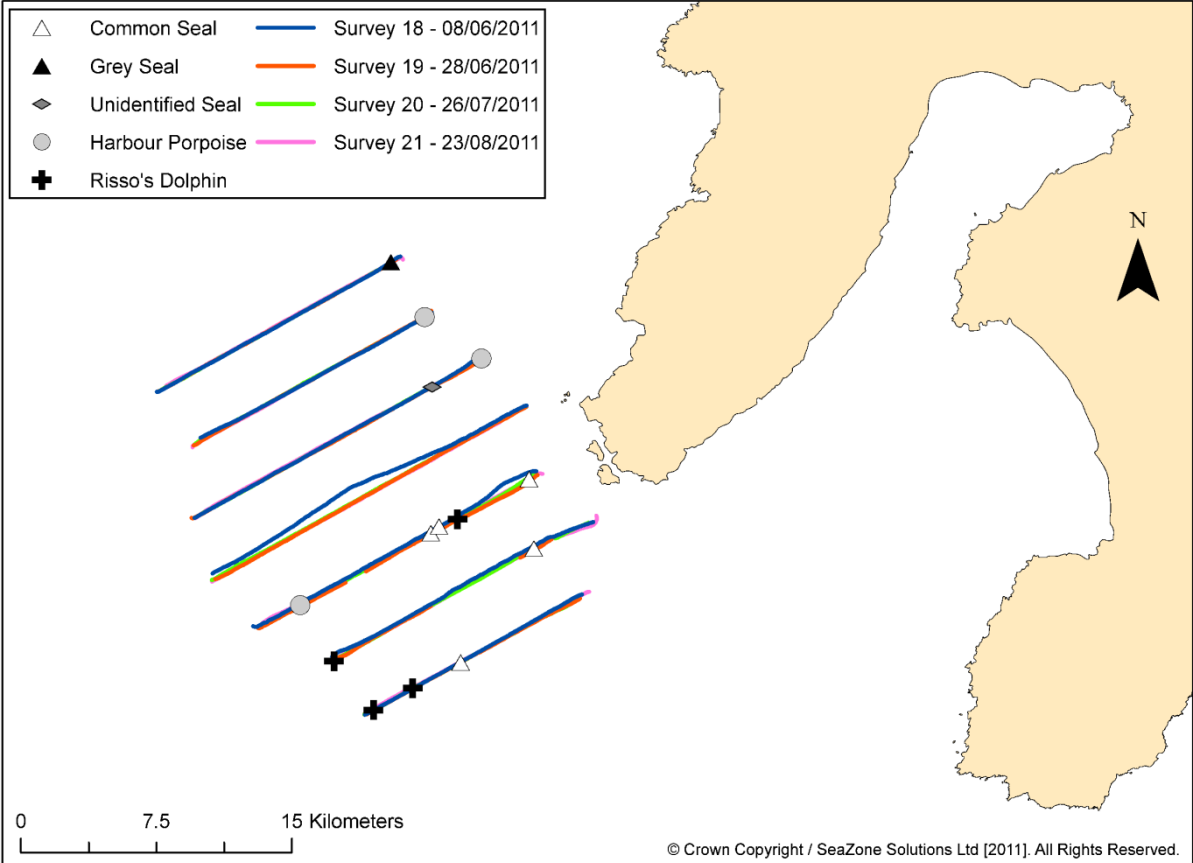


Figure 10. Visual and acoustic detections of marine mammals during summer 2011 (Survey 18, 19, 20 and 21).

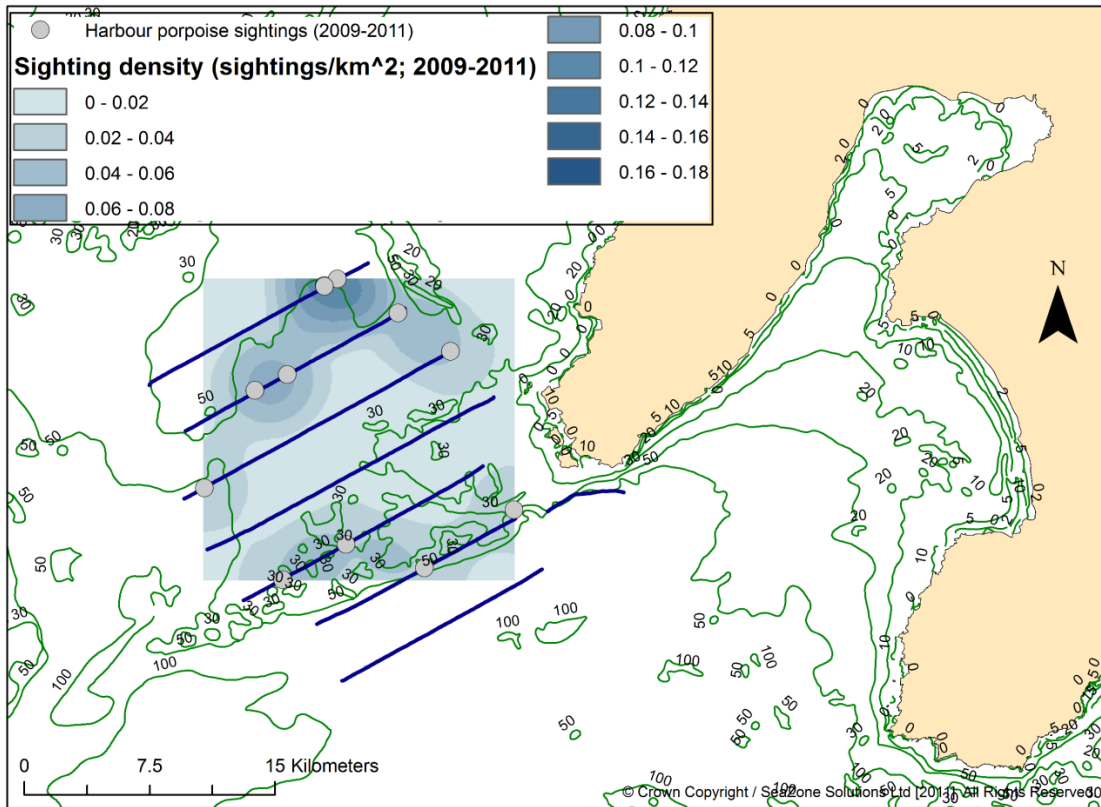


Figure 11. Estimated density map of harbour porpoise sightings/km<sup>2</sup>, using all data from 2009-2011. Tracklines (dark blue lines) are from Survey#1 but are broadly representative of subsequent surveys.

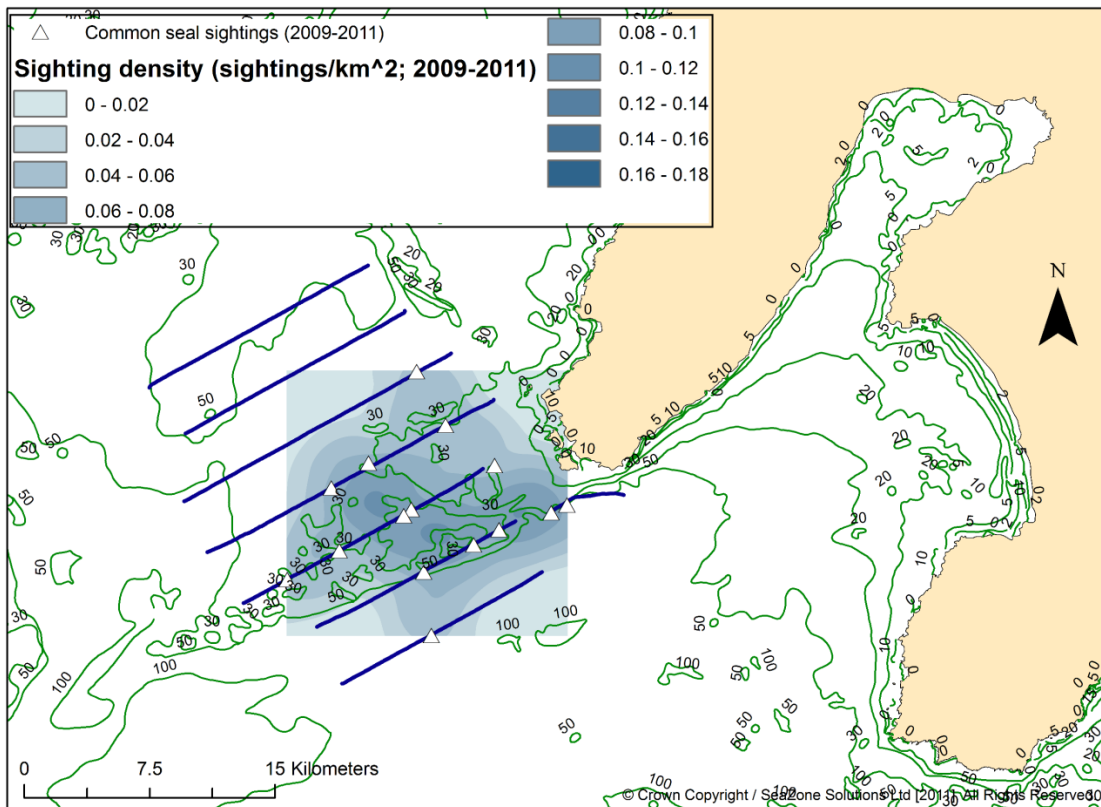


Figure 12. Estimated density map of common seal sightings/km<sup>2</sup>, using all data from 2009-2011. Tracklines (dark blue lines) are from Survey#1 but are broadly representative of subsequent surveys.

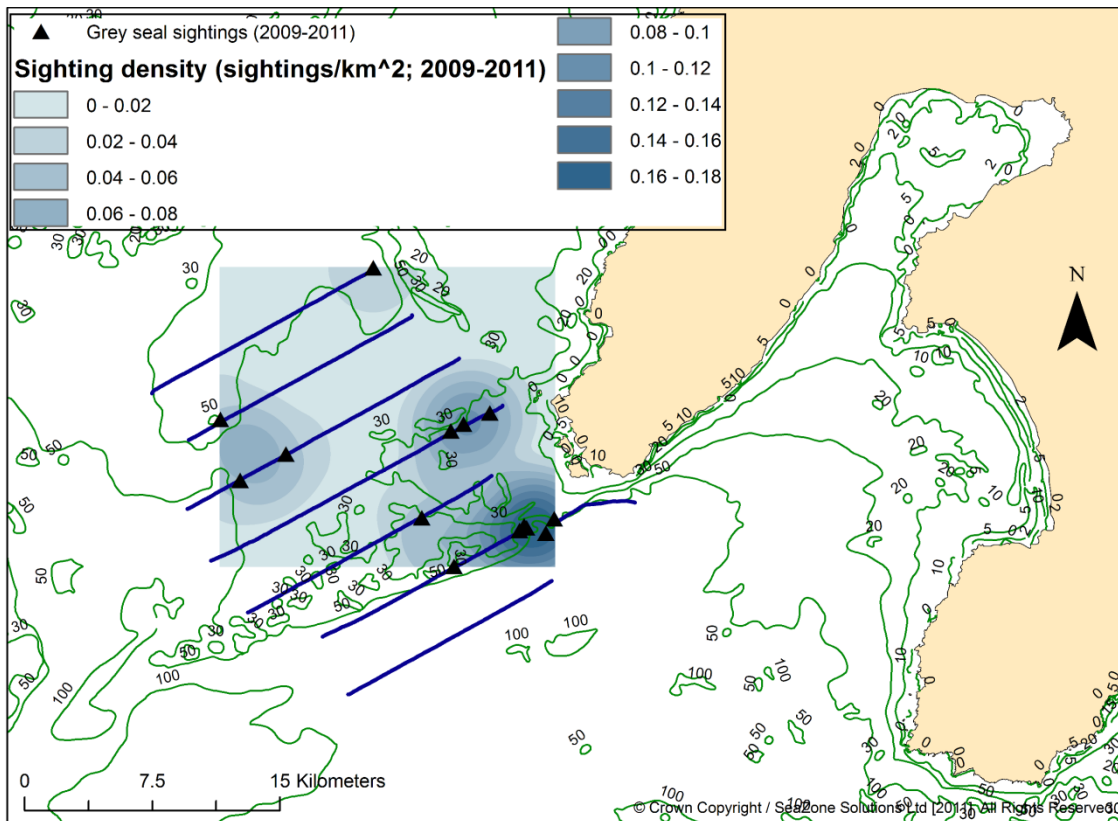


Figure 13. Estimated density map of grey seal sightings/km<sup>2</sup>, using all data from 2009-2011. Tracklines (dark blue lines) are from Survey#1 but are broadly representative of subsequent surveys.

### 2.3.2. Off-transect sightings

Survey efforts were expanded in summer months of 2010 and 2011 (driven by the seabird monitoring work) with additional transects added northward up to Colonsay (visual and acoustic effort) and southward to Rathlin Island (acoustic effort only). Visual observations were carried out on five of seven Colonsay trips and totalled over 717 km of effort, with an additional 487km being surveyed acoustically only (including the entire Colonsay section of two surveys, #20 and #21). Surveying these transects resulted in the addition of two more species (minke whales [*Balaenoptera acutorostrata*] and basking sharks [*Cetorhinus maximus*]) to the sightings list (see maps in Appendix 1). Both new species were reported from the vicinity of Colonsay. In addition, all five species of marine mammals observed on transects within the survey area (harbour porpoises, bottlenose dolphins, Risso’s dolphins, common seal and grey seal) were also observed on these Colonsay transects.

For some species, sightings rates on these northerly legs were relatively high compared with those obtained in the main survey area, with sightings rates for harbour porpoises up to 3.4 animals per 100 km surveyed off Colonsay (compared to 1.1 in the survey area) and for common seals up to 0.9 animals per 100 km surveyed off Colonsay (compared to 0.7 in the survey area). For other species, however (particularly grey seal), no such difference was apparent (Table 6). The remaining species were recorded too infrequently for further analysis (see Maps A1-A38 in Appendix 1 for details). It is noteworthy that the Colonsay survey results varied between years, with the vast majority of sightings along these transects recorded in 2010 (see Maps A14-A19 and A29-A36 in Appendix 1), suggesting interannual variability. This variability was not apparent in the site survey data.

Differences in survey methodology (e.g., transects to/from Colonsay were longer than those within the survey area and, unlike them, were not oriented perpendicular to land, potentially biasing the

likelihood of observing marine mammals relative to the survey area) meant that rigorous comparison of the results from these additional surveys for both sites was not appropriate. The overall impression, however, was that a wider range of species were recorded near Colonsay, and some species in greater numbers, when compared to the survey area. Since these additional legs were surveyed opportunistically (due to the bird interests) the sample sizes encountered in both areas were relatively small and so it is inappropriate to draw further conclusions from this dataset.

It should be noted that sighting records were also collected during other portions of the survey *e.g.*, when returning through the survey area after completing the final transect, or during what were nominally “acoustics-only” transects (see maps in Appendix 1 for details). As these data were not collected consistently they were not included in the analyses described here. However, no species not otherwise seen along the more rigorous effort transects were observed, thus reinforcing the notion that the number of different species seen during the surveys is representative.

#### **2.4. Dolphin photo-identification**

Of the cetacean species seen on the surveys, two (bottlenose dolphins and Risso’s dolphins) were potentially worthy of photo-identification effort. There was no opportunity to collect pictures of sufficient quality during the bottlenose dolphin encounters (due to the height of the swell and the brevity of the actual sightings). However the Risso’s dolphins encountered during Survey#9 (June 22, 2010) were photographed. These pictures showed that there were at least six animals in the group. These pictures are being analysed relative to other west of Scotland and Ireland sightings by Nicola Hodgins (WDCS).

**Table 7.** Seasonal summary of sightings and sighting rates (sighting events/100 km and animals/100 km) of marine mammals and basking sharks, 2009-2011, within both the development site and along the spring/summer Colonsay transects.

Season	Total length (km) surveyed visually		Species	# events		Total # animals		Avg. # animals/event		# events/100 km		# animals/100 km	
	SITE	Colonsay		SITE	Colonsay	SITE	Colonsay	SITE	Colonsay	SITE	Colonsay	SITE	Colonsay
SPRING	692.5	127.5	Common seal	2		2		1.00		0.30		0.30	
			Grey seal	5				1.00		0.72		0.72	
			Harbour porpoise	3	1	4	1	1.33	1.00	0.40	0.80	0.60	0.80
			Bottlenose dolphin	1		9		9.00		0.10		1.30	
SUMMER	807.0	677.0	Common seal	6	6	7	6	1.17	1.00	0.70	0.90	0.87	0.90
			Grey seal	8	7	8	7	1.00	1.00	0.99	1.03	0.99	1.03
			Unidentified seal	3	7	3	7	1.00	1.00	0.40	1.00	0.40	1.00
			Harbour porpoise	6	14	9	23	1.50	1.64	0.70	2.10	1.10	3.40
			Bottlenose dolphin		1		1		1.00		0.10		0.10
			Risso's dolphin	7	1	18	3	2.57	3.00	0.90	0.10	2.20	0.40
			Unidentified dolphin	1		1		1.00		0.10		0.10	
			Minke whale		1		1		1.00		0.10		0.10
Basking shark		1		1		1.00		0.10		0.10			
AUTUMN	333.8	0.0	Common seal	3		3		1.00		0.90		0.90	
			Grey seal	1		1		1.00		0.30		0.30	
WINTER	415.4	0.0	Common seal	4		4		1.00		1.00		1.00	
			Unidentified seal	2		2		1.00		0.50		0.50	
			Harbour porpoise	3		5		1.67		0.70		1.20	
			Unidentified dolphin	1		1		1.00		0.20		0.20	
Grand Total	2248.7	804.6											

## 2.5. Passive acoustic monitoring: towed hydrophone array

During 19 of the 20 surveys a hydrophone array was towed behind the survey ship, thereby acoustically surveying the same transects as the visual effort. The hardware and software on this equipment were tailored for detecting echolocation signals of harbour porpoises (RainbowClick v4.06.0002; PAMGuard v1.11; EcoLogic UK 2006; Gillespie *et al.* 2009). These acoustic signals are less influenced by sea state and therefore offer a less weather-dependent measure of porpoise occurrence than visual sightings. As a consequence of porpoises projecting a focused echolocation beam forward from their foreheads (Au *et al.* 1999), the number of recorded clicks was expected to vary substantially depending on whether or not animals were facing the array. Environmental conditions, such as strong current or wave action, or anthropogenic noises (such as ship engine noises) can also have an impact on the detection rates, as can animals that choose not to vocalise. Clicks are therefore only a proxy of actual animal presence. In order to reduce biases outlined here, only those click detections consisting of at least two clicks within <1 minute were considered as “click events” indicating probable porpoise detections. Furthermore, only those clicks that were considered to resemble actual porpoise clicks (in terms of amplitude, duration and bandwidth) by two observers were considered for subsequent analysis. When click data were assessed as aggregated click events, at least 41 such events were recorded along transects within the survey area, representing a minimum estimate of harbour porpoise presence during the entire survey period (Table 8). No click events were detected in four of 19 surveys, but there was no obvious seasonal or interannual bias in the data. Maps of harbour porpoise acoustic detections along the survey area transects are shown in Figures 3-11, with all detections (including those made along Colonsay transects) included on Maps A1-A38 in Appendix 1. Note that these maps include all clicks including those that, upon further analysis, were considered to not be part of a click event.

Porpoise clicks were detected in all seasons throughout the survey area, including near (although not on) the cable run. When comparing click event detection rates between transects (all surveys combined), there was appreciable variability between transects (single-factor ANOVA:  $P < 0.001$ ) with higher detection rates reported within the southern half of the survey area (transects 4-7; Table 8; Figure 15). This pattern was further clarified in Figure 16, suggesting an apparent high concentration of porpoise click detections coincident with an underwater ridge of shallowing water running southwest from Portnahaven/the Rhinns of Islay along which transect line #6 ran. It is presently unclear what might be the cause of this apparent aggregation (whether real or an artefact). It could potentially be related to the presence of more complex underwater topography in this area (specifically, much shallower and more diverse underwater topography when compared to areas immediately to the north and south) and/or the associated strong tidal current speeds associated with the Islay Front encountered here. This could produce greater porpoise-like background noise, or actually attract porpoises or encourage them to be more vocal in this location than elsewhere, possibly in relation to foraging activity. Further investigations are ongoing to confirm that this pattern is indeed driven by porpoise vocalisations rather than by local increases in ambient noise through *e.g.*, interactions between currents, sediment and underwater topography. Note that the density profiles represented in Figures 11-13 and 15 should only be taken as descriptive based on the relatively small number of sightings and acoustic detections.

Detection rates from visual and acoustic surveys cannot be readily compared directly due to possible biases in either method, as well as a lack of understanding of how harbour porpoise surfacing behaviour (when they are in principle available to be recorded by visual observers) affects echolocating behaviour (when they can in principle be detected by the hydrophone array) and vice versa. It is nonetheless apparent that many more click events were recorded than porpoises were visually sighted. This is as would be expected given the sea conditions on the surveys and the well-known negative relationship between porpoise sightability and sea state (Evans and Hammond 2004). Click events were recorded in eight surveys during which no porpoises were sighted, whereas

the opposite (porpoises sighted but no clicks detected during the entire survey) only occurred in a single survey. In surveys where both visual and acoustic detections were made, acoustic detection rates per survey (expressed as number of click events/100 km) were of at least comparable magnitude as, or up to five times greater than, equivalent porpoise sighting rates (expressed as number of sighting events/100 km, thus ignoring group size). These acoustic detection results therefore support the visual observation data in terms of confirming widespread detections of harbour porpoises throughout the survey area, although the apparent aggregation in the southern half of the survey area was not discernible in the sparse visual dataset. At a very broad, seasonal level, the pattern of higher sighting rates along the Colonsay transects (when compared to the survey area) was not replicated in the acoustic detection rates (Tables 7, 9).

**Table 8. Harbour porpoise “click events” recorded during each acoustic survey per transect, and click event detection rates (click events/100 km, aggregated per survey and across surveys per transect). “N/A” indicates transects that were not surveyed due to poor weather.**

Survey	Date	Transect								Total	Detection rate (click events/100 km)
		1	2	3	4	5	6	7	Cable Run		
2	28/11/2009	1			1					2	1.68
3	15/12/2009	N/A	N/A	N/A				1		1	1.46
4	06/02/2010				2	1	1			4	3.40
6	09/03/2010				1		3			4	3.66
7	09/04/2010				1		1			2	1.77
8	11/05/2010	1								1	0.88
9	22/06/2010						1			1	0.87
10	20/07/2010	1					1	1		3	2.58
11	18/08/2010									0	0.00
12	13/10/2010					1				1	0.89
13	14/12/2010				1		1	1		3	2.59
14	27/01/2011									0	0.00
15	3/03/2011	1			1	1	5			8	6.98
16	29/03/2011				1		3			4	3.47
17	27/04/2011									0	0.00
18	8/06/2011		1	1	1					3	2.84
19	28/06/2011							1		0	0.95
20	26/07/2011				1	1	1			3	2.64
21	23/08/2011									0	0.00
Total		4	1	1	10	4	18	3	0	41	1.94
Total length (km)		276.1	264.2	326.7	371.5	331.6	246.2	250.4	48.5		
Detection rate (click events/100 km)		1.37	0.36	0.29	2.61	1.20	7.14	1.14	0.00		

**Table 9. Seasonal summary of harbour porpoise click event detection rates (click events/100 km) during 2009-2011, within both the development site and along the Colonsay transects.**

Season	Total length (km) surveyed acoustically		# click events		# events/100 km	
	SITE	Colonsay	SITE	Colonsay	SITE	Colonsay
SPRING	681.0	127.5	19	5	2.79	3.92
SUMMER	788.4	677.0	11	8	1.40	1.18
AUTUMN	231.7	not surveyed	3	N/A	1.29	N/A
WINTER	414.3	not surveyed	8	N/A	1.93	N/A
Grand Total	2115.4	804.6	41	13	1.94	1.61



**Average porpoise click event detection rate per transect (2009-2011 combined; +/- stdev)**

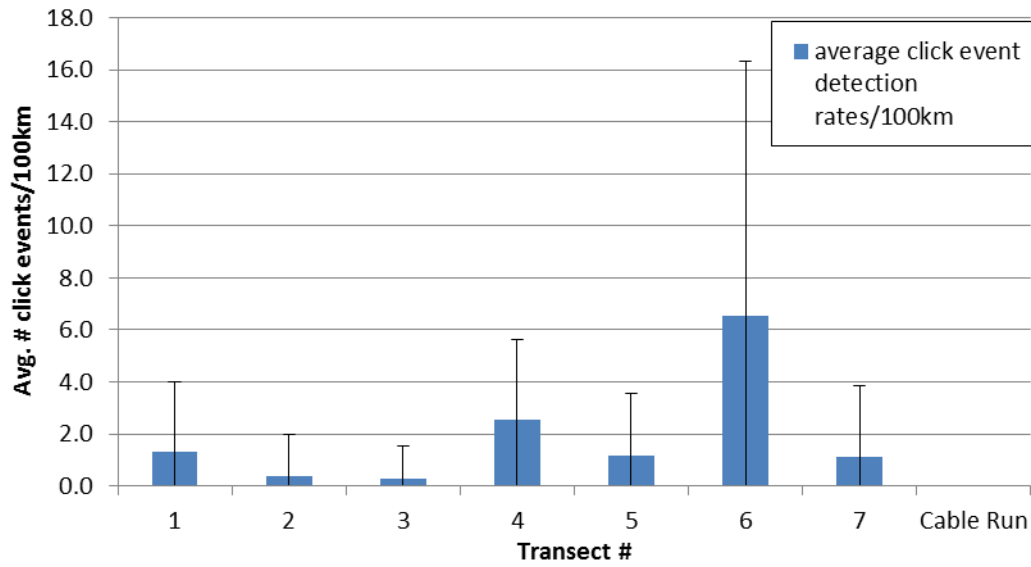


Figure 14. Average harbour porpoise click event detection rates (expressed as detections per 100 km), aggregated per transect across the entire 2-year survey period. Transect 1 is the most northerly. Error bars denote 1 standard deviation.

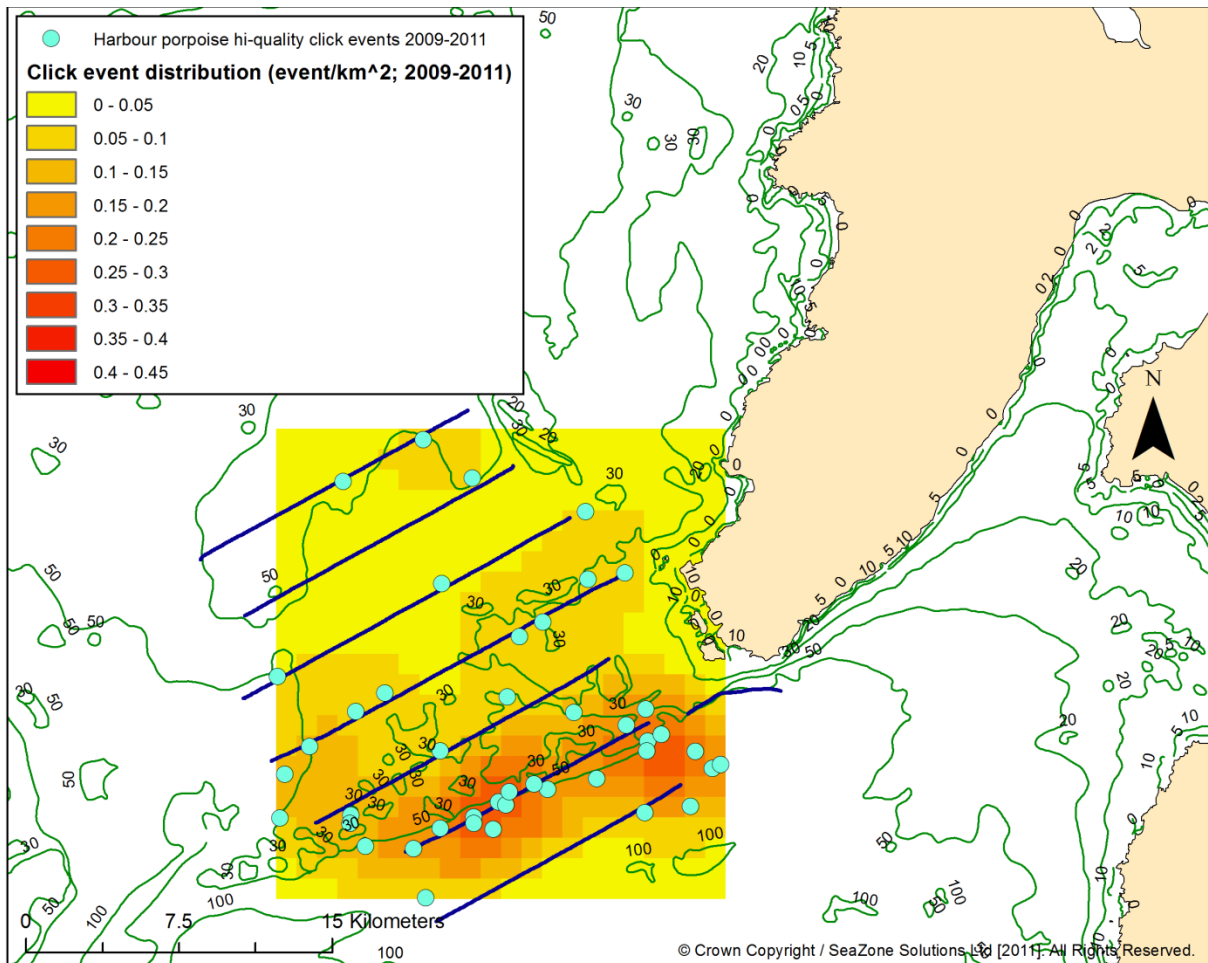


Figure 15. Estimated density map of harbour porpoise click events/km<sup>2</sup>, using high-quality data from 2009-2011. Tracklines (dark blue lines) are from Survey#1 but are broadly representative of subsequent surveys.

## 2.6. The effects of sea state

As is well established from other harbour porpoise visual surveys, the chance of seeing porpoises is highly influenced by sea conditions, primarily the smoothness of the surface (“sea state”). The magnitude of this effect varies by survey platform and because similar vessels were used in all surveys the results are directly comparable between surveys. Sea states varied considerably across (and to some extent within) surveys, from sea state 0 to sea state 6. Neither extreme was encountered very often (Figure 17), with >90% of survey effort taking place at sea states 1-3.5. The worst conditions, in terms of high sea state, were encountered during survey#3 (15/12/2009, which was aborted halfway as a result) and survey#19 (28/06/2011).

A total of 18 porpoises (12 events) were seen during these surveys, but no sightings occurred in sea states >3.5, and over half (13 animals, 8 events) were seen in sea state ≤2. The strength of this relationship means that simply summing sightings (regardless of weather) is misleading. Sighting rates (# porpoise detection events/km) are visible in Figure 17. There were no obvious changes in porpoise group sizes detected at higher sea states (all sightings on these surveys involved 1 to 3 animals), apart from the observation that more animals were seen per sighting at lower sea states (Figure 17).

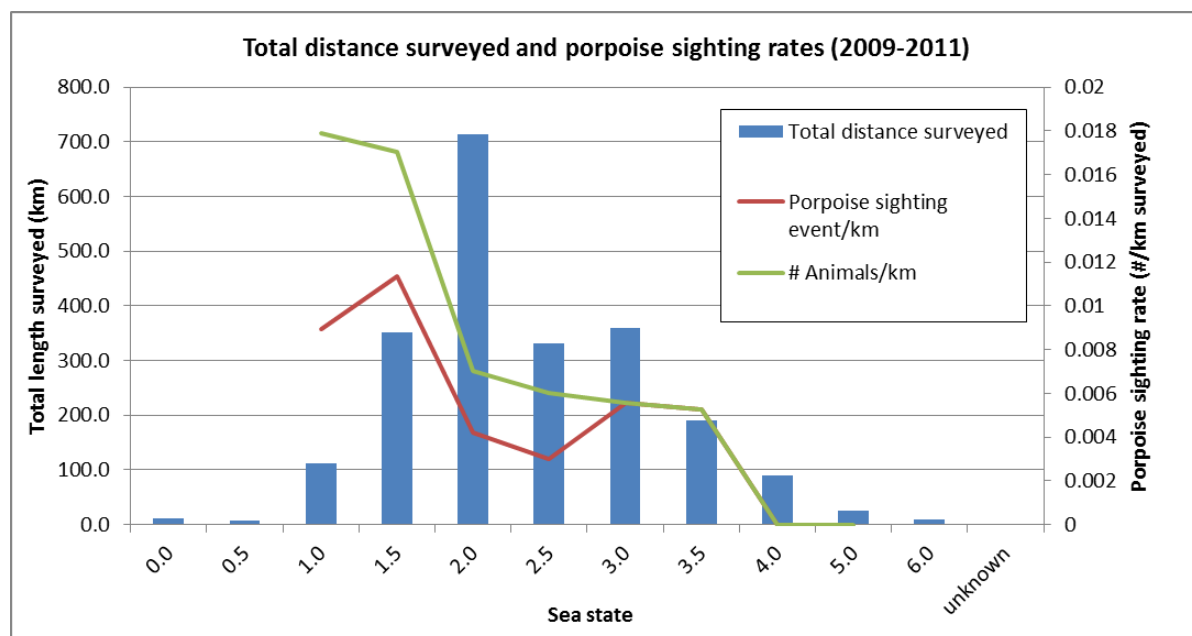


Figure 16. Distribution of total survey effort (2009-2011) and sightings of harbour porpoises/km, aggregated across sea state.

The number of porpoises detected was small, making robust analysis difficult. Given that detectability of porpoises is known to decline at sea states >0.5, it is likely that the number of sighting events reported during the surveys represent an underestimate. In order to estimate the potential extent of the negative bias in the sightings data, a series of correction factors needs to be calculated by taking the ratio of the mean sightings rate at a particular sea state to the mean of sightings rate at sea state 0 ( $c_n$ ), using the equation:

$$c_n = sr_n / sr_0$$

where  $sr_n$  is the mean sightings rate at sea state =n, and  $sr_0$  is the mean sightings rate at sea state =0 (Evans & Hammond 2004).

Sea states <1 were only encountered during <1% of total survey effort and no porpoise sightings were reported during these comparatively brief periods, making it impossible to calculate correction factors in this manner. A set of correction factors was collected during a survey in the Sound of Islay and Kylerhea using the HWDT vessel R/V Silurian in 2009/2010. This dataset has the advantage of having been collected in an adjacent area, but was collected in inshore waters using a smaller vessel than the vessels used in the present surveys. A second set of correction factors was extracted from Palka (1996), based on data collected in inshore and offshore waters using a large oceangoing vessel. Comparing these two sets of correction factors suggested that detection rates at sea state 2 were approximately 1/3 (Palka 1996) to 1/10 (unpublished Silurian data) of detection rates at sea state 0. Porpoise sighting events (*i.e.*, reports of at least 1 porpoise sighted) were multiplied by both sets of correction factors to estimate how many such events might have been missed. Across survey transects surveyed at sea states 1-3.5, it was estimated that a total of 23 (using Palka [1996] correction factors) or 88 (using Silurian data correction factors) additional sighting events would have been detected if sea states had been 0 throughout. This suggests that the low numbers of sightings recorded during the present surveys at higher sea states represent an underestimate of actual porpoise presence in the area. These higher estimated detections also correspond well to concurrent acoustic detection rates in the area. There was no evidence of acoustic detections being influenced by sea state, with detections of porpoise click events generally tracking total survey effort (Figure 18).

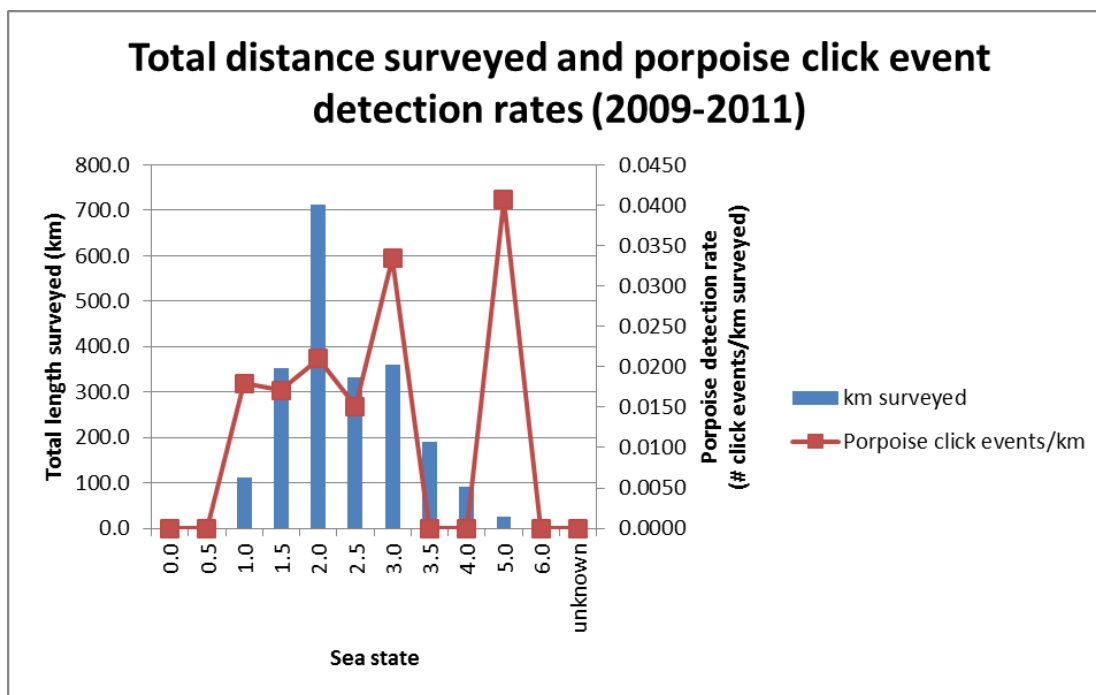


Figure 17. Distribution of total survey effort (2009-2011) and detections of harbour porpoise click events/km, aggregated across sea state.

### 2.6.1. Variation in sea state by transect

There was no obvious pattern in the sea state data when analysed across surveys, suggesting that all transects were broadly comparable in terms of the average sea state likely to be encountered (Figure 19). An analysis of variance (two-factor without replication) revealed that there was far greater variability between surveys (on all transects) than among transects (aggregated across surveys;  $df=125$ ;  $P < 0.001$ ), thereby confirming that sea states varied significantly between surveys but not necessarily between transects on the same survey. Analysis of the correlation among average sea states per transect across surveys suggests that transects fell into at least two groups, one containing transects T2-5 (with T1 as something of an outlier of this group) and the other containing transects T6 and T7. This suggests (not surprisingly) that average sea state varied in a

similar way among adjacent transects, with something of a divide between southernmost transects T6-7 and the others further to the north.

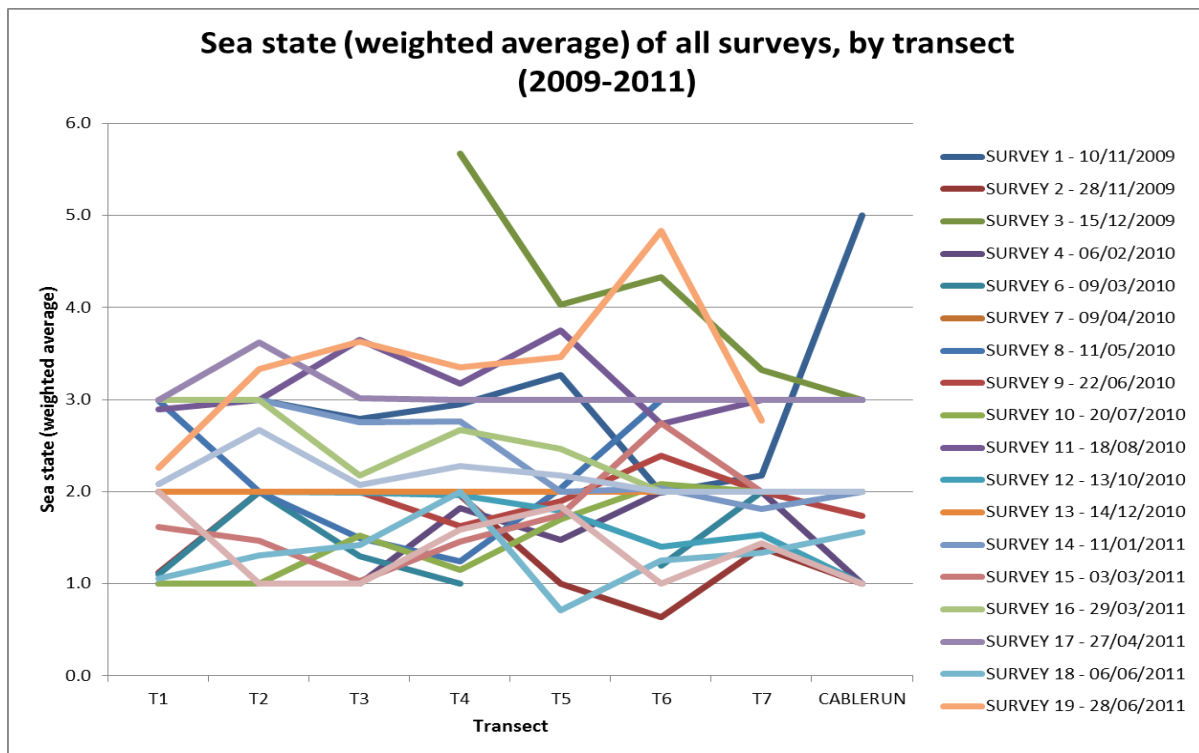


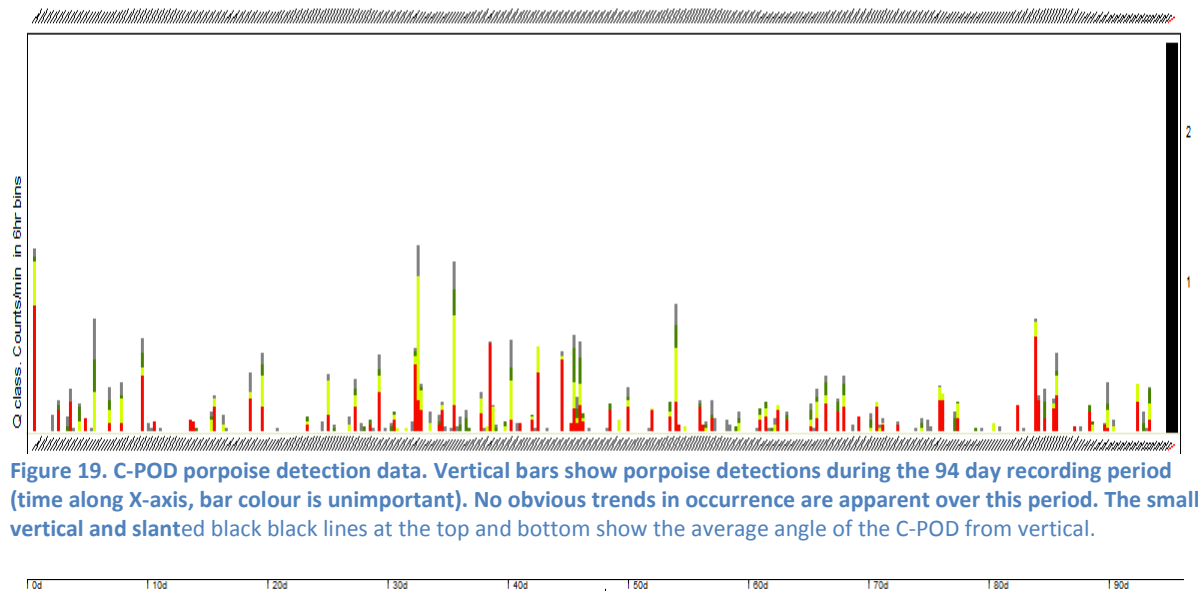
Figure 18. Weighted average sea state per transect of all surveys, 2009-2011. Sea state varied between surveys, but also to some degree within surveys.

## 2.7. Passive acoustic monitoring: moored acoustic detector

One C-POD (Chelonia Ltd) passive odontocete vocalisation detector was deployed on a mooring in the centre of the proposed development site on May 12, 2010. The device was recovered just over 3 months later on August 15, 2010, having logged ultrasound for the entire soak time. Intense contaminating boat sonar associated with the deployment/retrieval events was detected at either end of the recording. When this was removed, 94 days 20 hours 28 minutes of ultrasound data remained. The equipment was lost on its second deployment and so there was no further C-POD related data available or this study. The reason for the equipment disappearing is unknown. It is possible that the mooring was carried away with the tidal-stream, the surface buoyage might have been cut by a passing vessel(s) or the equipment might have been removed in fishing activities. The following analyses therefore relate to the first successful deployment.

The logged ultrasound originated from four broad categories. The first was the occurrence of general background noise. Tidal sites are typically rich in ultrasound, probably associated with the transport of sediment (sand, gravel etc.) with the current. Thus this sound is highly correlated with tidal flow speeds and, if very prevalent, potentially obscures any patterns in the occurrence of odontocetes. However, and unlike other tidal-energy sites, the occurrence of excessive tidal flow noise in the Islay recordings had only minimal impact on the likelihood of detecting odontocetes and only resulted in a negligible (1%) amount of the time with background noise so intense that it flooded the logging buffer of the device. The second source of ultrasound originated from boat/ship echosounders. These signals usually occur at distinct intervals (i.e. every 0.2/0.5/1 seconds) and round-number frequencies (40, 50, 200 kHz). Thus they are relatively easy for the C-POD software to detect and classify and for us to ignore here.

The remaining sources of ultrasound come from echolocating odontocetes. The third source is vocalisations of harbour porpoises, which produce highly stereotyped narrowband (tonal) clicks at between 120 and 140 kHz. These are typically emitted as trains and buzzes. Seven hundred and sixteen porpoise click trains were detected in 291 different minutes. These trains included normal navigational ranging patterns and also buzzes that are typically associated with feeding activity. Porpoises were detected through the entire 94 day recording period (Figure 20). On shorter time frame, porpoise activity was correlated with the time of day, having peaks of occurrence on a typically 24 hour cycle (Figure 21) with most detected in the three hours after midnight and the least between 15:00 and 17:00 (Figure 22). There was no correlation with porpoise detections and tidal state. This result is surprising as one might have expected a strong tidal correlation, as this is observed in tidal races at other sites (*e.g.*, off the Welsh coast; Pierpoint 2008). Overall, porpoise detections in the Islay site were relatively uncommon (<3 Detection Positive Minutes per day) compared with around 70 DPM/day recorded in similar deployments north and south of Lismore Island in Loch Linnhe, an area of high porpoise abundance (SAMS unpublished data).



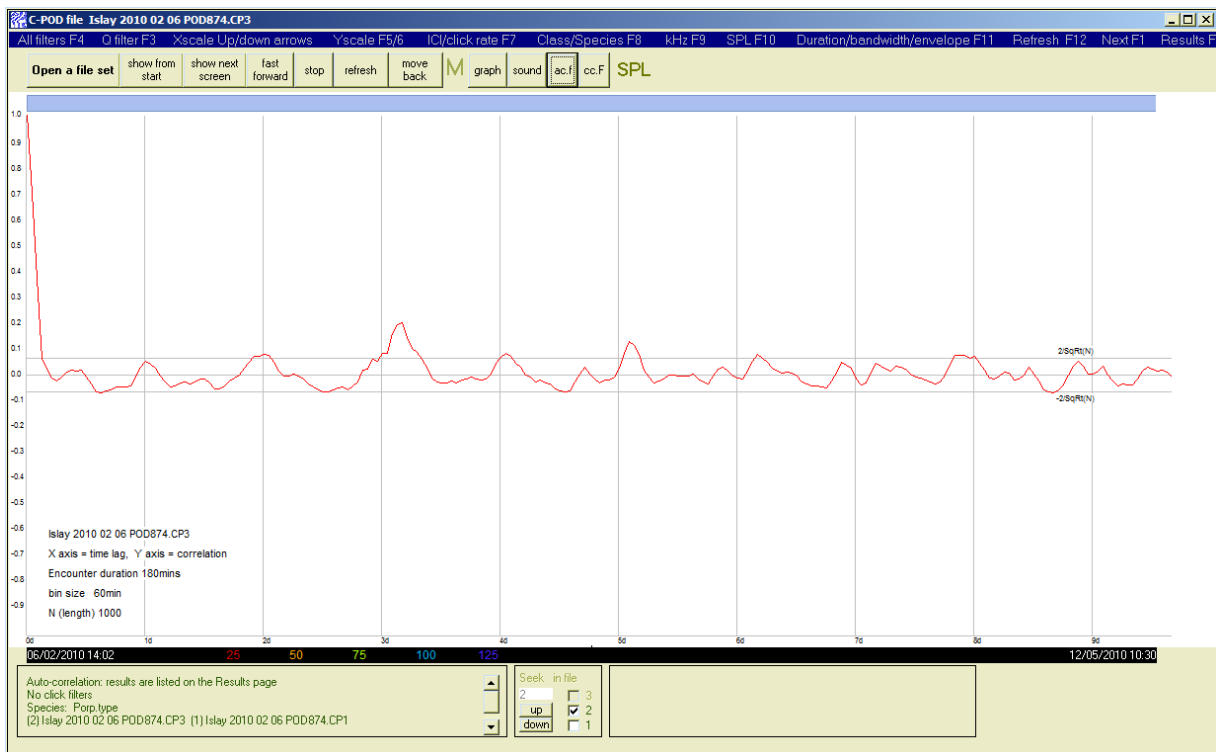


Figure 20. Auto-correlation of porpoise clicks logged. These show a peak in occurrence every 24 hours and thus there appears to be a correlation with time of day rather than water flow rate.

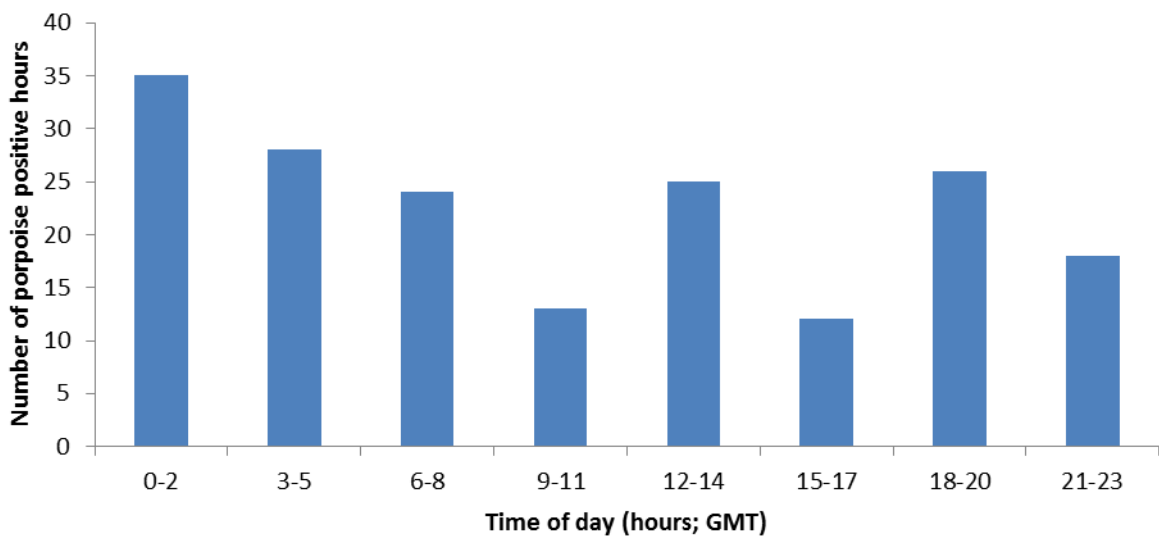


Figure 21. Porpoise detection positive hours against time of day, aggregated in 3-hour bins.

The **fourth** type of ultrasound originates from other odontocetes (i.e. dolphins and small whales). These animals produce echolocation clicks that are broadband and thus extend over a greater range of frequencies. They also occur in trains and buzzes. While these trains and buzzes are highly detectable, it is not yet possible to tie these to particular species. Dolphin detections occurred on four separate occasions during the 3-month deployment. All of these detections occurred in July 2010 (12<sup>th</sup>, 21<sup>st</sup>, 25<sup>th</sup> and 27<sup>th</sup>). These rates are relatively low and do not suggest this site is frequently used by dolphins or larger odontocetes.

It must be stressed that the detection of either porpoises or dolphins only confirms the presence of these animals at a particular point in time. However, these species do not echolocate all the time and thus an absence of detections does not mean that these species were not present in the area. The factors that determine when odontocetes echolocate or not are currently unknown and undoubtedly vary according to site and season so acoustic data must be treated carefully when inferring site usage.

## 2.8. Absolute density and abundance

Despite the considerable efforts made surveying the development site and surrounding area, there were relatively few marine mammal sightings. The low numbers of observed animals has consequences for the ability to use these data for estimation of absolute animal density and abundance. The theoretical framework for this type of analysis, known as distance sampling, has been described in detail by Buckland *et al.* (2001; 2004). Such analyses are usually achieved by specialised computer software, most notably the program DISTANCE (*e.g.*, Thomas *et al.* 2009; current version 6.1). In brief, sighting data for each species are combined with a measure of distance from each sighting to the survey transect line, and then used to estimate a detection function which describes how the probability of sightings drops off at increasing distances from the transect line (a cardinal assumption being that all animals directly on the transect line are detected). This detection function can then serve as the basis for a straightforward estimation of density, and thereby abundance, across the area of interest.

There are, however, some methodological difficulties with following this approach in the present context, particularly when sighting rates are very low (as they are here). In particular, Buckland *et al.* (2001) strongly recommend expending sufficient survey effort so that at least 60 to 80 observations are made of each species of interest, in order to obtain estimates of density that are robust (*i.e.* have low coefficients of variation, and are therefore reliable). The maximum number of animals seen of any species over the course of 20 surveys was 18 (for harbour porpoise; Table 7). With as few sightings as these, the resulting degree of confidence in the density estimates is likely to be low. Indeed, when using only porpoise groups as sampling units (thereby ignoring group size) for the entire survey, DISTANCE yields a preliminary mean density estimate of approximately 0.129 animals/km<sup>2</sup> (with a CV of 67%). It is considered unrealistic to calculate a robust density estimate on the basis of so few observations (Buckland *et al.* 2001).

Acoustic detection rates using a towed hydrophone array were slightly better, with a total of 41 detections over the course of the two years of surveying. After removing low-quality data a total of 31 detections remained for which sufficient information was available to calculate perpendicular distances to the survey trackline using the PAMGuard software package (Gillespie *et al.* 2009), and thus estimate density. Assuming that each detection represented a single porpoise, DISTANCE generated a mean density estimate of approximately 0.031 animals/km<sup>2</sup> (with a CV of 25%). It is important to note that it is currently not possible to estimate the absolute abundance of porpoises from towed-array surveys because of uncertainties in estimating group size acoustically and the probability of detecting an animal close to the survey trackline (Sveegaard *et al.* 2011). There are also numerous caveats to consider when applying DISTANCE methodology to acoustic detection data, and also that even the acoustic dataset is relatively small (41), and confidence in this estimate is therefore relatively low. Both these density estimates are, however, considerably lower than the estimated 0.394 animals/km<sup>2</sup> calculated for western inshore Scottish waters based on aerial survey data collected during the 2005 SCANS-II survey (SCANS-II, 2008), and suggest that the development site does not constitute a significant hotspot in terms of porpoise abundance. Given apparent low densities of marine mammals encountered thus far, it would appear that there is limited scope to increase sample sizes to the point where DISTANCE analyses could be effective without undertaking substantial amounts of additional survey effort using the present survey design.

In retrospect, the survey design and frequency of the present study was one that sought to combine a monthly survey platform with seabird surveys to assess species presence and seasonal occurrences. This survey approach succeeded in characterising species composition at the proposed development site but was not optimised for marine mammal surveying with a goal of generating robust density estimates. This may have resulted in too few independent transect lines and/or transects that were too short, although it is clear that other factors (notably the short weather windows that occurred [primarily ridges of high pressure] and the related requirement to complete each survey during a single day, taking note of the comparatively short daylight periods during winter) were also important.

Finally, it is vitally important to reiterate that the density profiles represented in Figures 12-14 and 16 should only be taken as descriptive based on the relatively small number of sightings and acoustic detections, and do not represent robust density profiles such as those generated using the program DISTANCE.



### **3 Conclusions**

Despite the remote location of the development site and the vagaries of the Scottish weather, surveys were successfully concluded in all seasons and during most months of the 2009-2011 survey period. A considerable amount of information was collected during this period, with only a single survey abandoned due to forecast weather deterioration.

Overall, the variety of marine mammals identified using the waters immediately west of Islay is very much as would be expected for this site and habitat. We might have expected to have seen minke whales and basking sharks in the development site in summer but did not. However, monthly surveys were too sparse to confirm their absence. Bottlenose dolphins are typically very coastal in the west of Scotland so the sightings of this species at this location (several kilometres offshore) were unexpected. At this point, it is difficult to draw conclusions on the origin or activity of these animals due to the small number of sightings. In general the sightings (and detection) rates of all species were not especially high, particularly in comparison to the number of marine mammals seen on the summer legs between northern Islay and Colonsay. The comparatively low detection rates for harbour porpoises in the centre of the development site were also evident on the moored porpoise detector.

However, detection rates of some species (harbour porpoise and the two seal species in particular) appeared to be higher in particular areas of the survey area, with porpoise click events apparently concentrated in the southern half of the survey area (particularly along the ridge southwest of Portnahaven) and sightings of seals (especially grey seals) concentrated in the southeastern portion of the survey area. As clarified above, the small sample sizes mean that this spatial variability cannot currently be rigorously assessed, but it is suggestive of small-scale heterogeneity in habitat use.

### **4 Where do we go from here**

Based on the results presented here, a reasonable understanding of the marine mammal diversity in and around the development site has been achieved. Although the data in their present form do not allow for robust density estimation, they do provide information on seasonal and spatial distribution of the encountered species. It is considered that significant improvements to the present dataset could only be achieved by means of a large expansion of survey efforts to incorporate larger areas, driven by a considerable further investment of time, effort and financial resources. At present, such an investment may provide robust density estimates but may not substantially change our perspectives on species presence and distribution within the development site.

It is, however, clear that the monthly surveys undertaken here represent a series of snapshots, and that spatial distribution and abundance of marine mammals are likely to vary over considerably shorter timescales than this. In order to obtain a better understanding of how habitat use of the odontocetes (particularly harbour porpoise) varies over time, it may be fruitful to expend further efforts into deployment of passive odontocete vocalisation detectors (C-PODs) in the site. This will provide more detailed information on presence and relative abundance of porpoises (and potentially dolphin species), and associated temporal variability, in the area of interest.

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## APPENDIX 1: SURVEY EFFORT MAPS WITH ALL SIGHTINGS, PORPOISE DETECTIONS

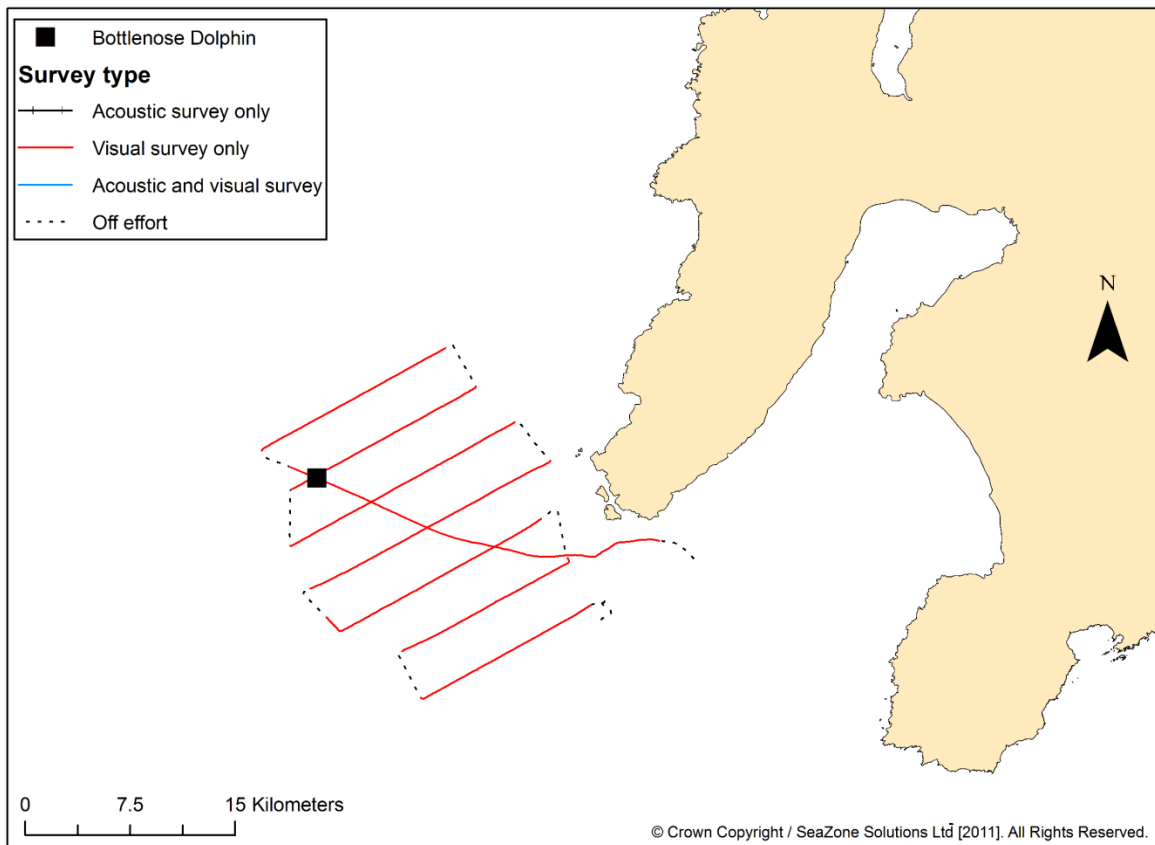


Figure A1. Survey 1 (November 14, 2010) effort and marine mammal sightings

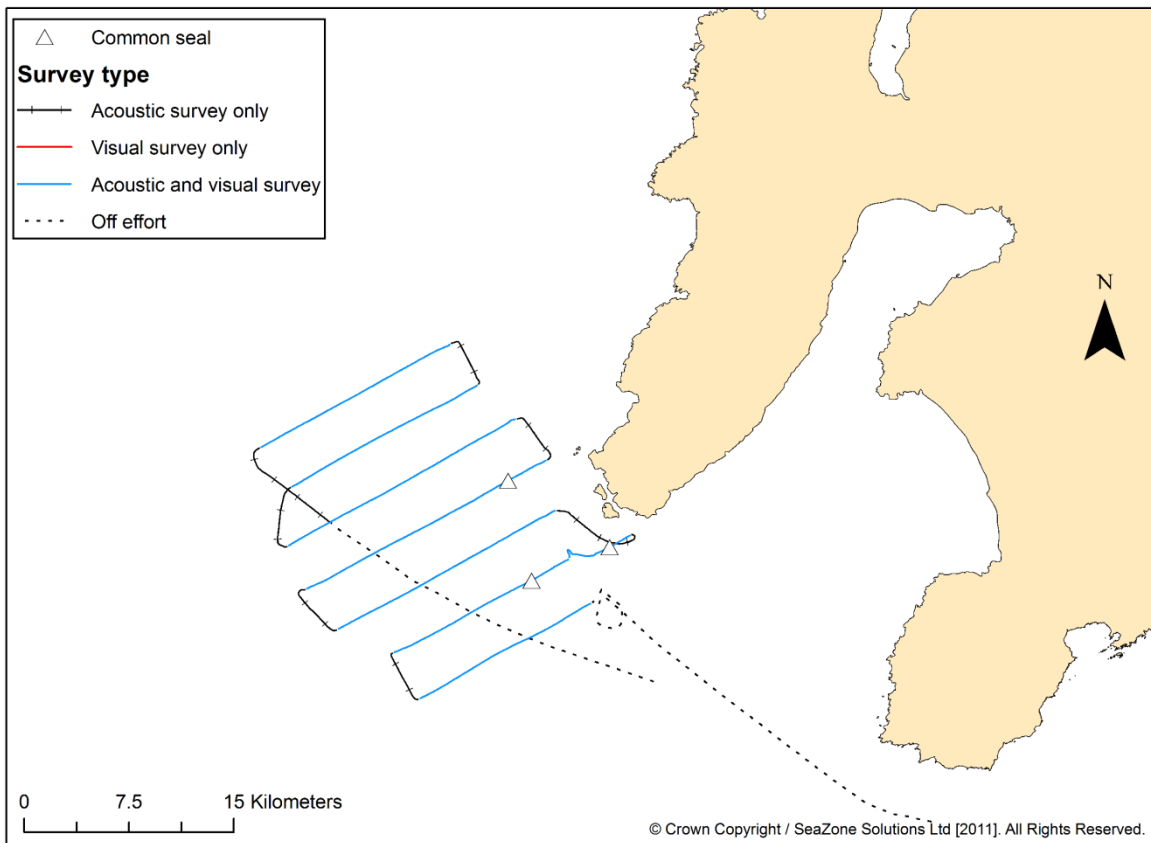


Figure A2. Survey 2 (November 28, 2009) effort and marine mammal sightings

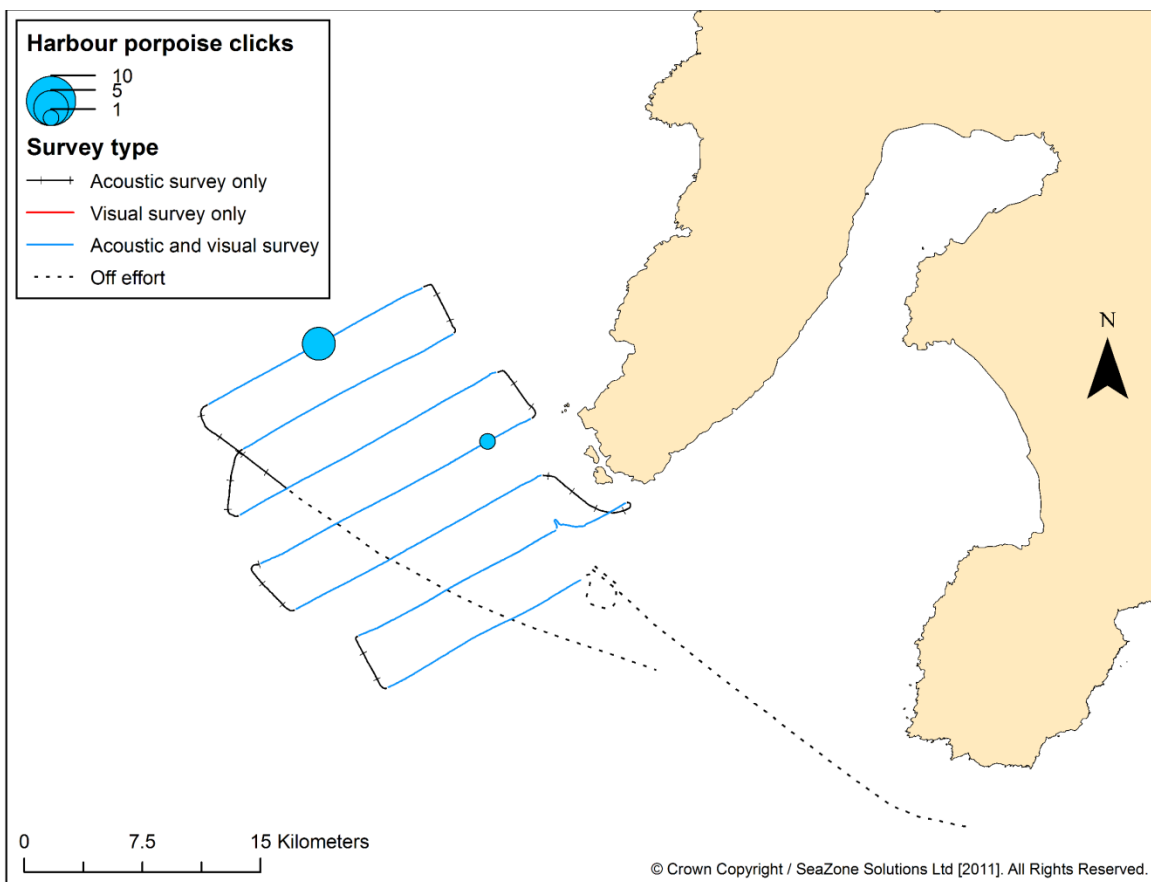


Figure A3. Survey 2 (November 28, 2009) effort and harbour porpoise click detections

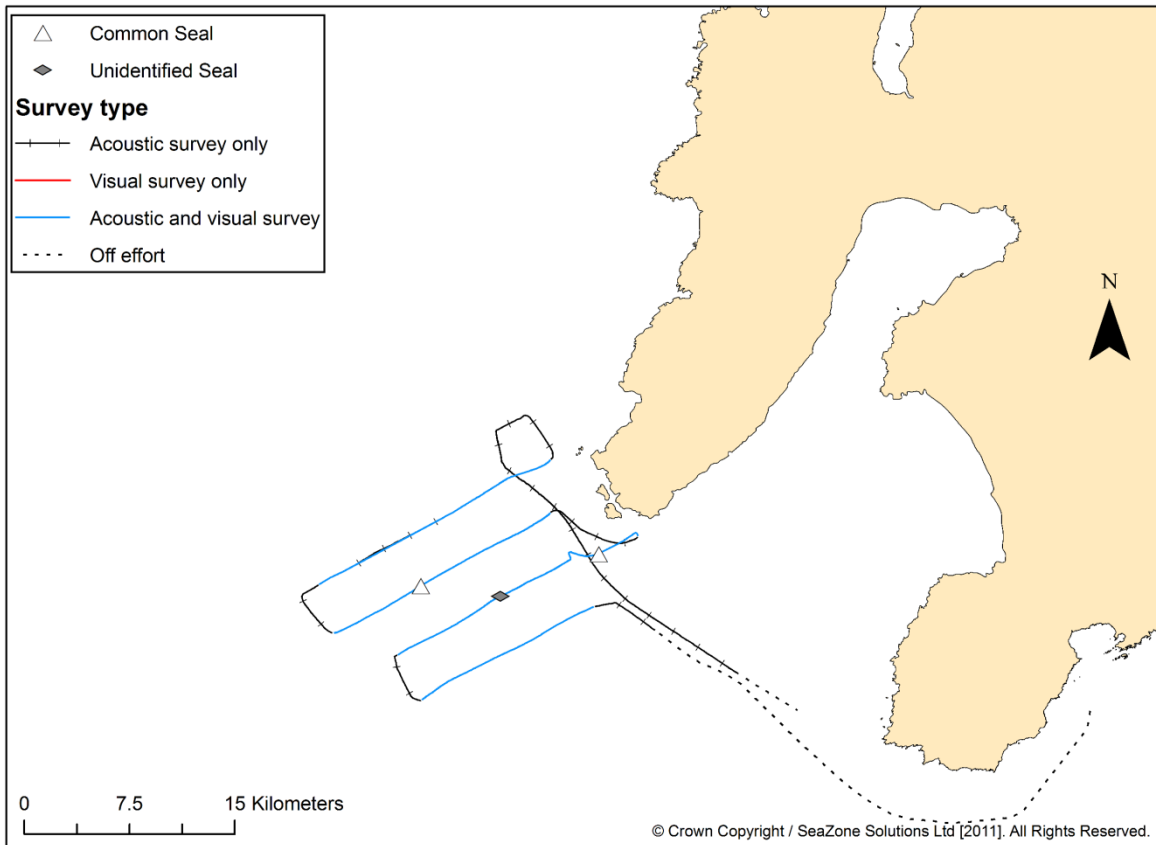


Figure A4. Survey 3 (December 15, 2009) effort and marine mammal sightings

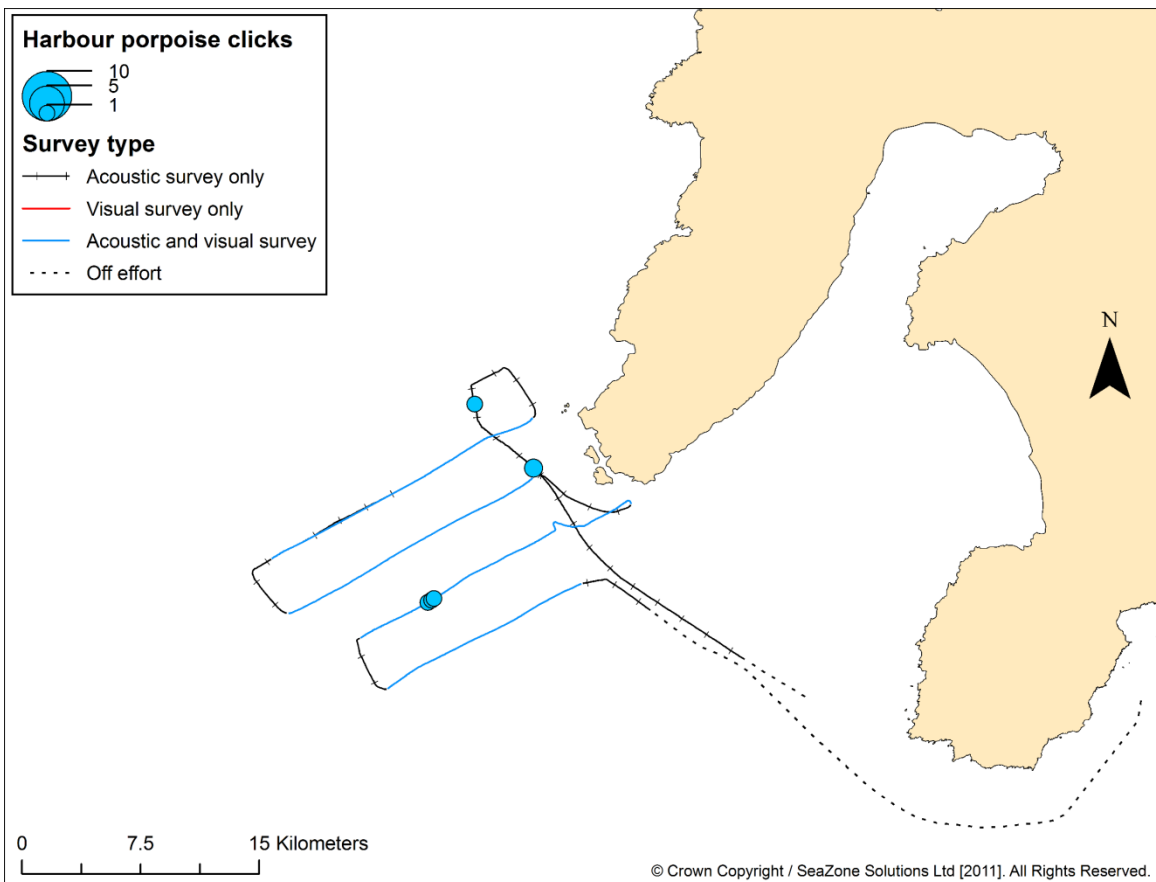


Figure A5. Survey 3 (December 15, 2009) effort and harbour porpoise click detections

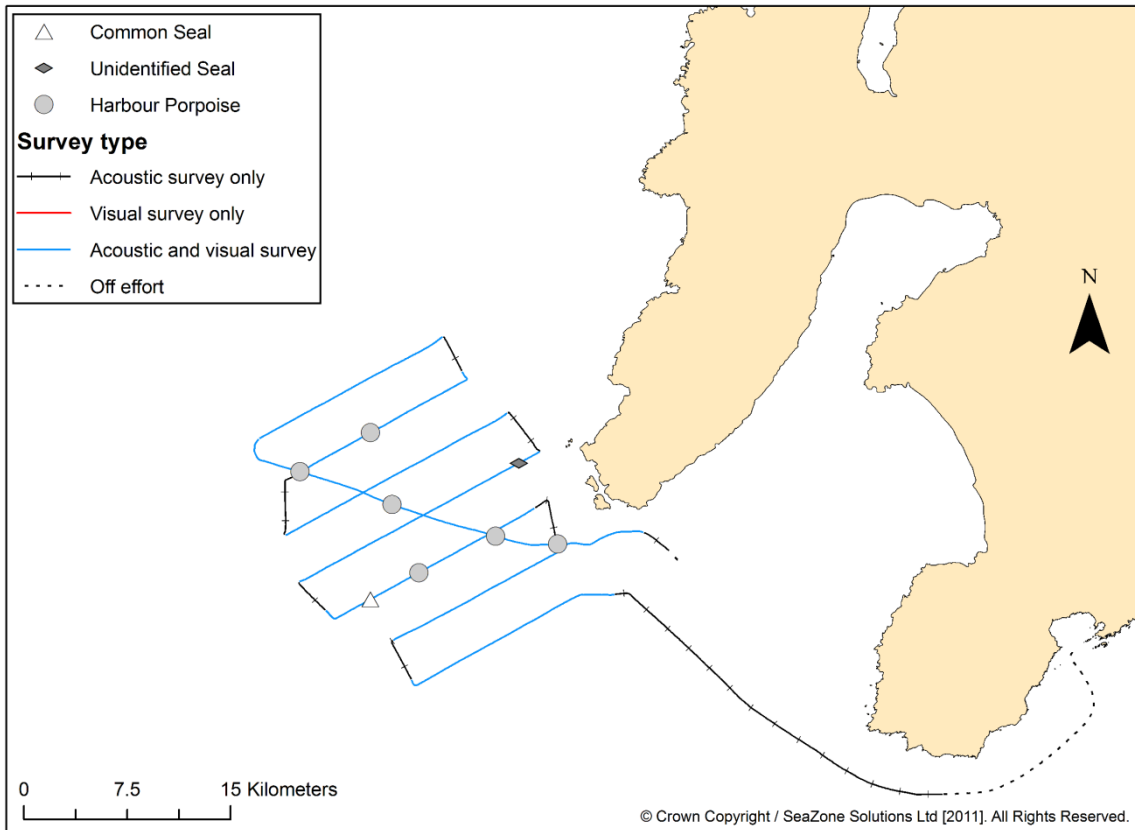


Figure A6. Survey 4 (February 6, 2010) effort and marine mammal sightings

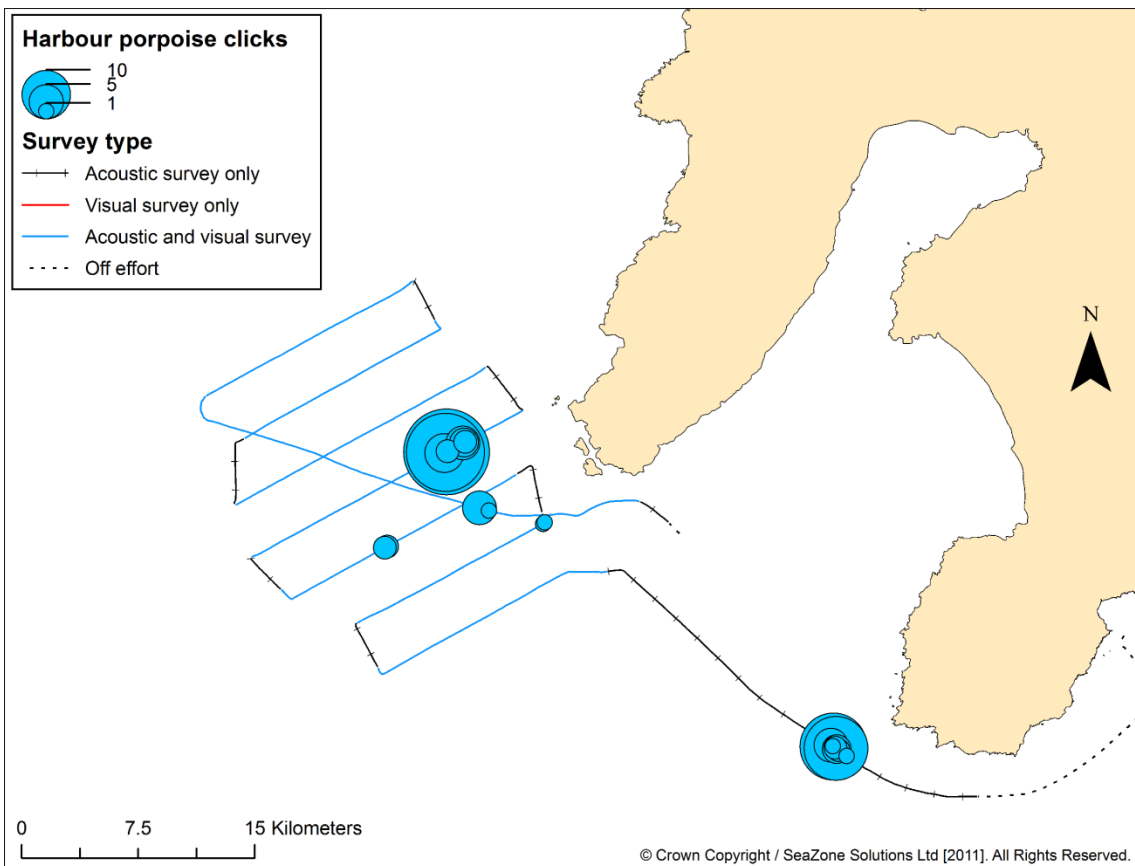


Figure A7. Survey 4 (February 6, 2010) effort and harbour porpoise click detections

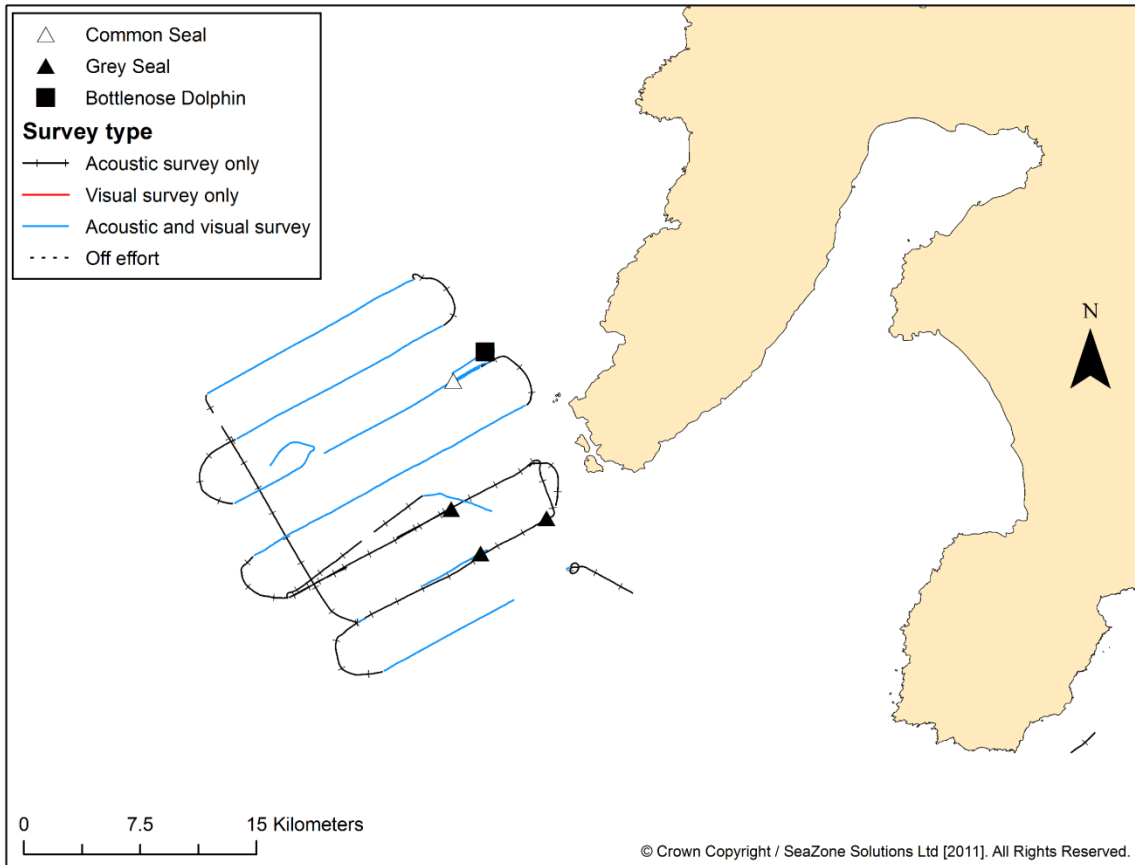


Figure A8. Survey 6 (March 9, 2010) effort and marine mammal sightings

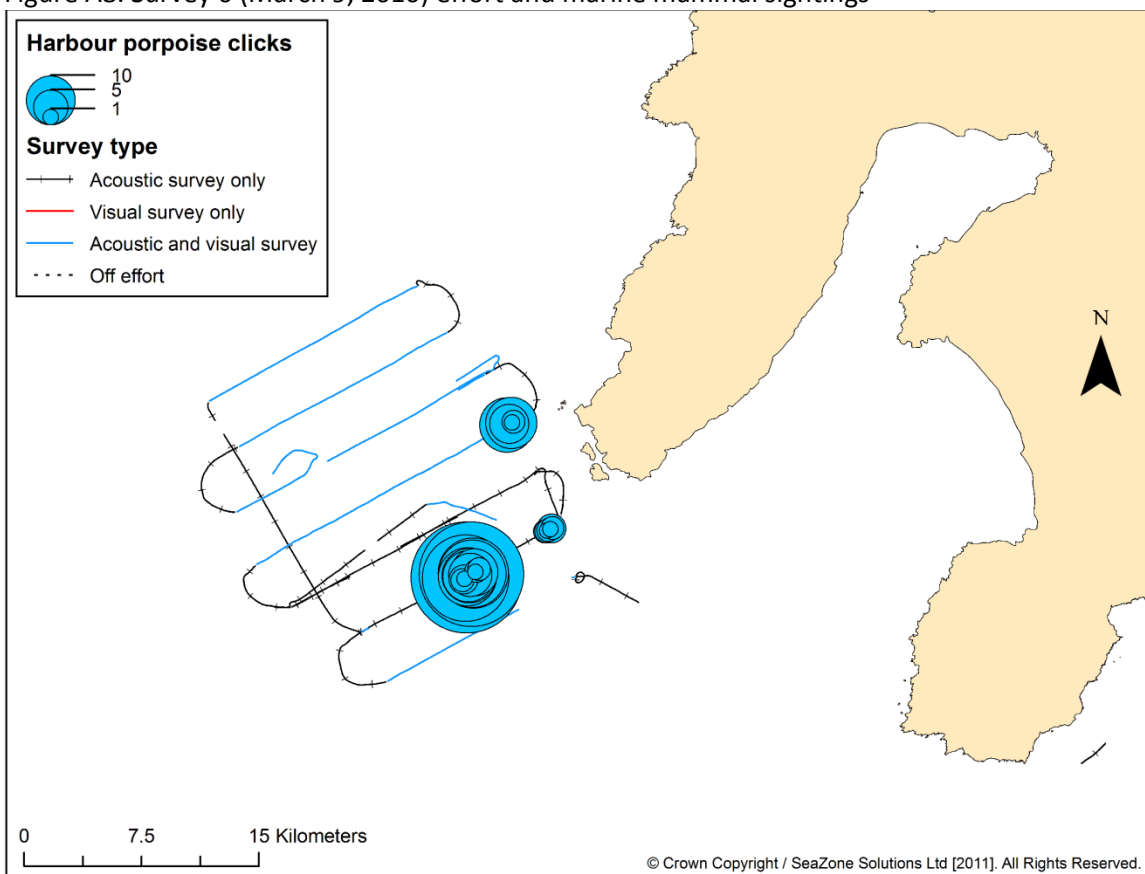


Figure A9. Survey 6 (March 9, 2010) effort and harbour porpoise click detections

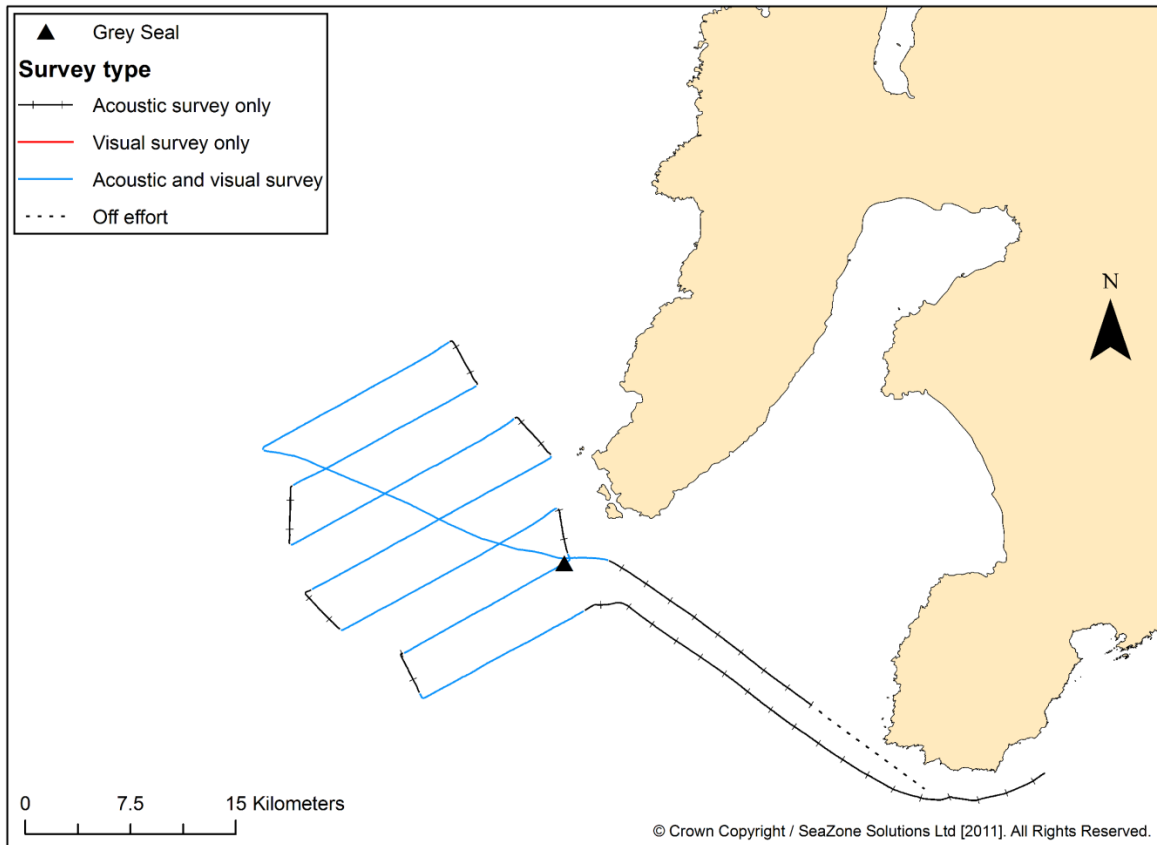


Figure A10. Survey 7 (April 9, 2010) effort and marine mammal sightings

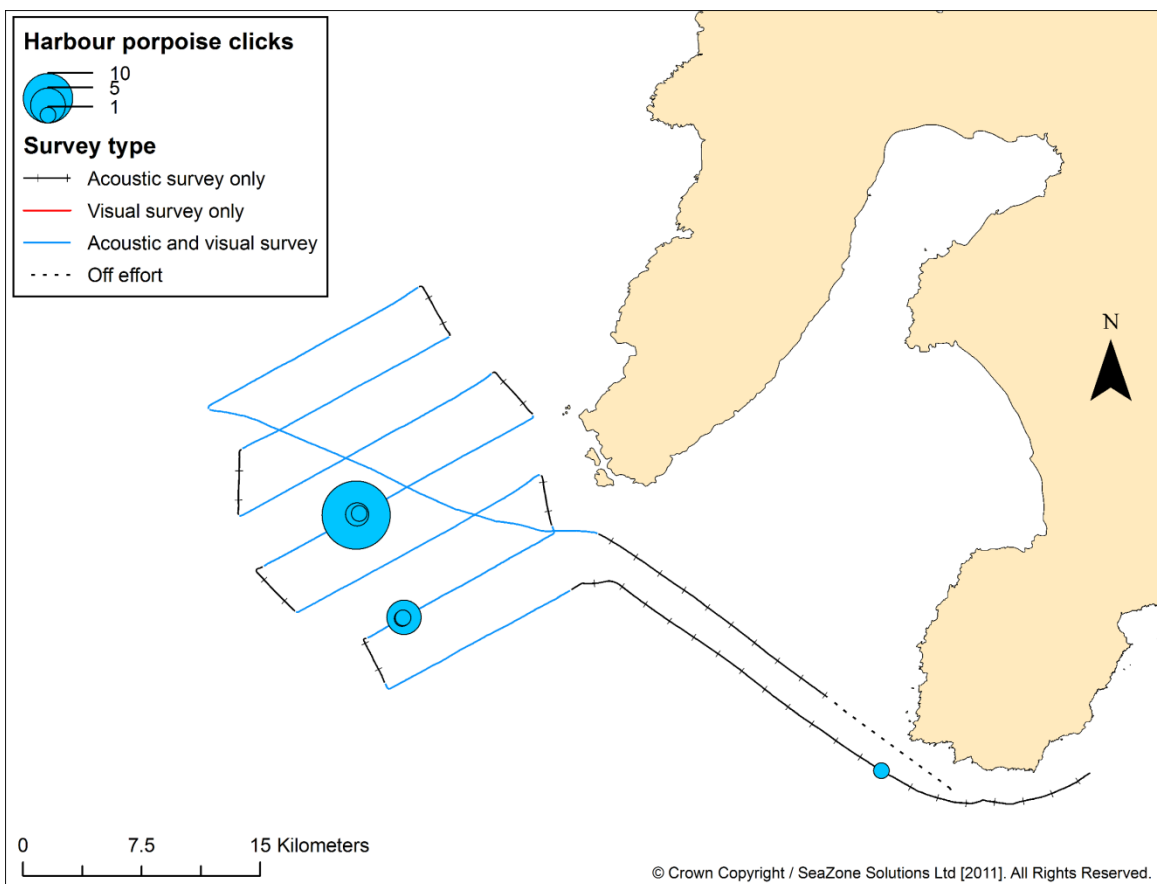


Figure A11. Survey 7 (April 9, 2010) effort and harbour porpoise click detections



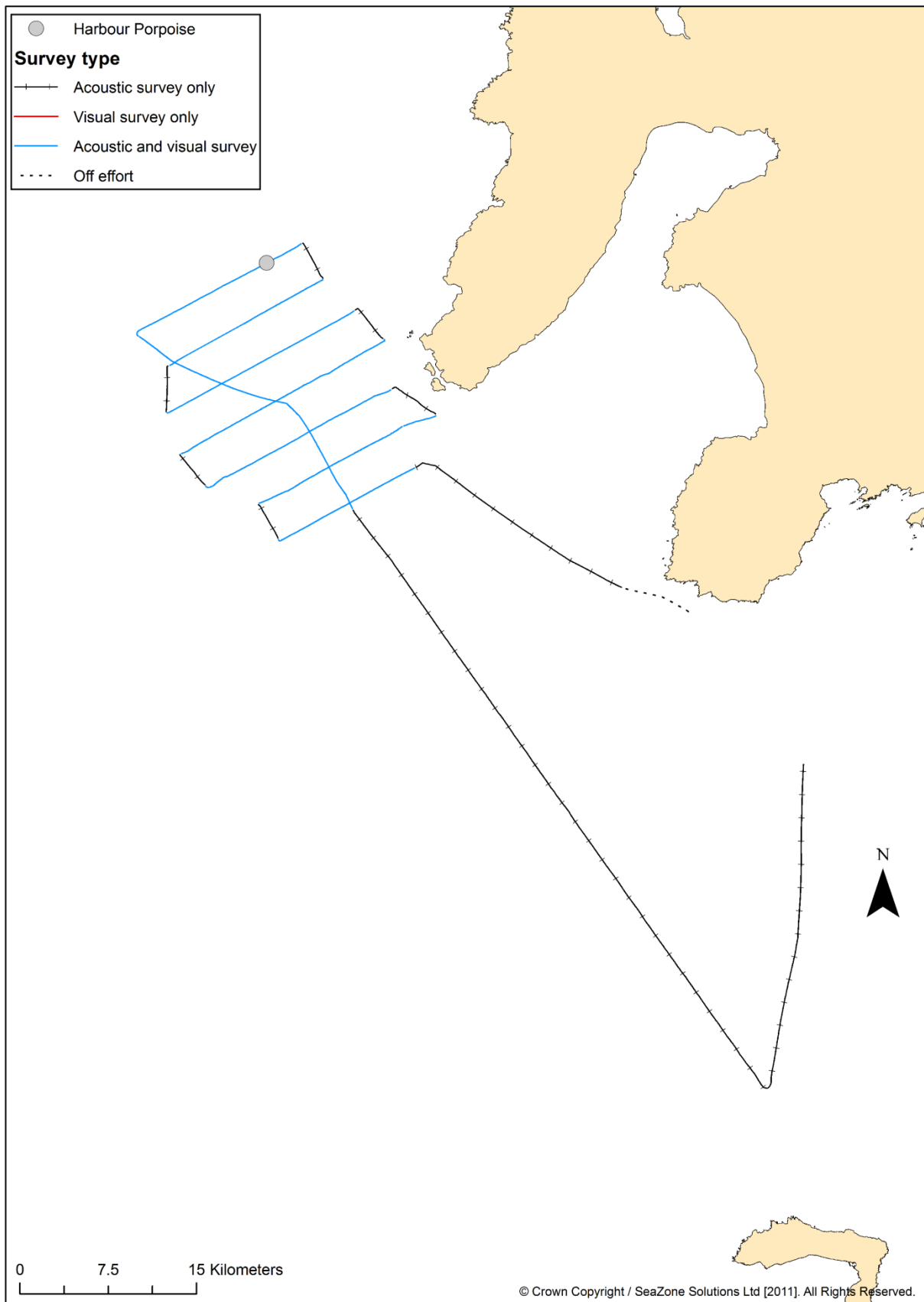


Figure A12. Survey 8 (May 11, 2010) effort and marine mammal sightings

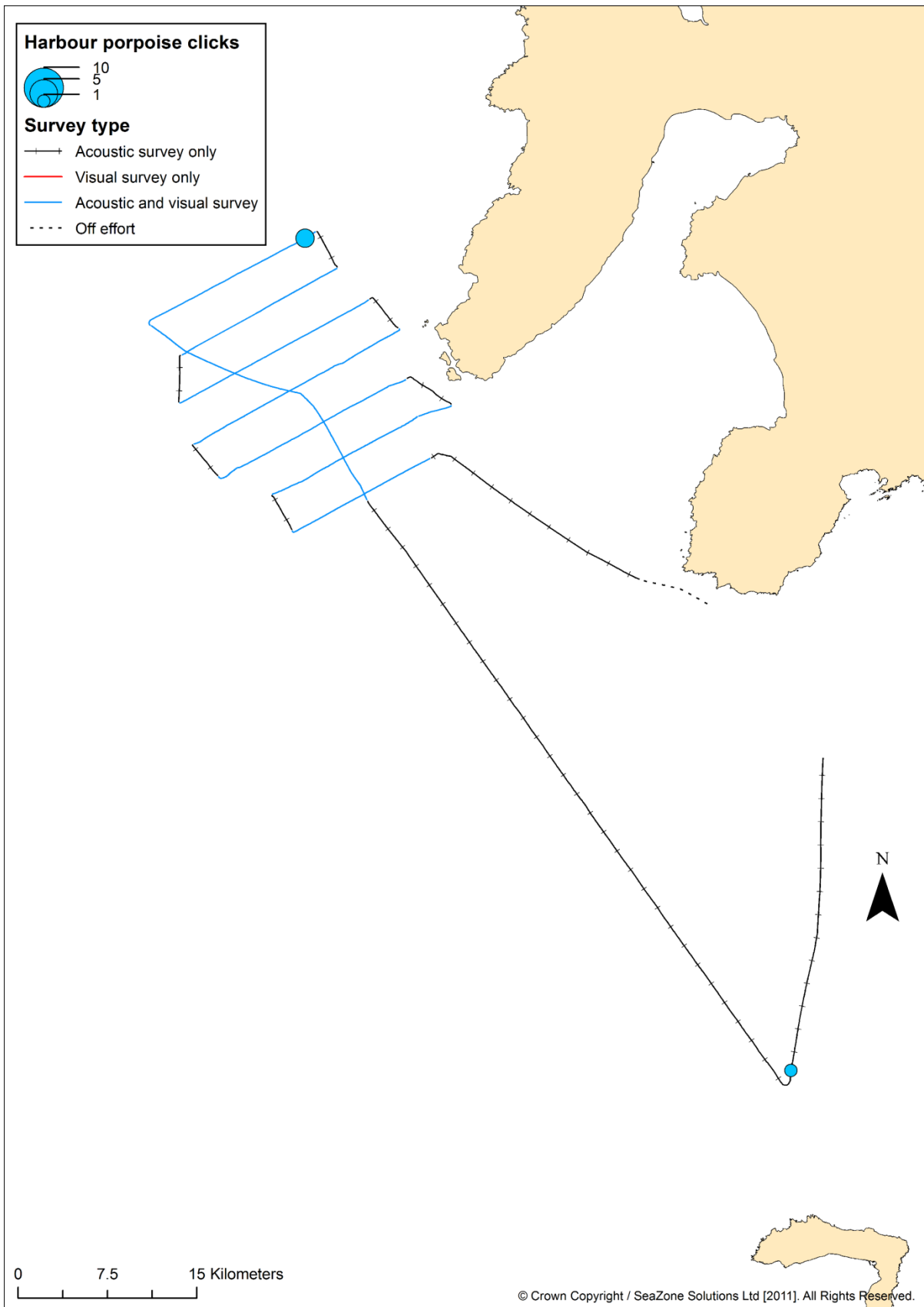


Figure A13. Survey 8 (May 11, 2010) effort and harbour porpoise click detections

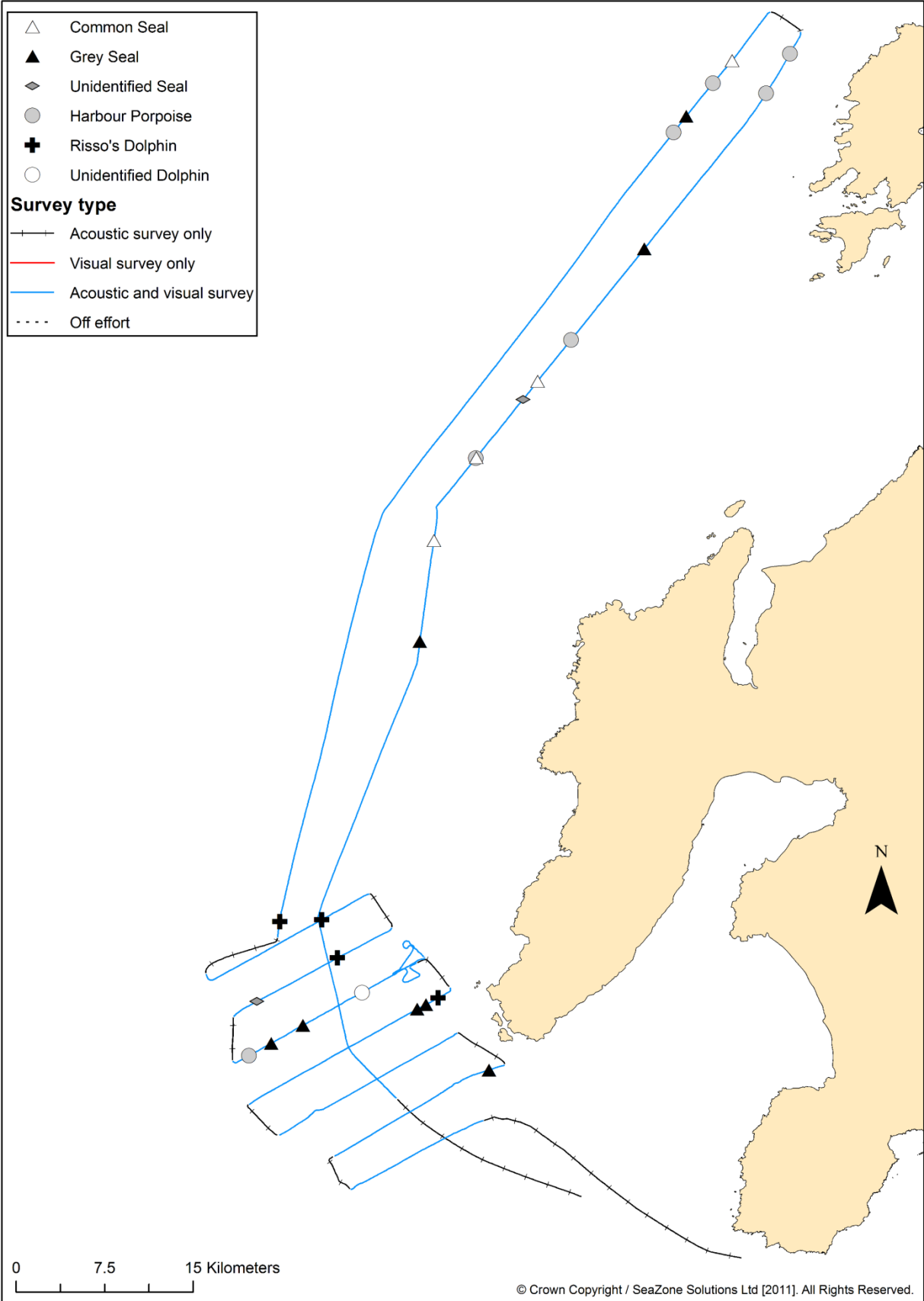


Figure A14. Survey 9 (June 22, 2010) effort and marine mammal sightings

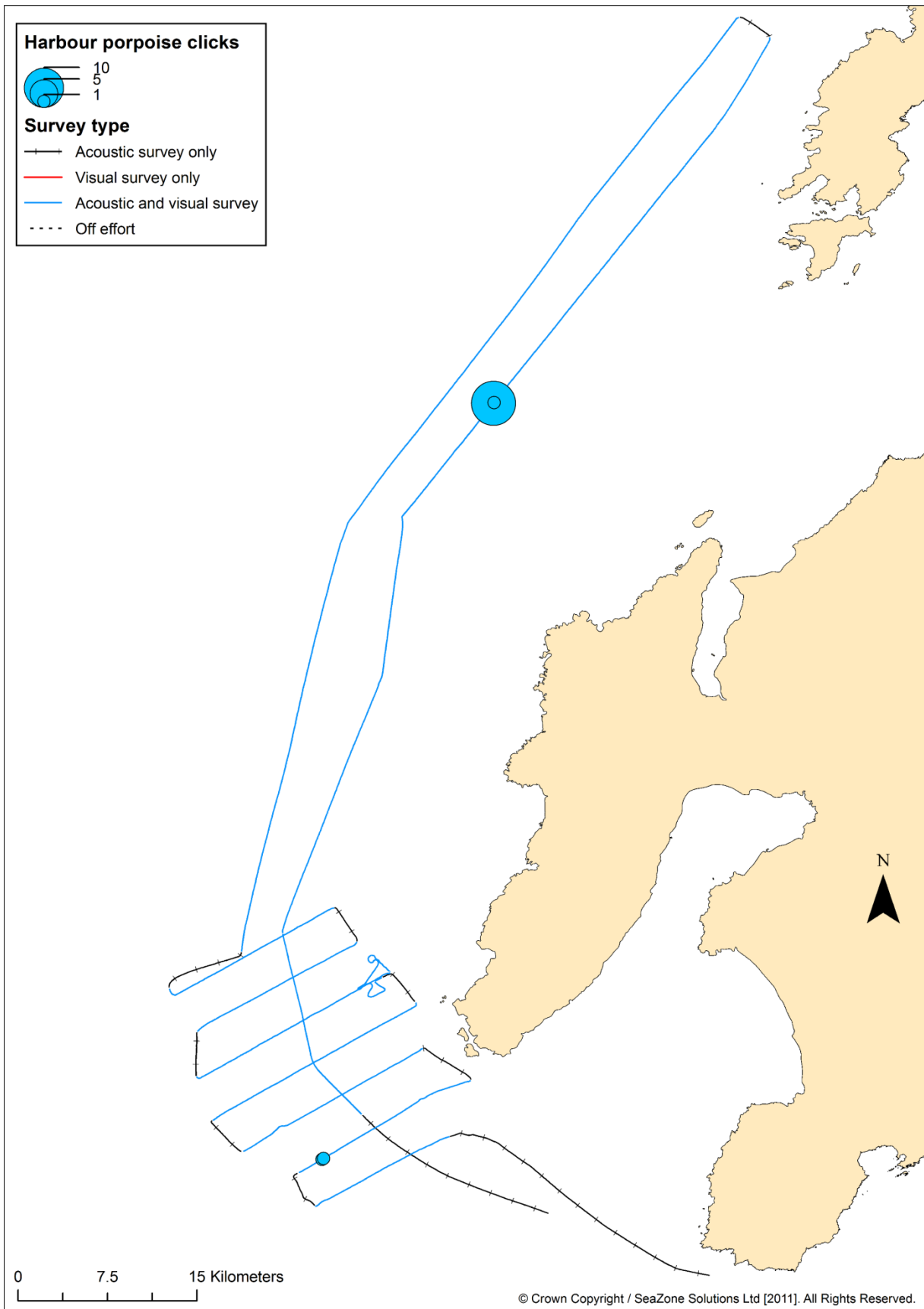


Figure A15. Survey 9 (June 22, 2010) effort and harbour porpoise click detections

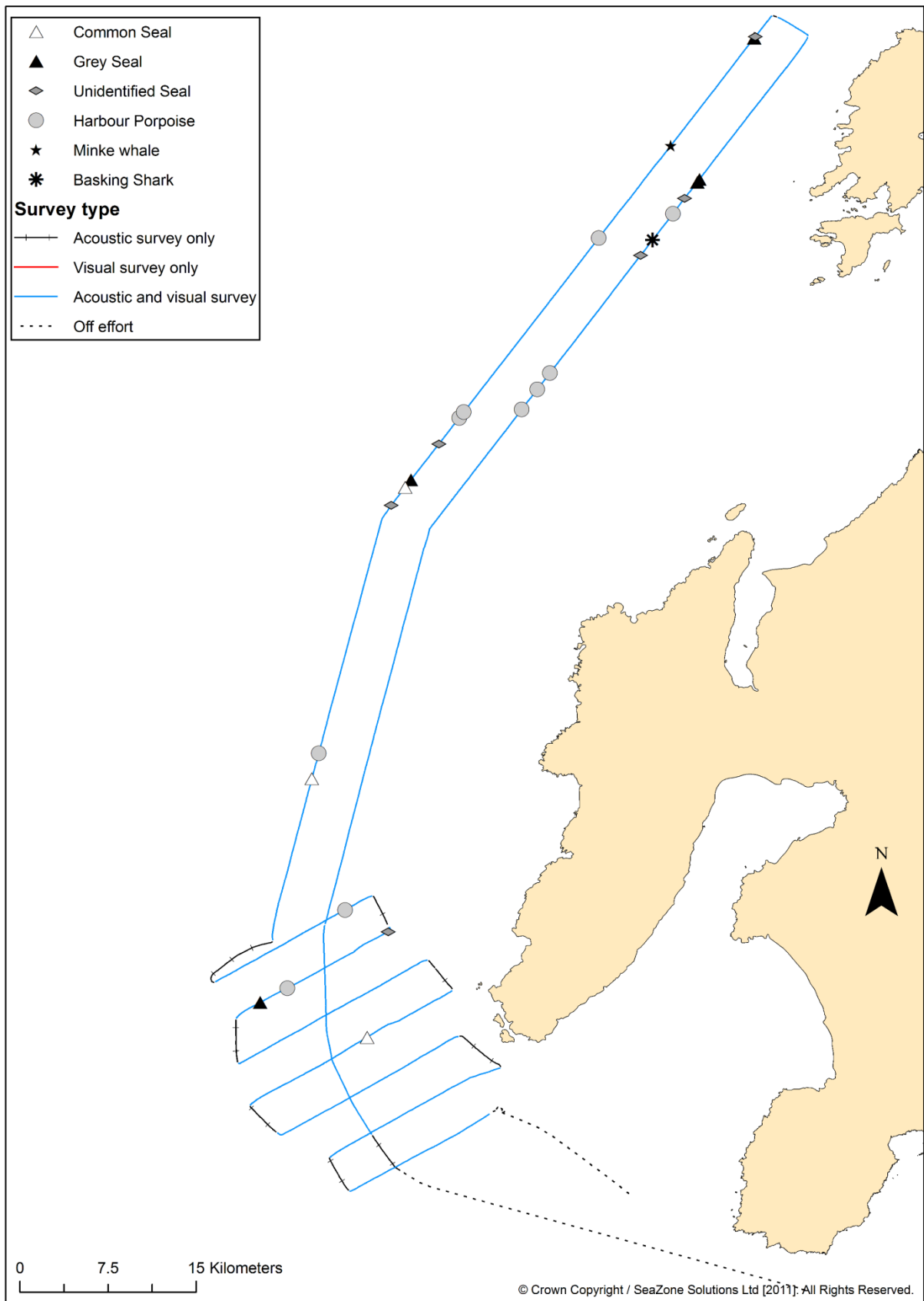


Figure A16. Survey 10 (July 20, 2010) effort and marine mammal sightings

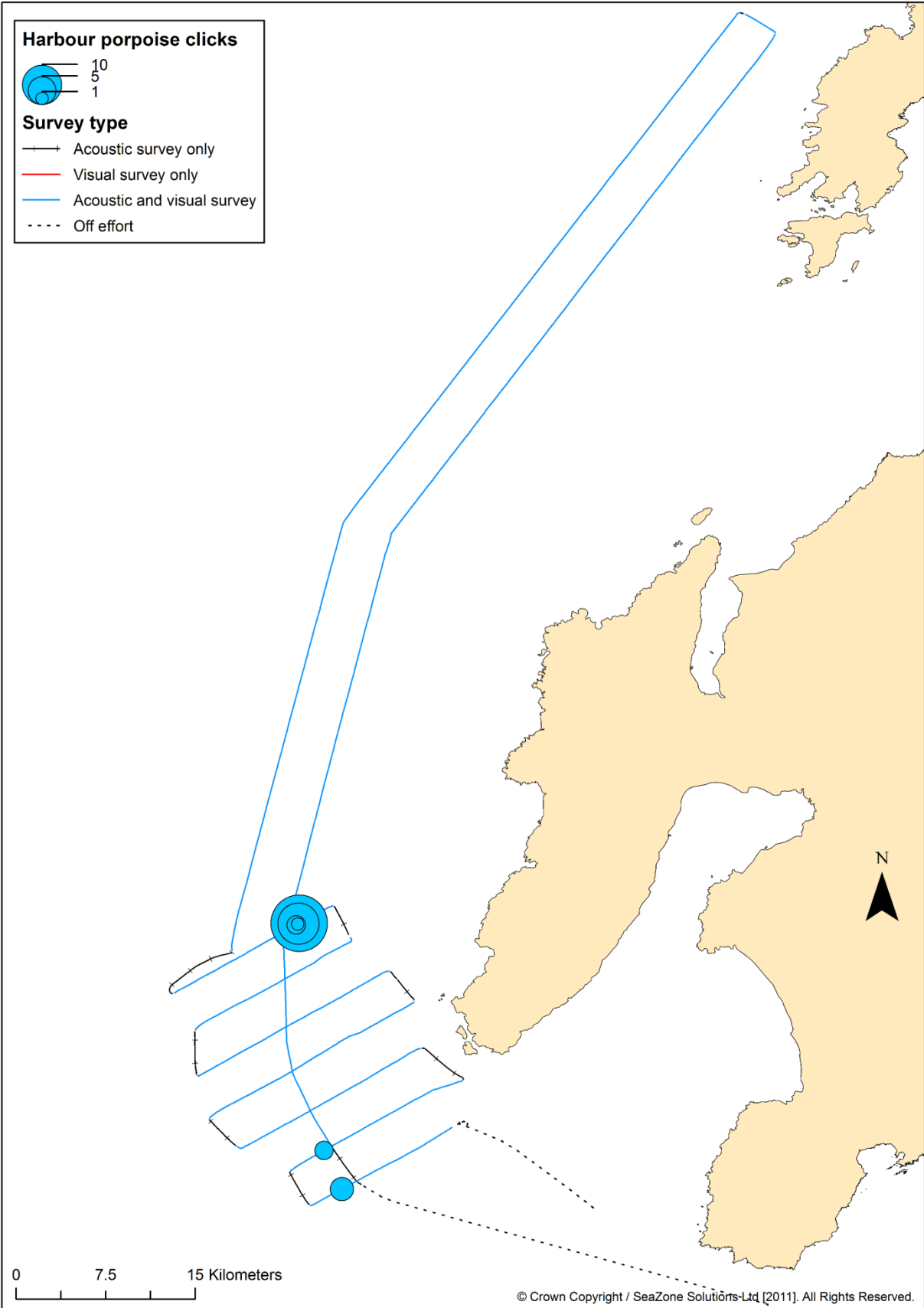


Figure A17. Survey 10 (July 20, 2010) effort and harbour porpoise click detections

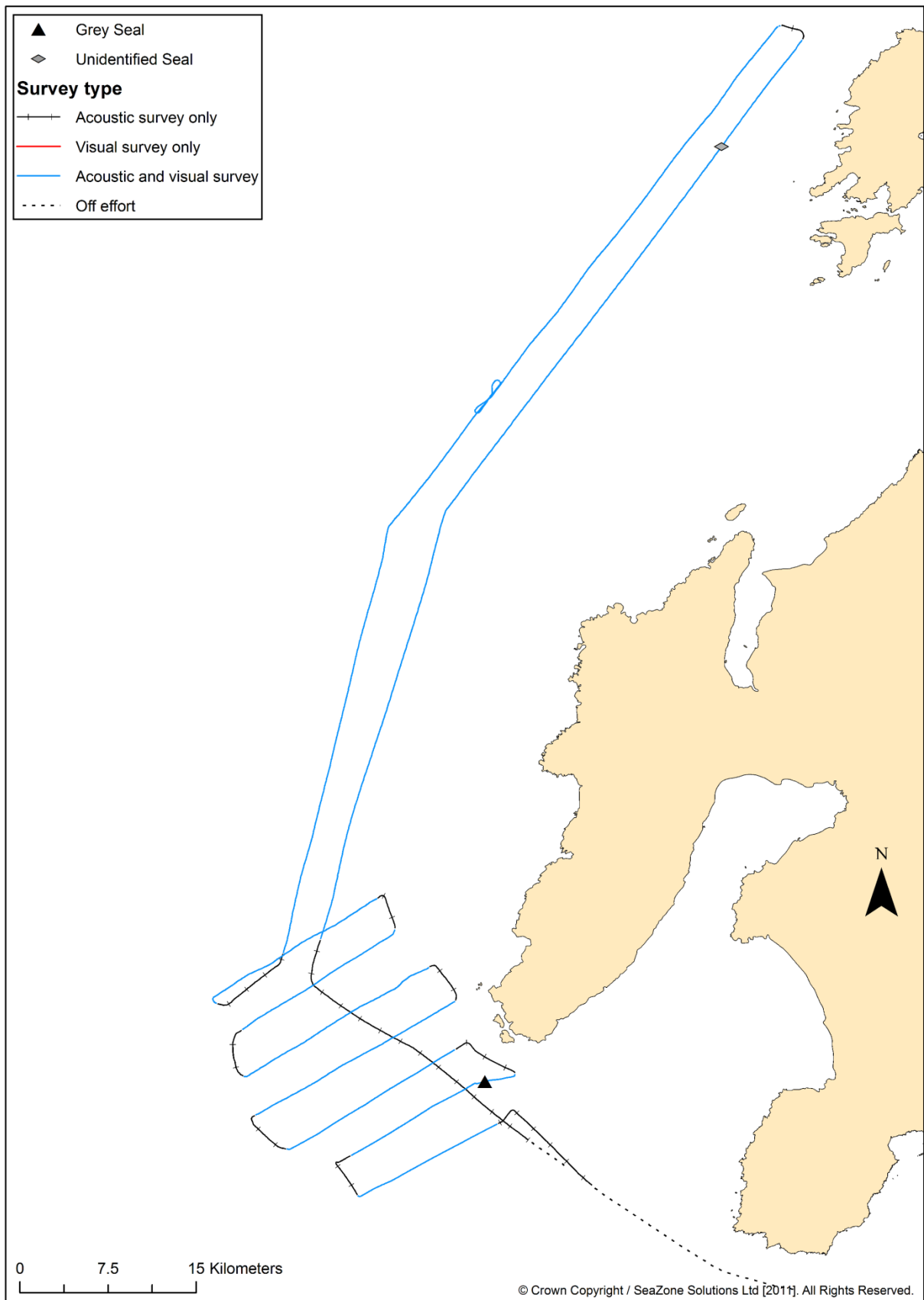


Figure A18. Survey 11 (August 18, 2010) effort and marine mammal sightings

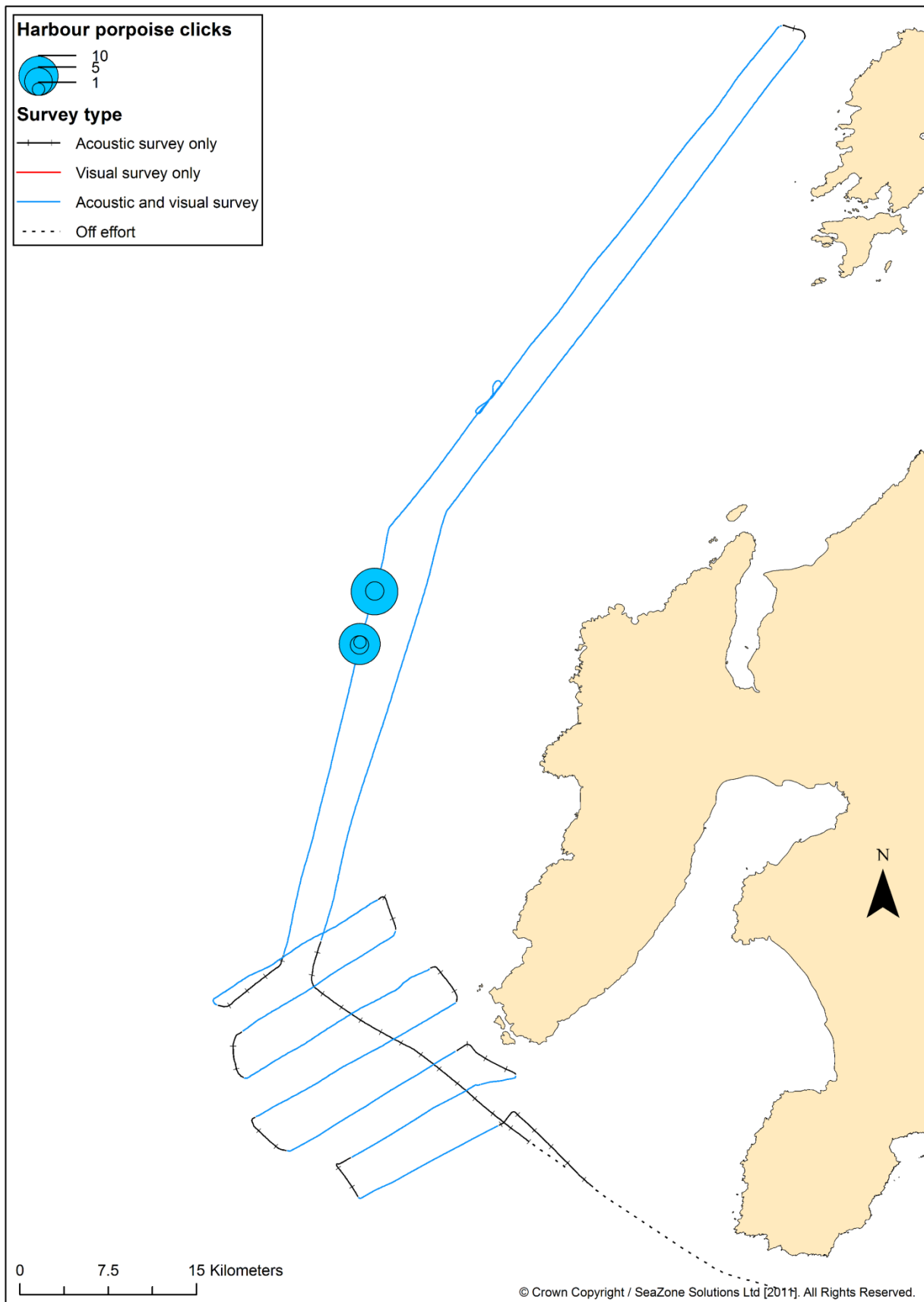


Figure A19. Survey 11 (August 18, 2010) effort and harbour porpoise click detections



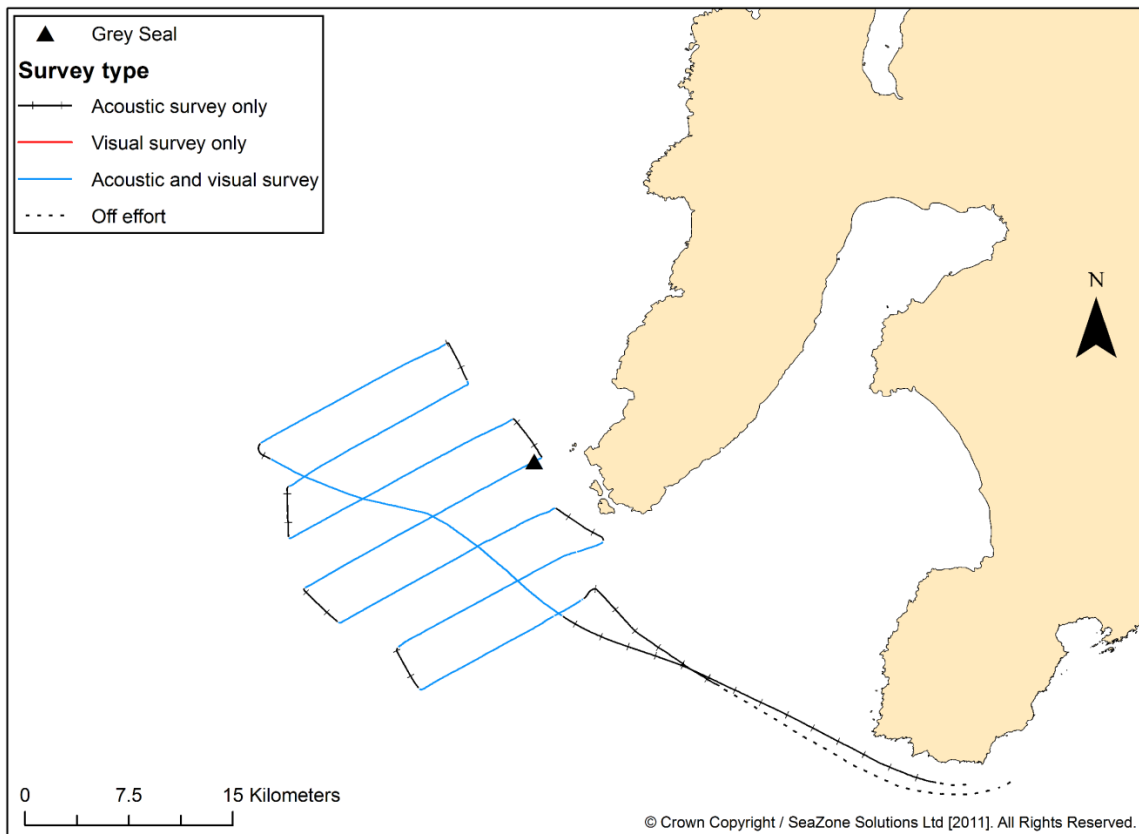


Figure A20. Survey 12 (October 13, 2010) effort and marine mammal sightings

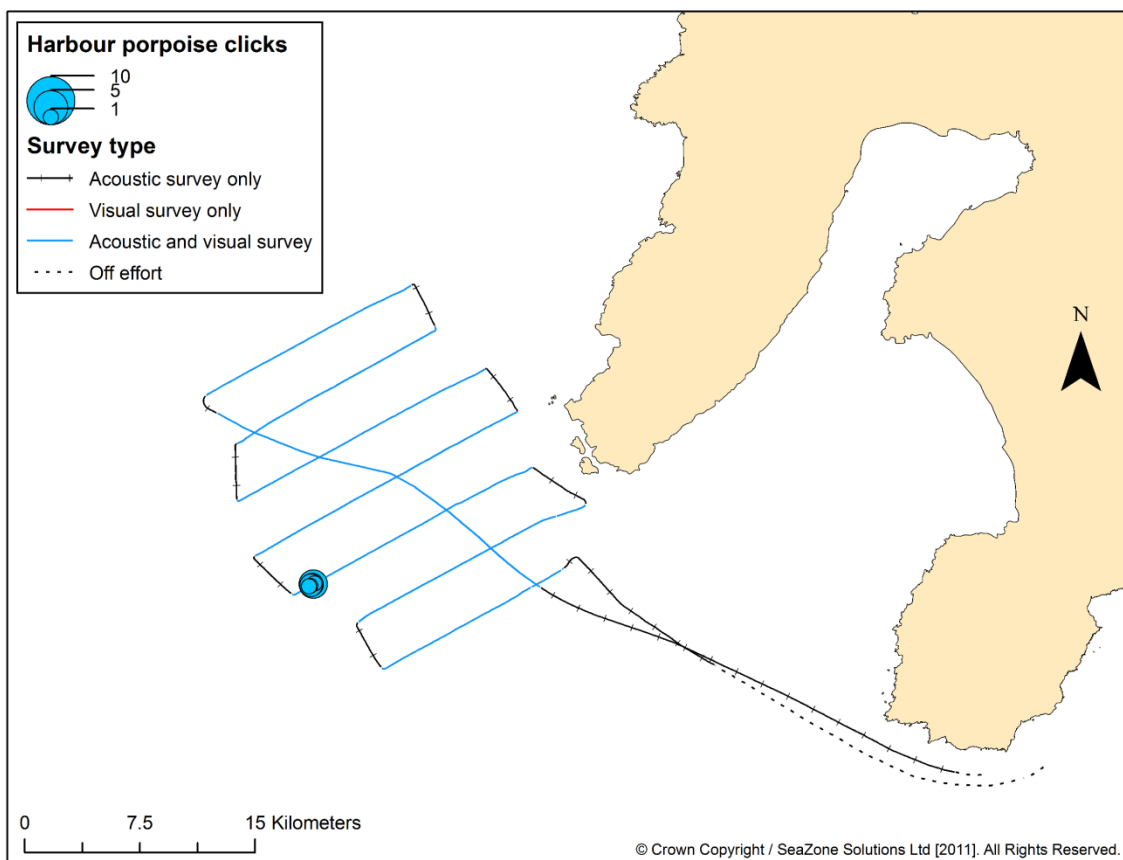


Figure A21. Survey 12 (October 13, 2010) effort and harbour porpoise click detections

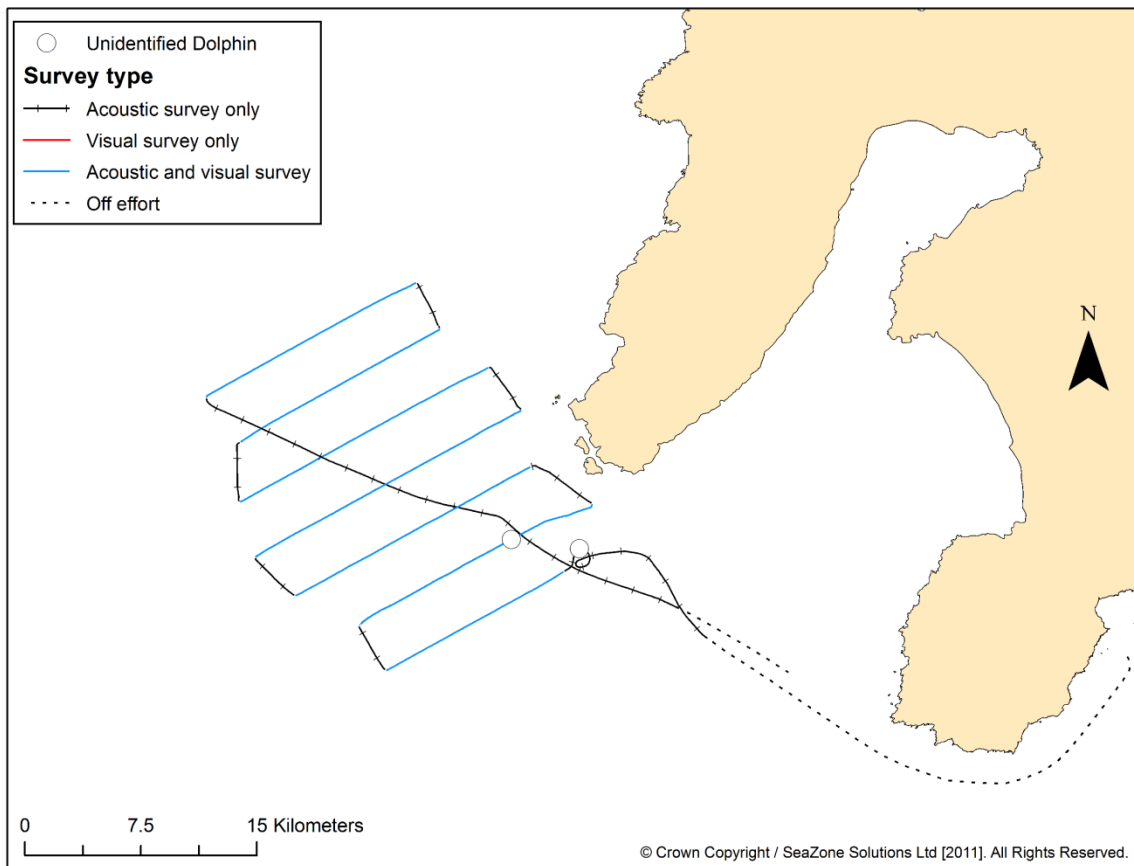


Figure A22. Survey 13 (December 14, 2010) effort and marine mammal sightings

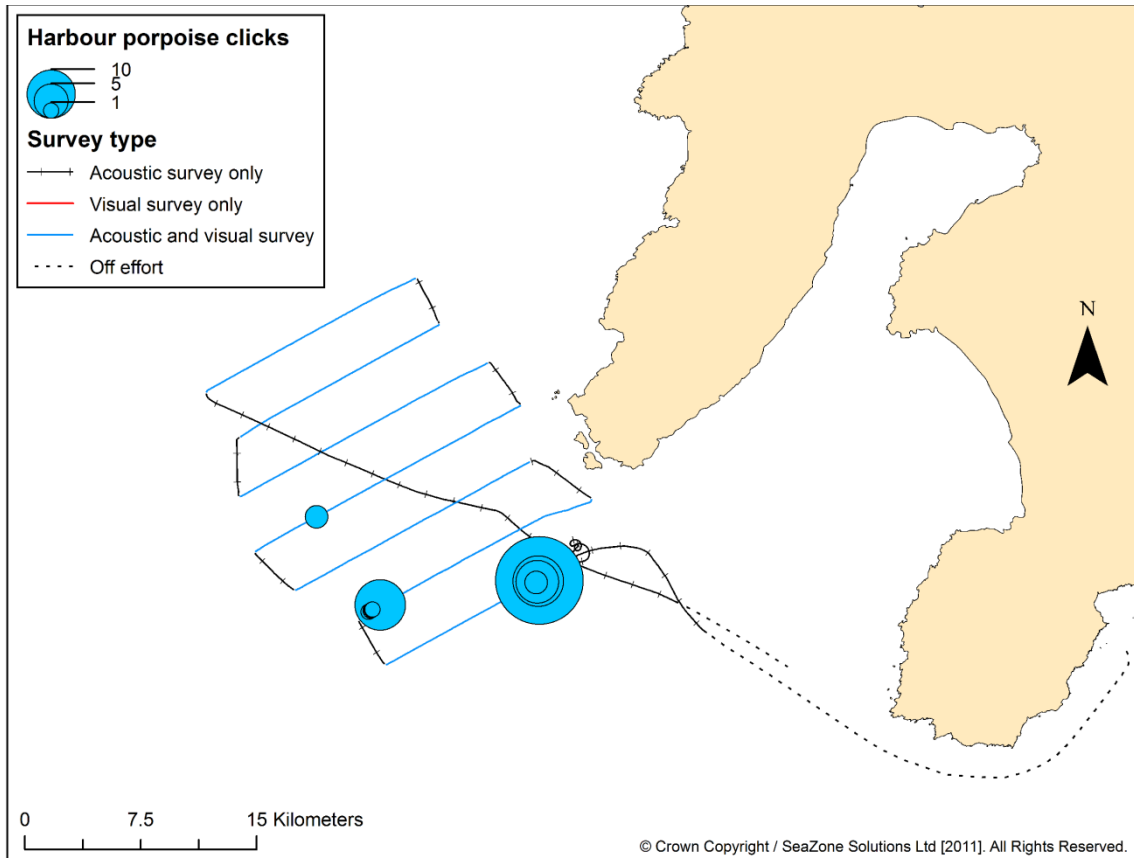


Figure A23. Survey 13 (December 14, 2010) effort and harbour porpoise click detections

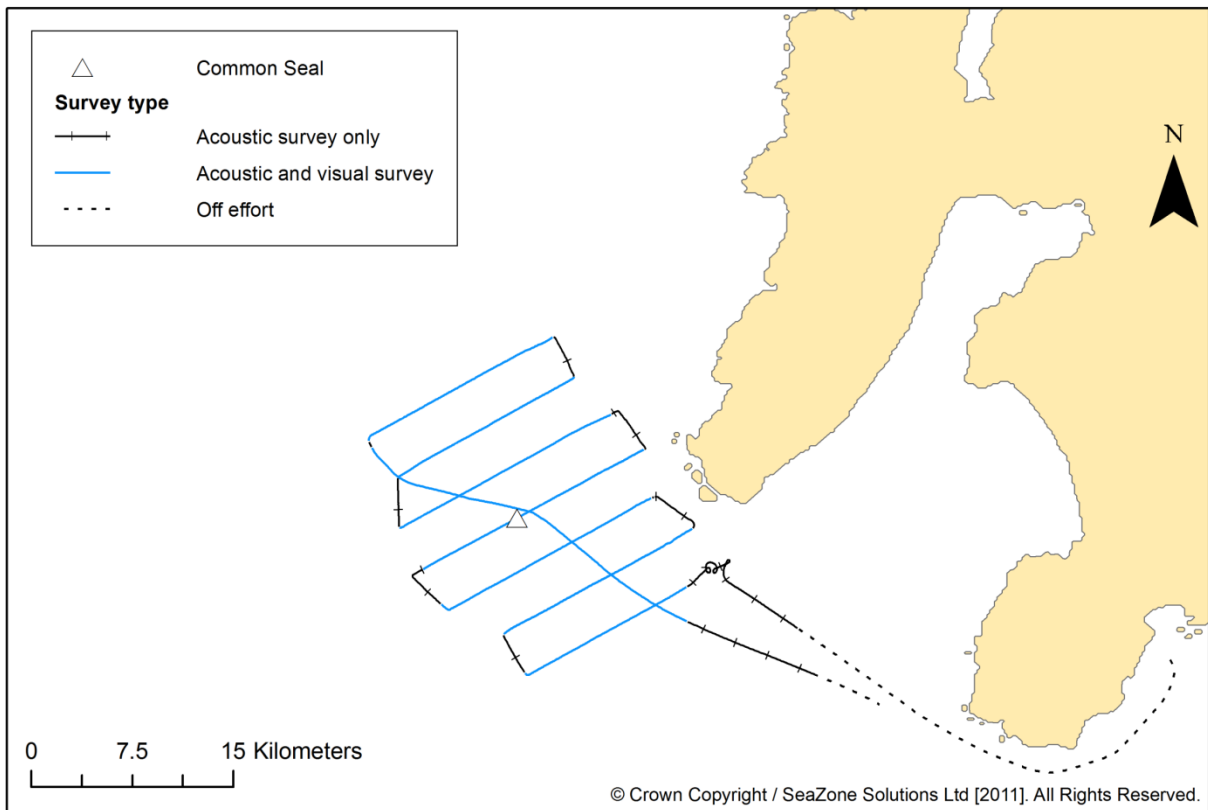


Figure A24. Survey 14 (January 27, 2011) effort and marine mammal sightings. NB: no harbour porpoise clicks were recorded during this survey.

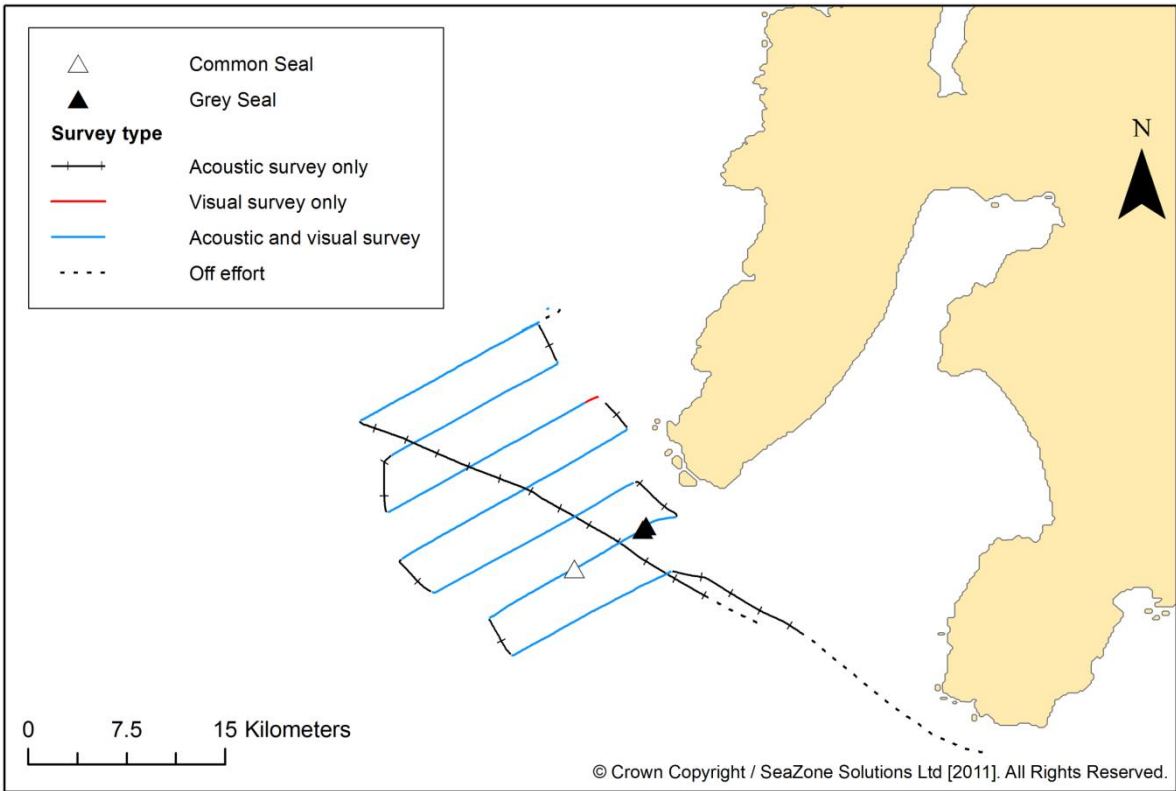


Figure A25. Survey 15 (March 3, 2011) effort and marine mammal detections.

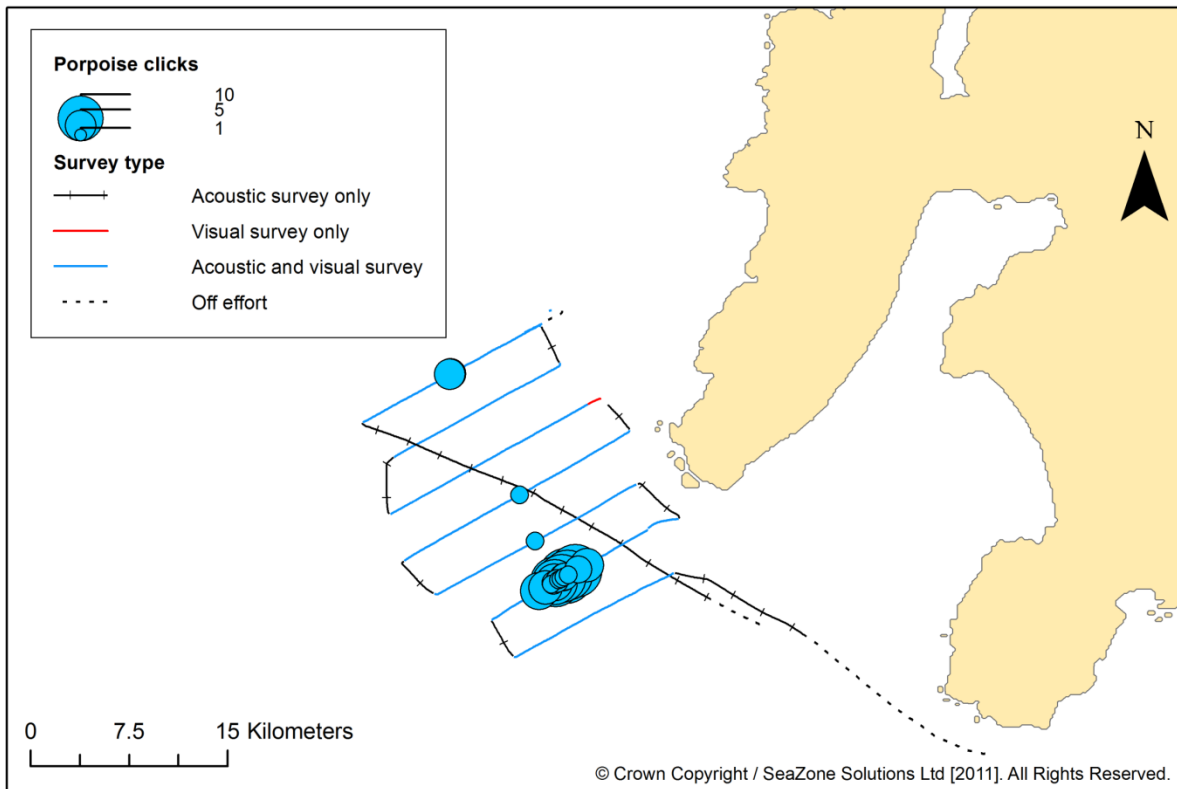


Figure A26. Survey 15 (March 3, 2011) effort and harbour porpoise click detections

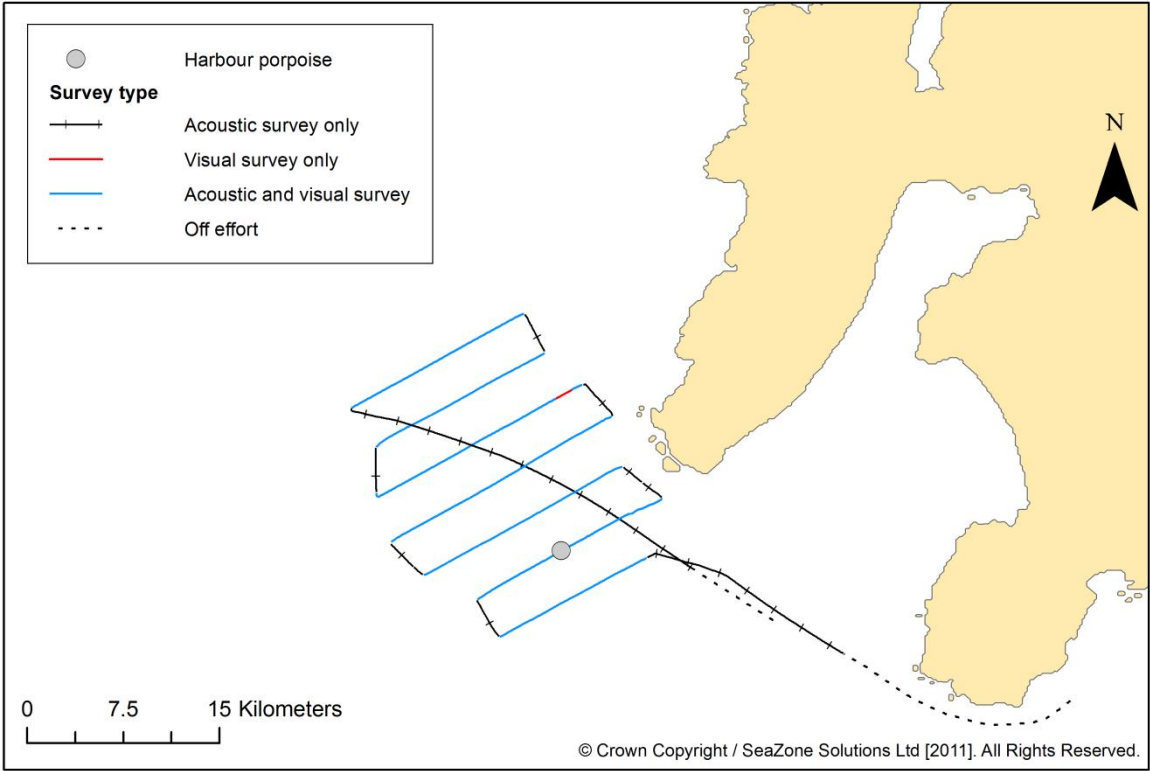


Figure A27. Survey 16 (March 29, 2011) effort and marine mammal sightings

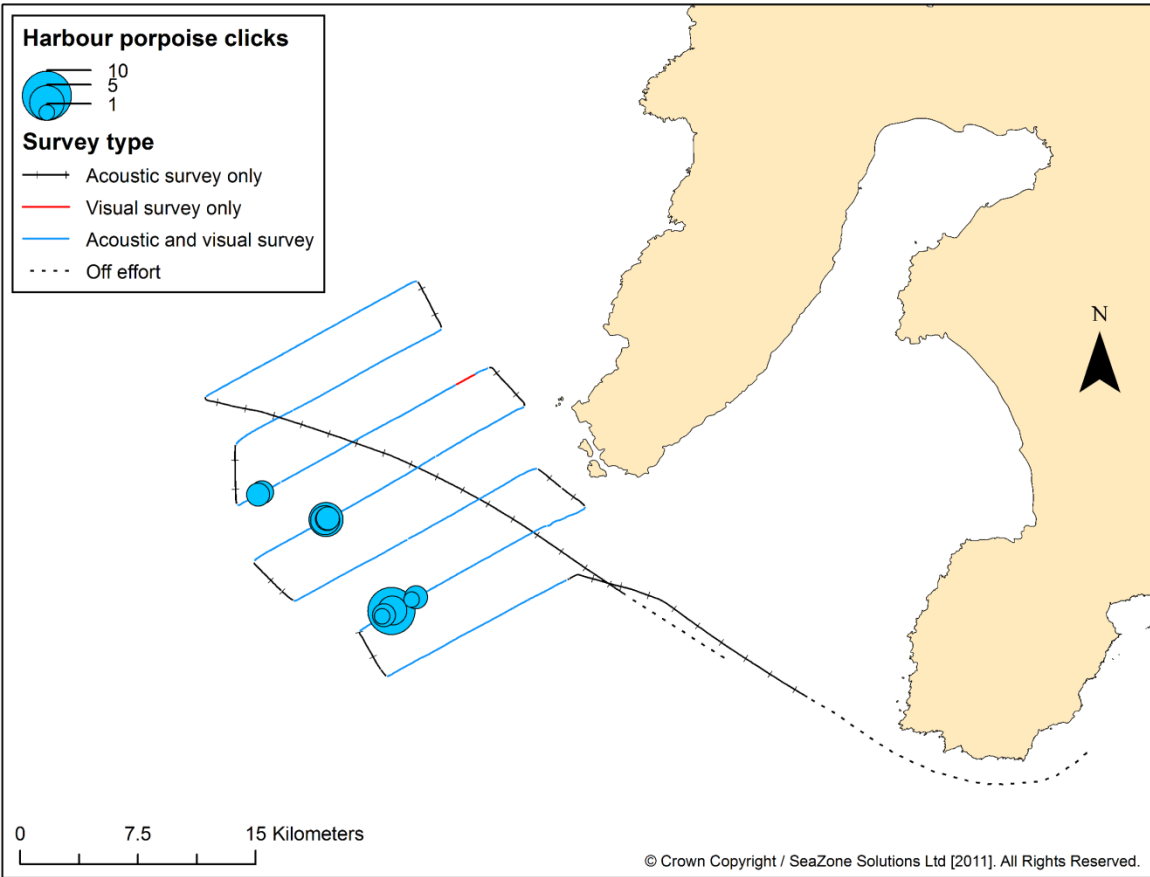


Figure A28. Survey 16 (March 29, 2011) effort and harbour porpoise click detections.

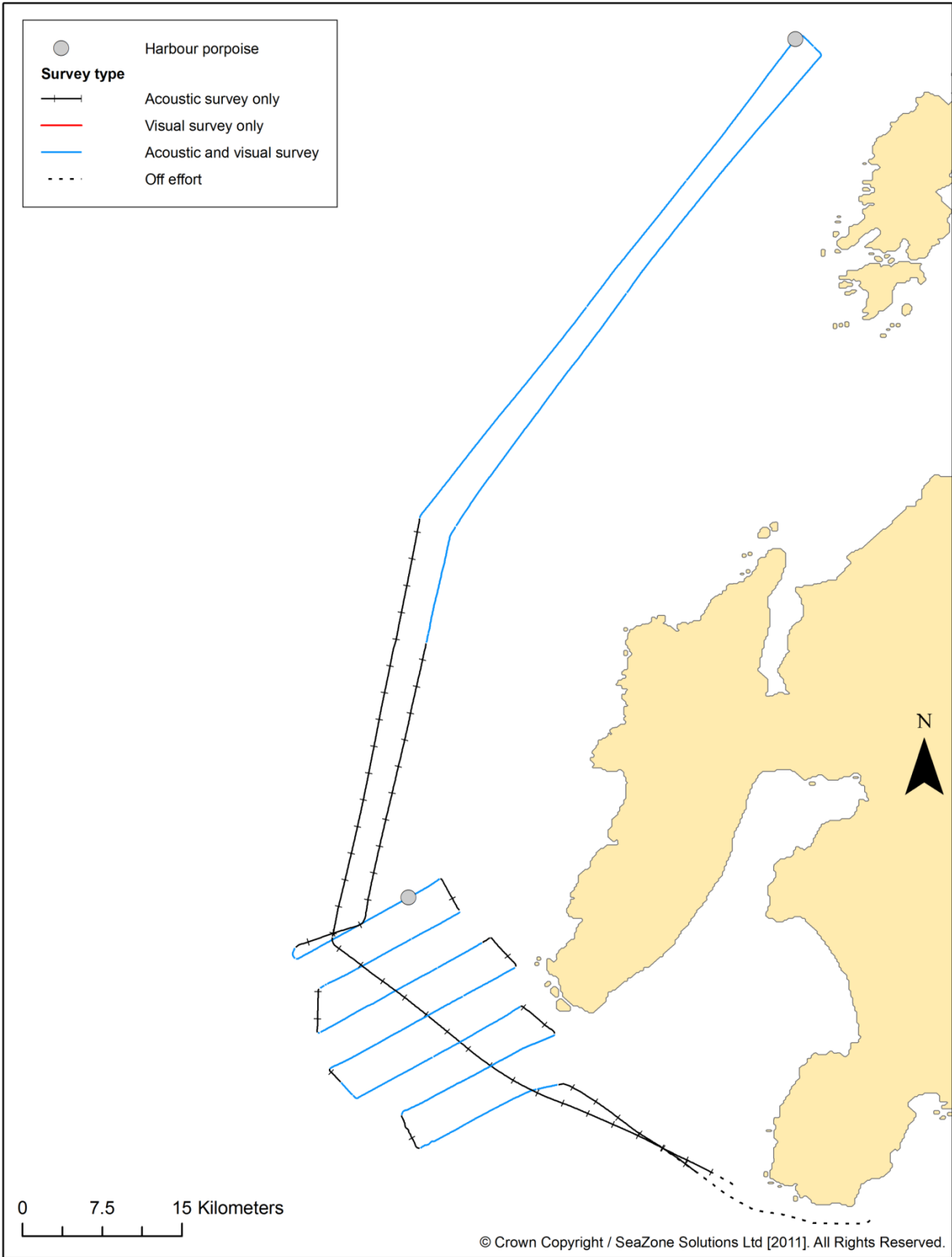


Figure A29. Survey 17 (April 27, 2011) effort and marine mammal sightings.

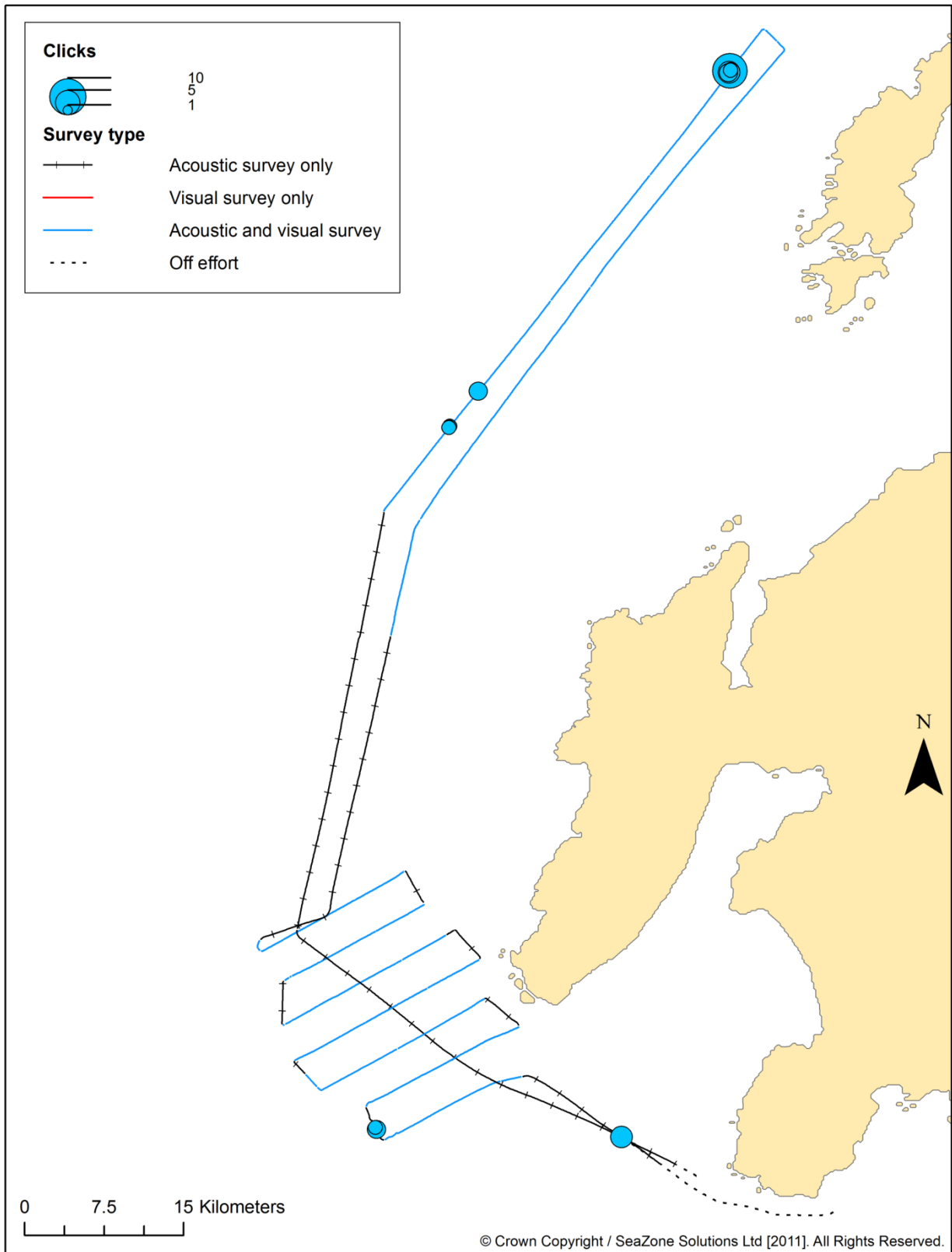


Figure A30. Survey 17 (April 27, 2011) effort and harbour porpoise click detections.

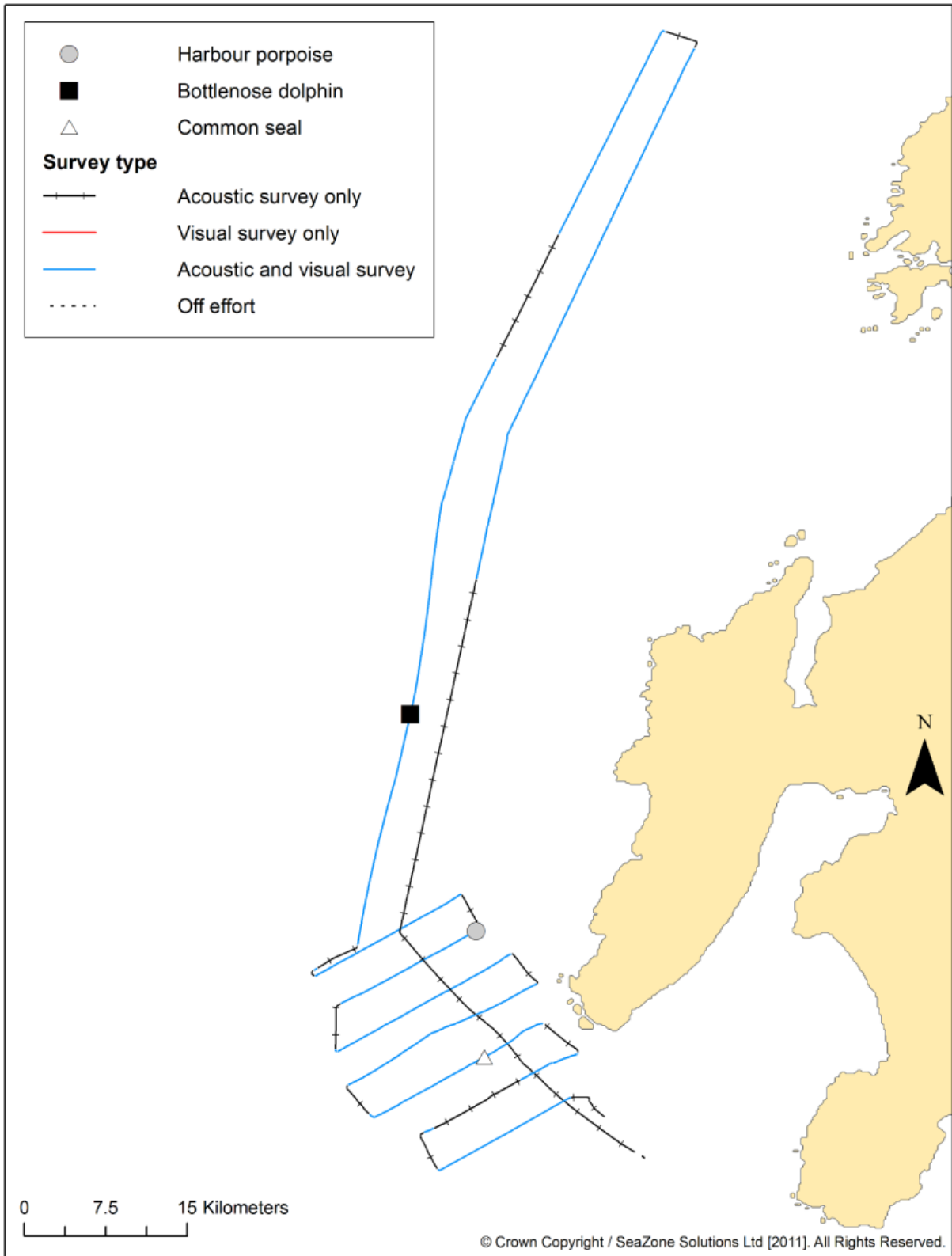


Figure A31. Survey 18 (June 8, 2011) effort and marine mammal sightings.



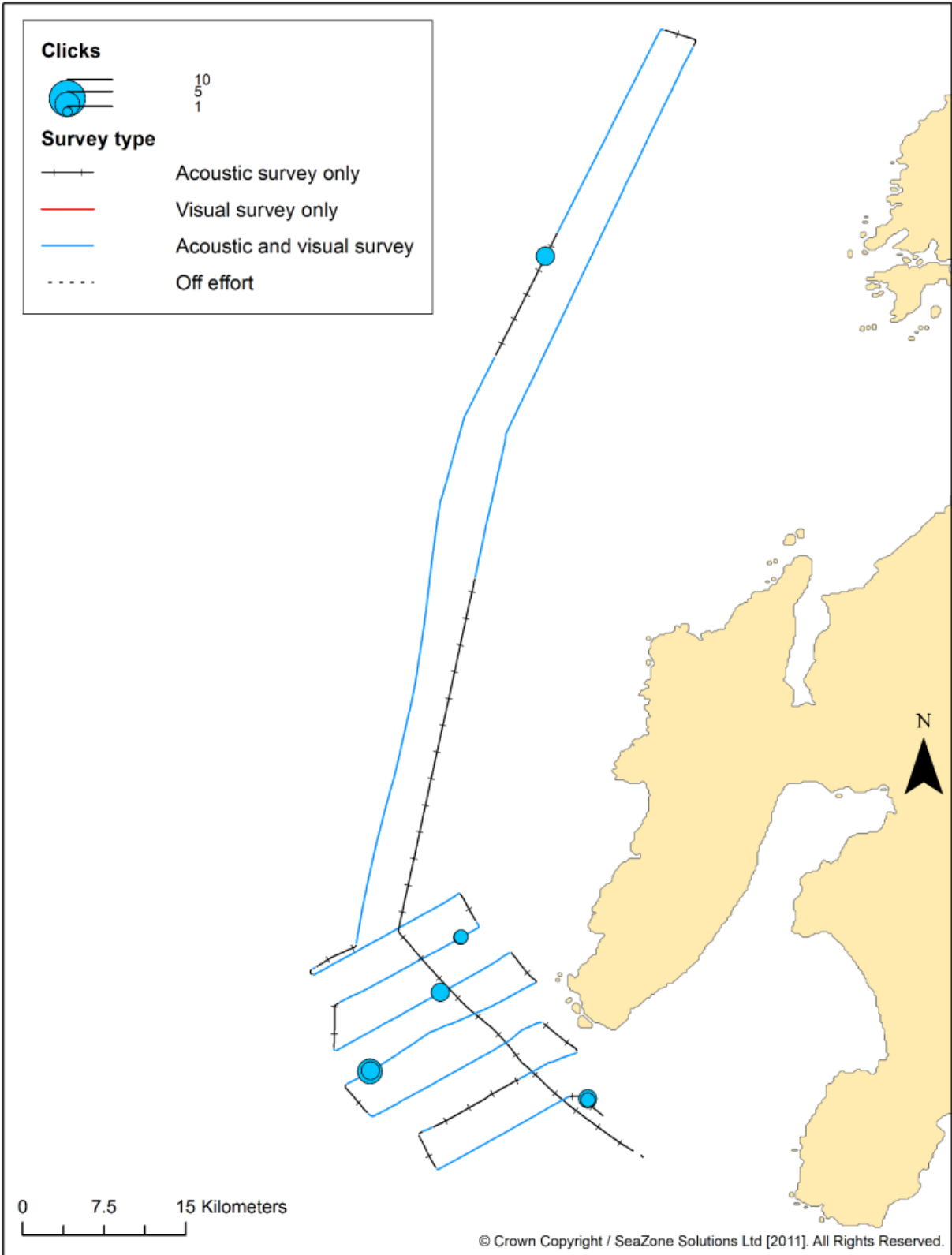


Figure A32. Survey 18 (June 8, 2011) effort and harbour porpoise click detections.

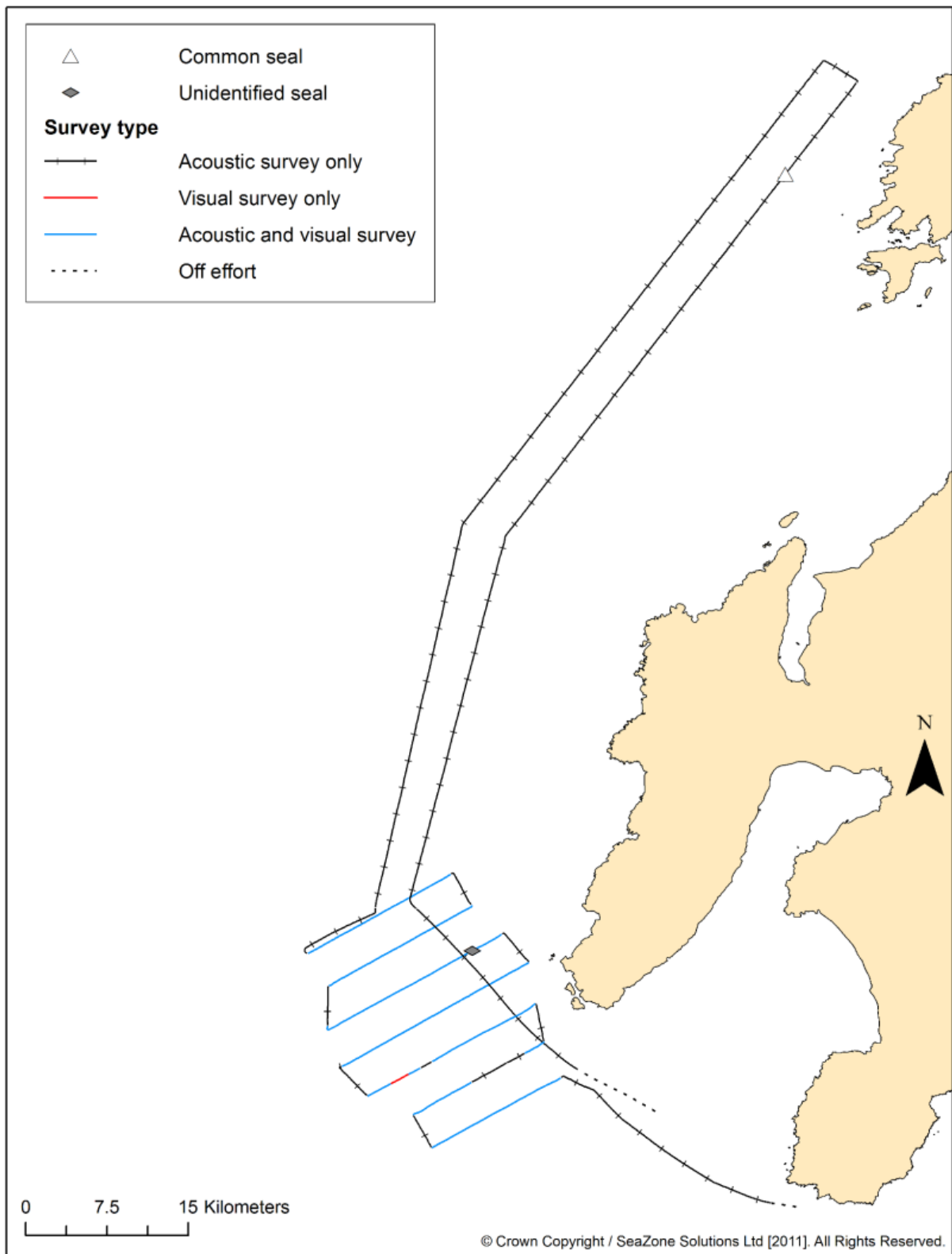


Figure A33. Survey 19 (June 28, 2011) effort and marine mammal sightings.

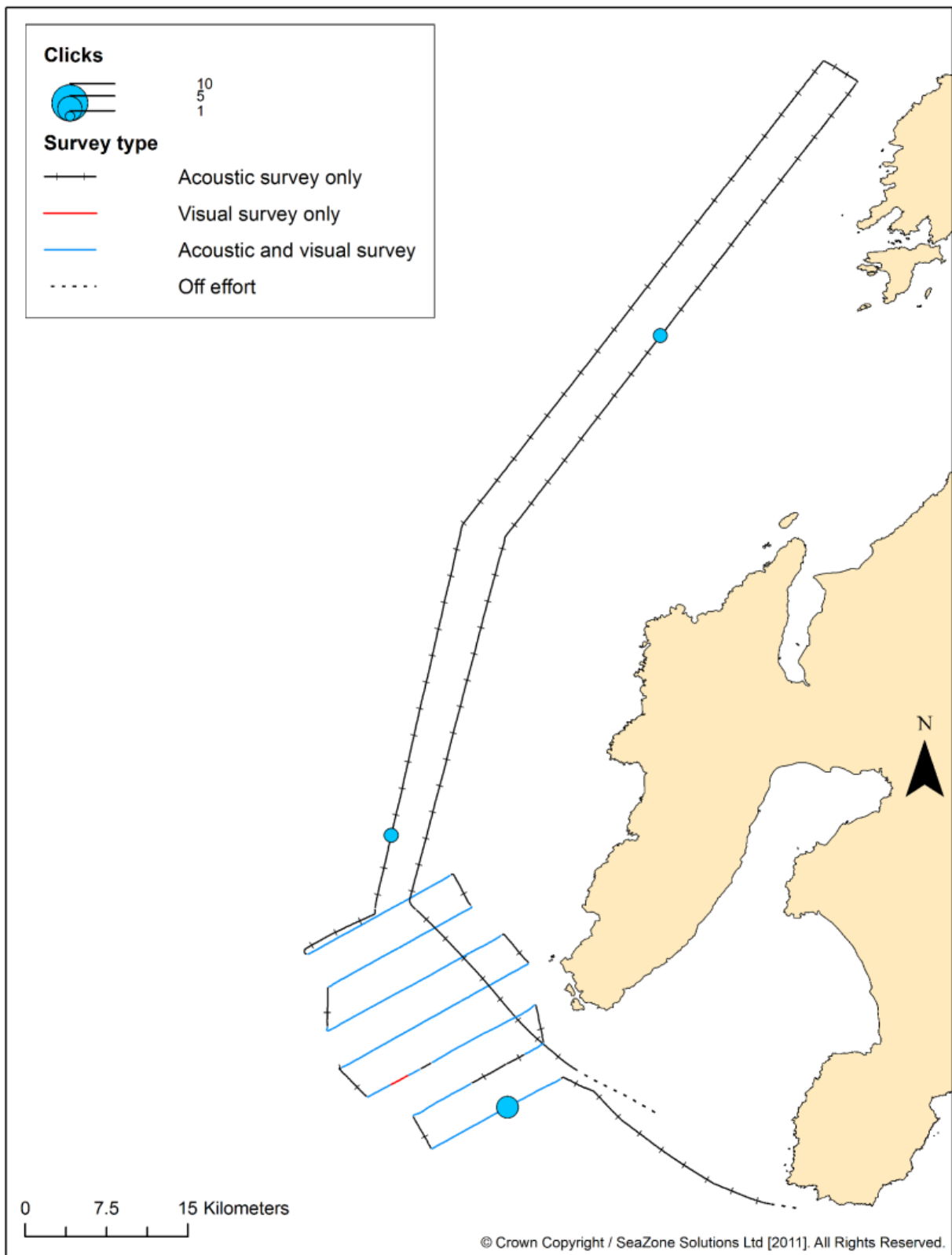


Figure A34. Survey 19 (June 28, 2011) effort and harbour porpoise click detections.

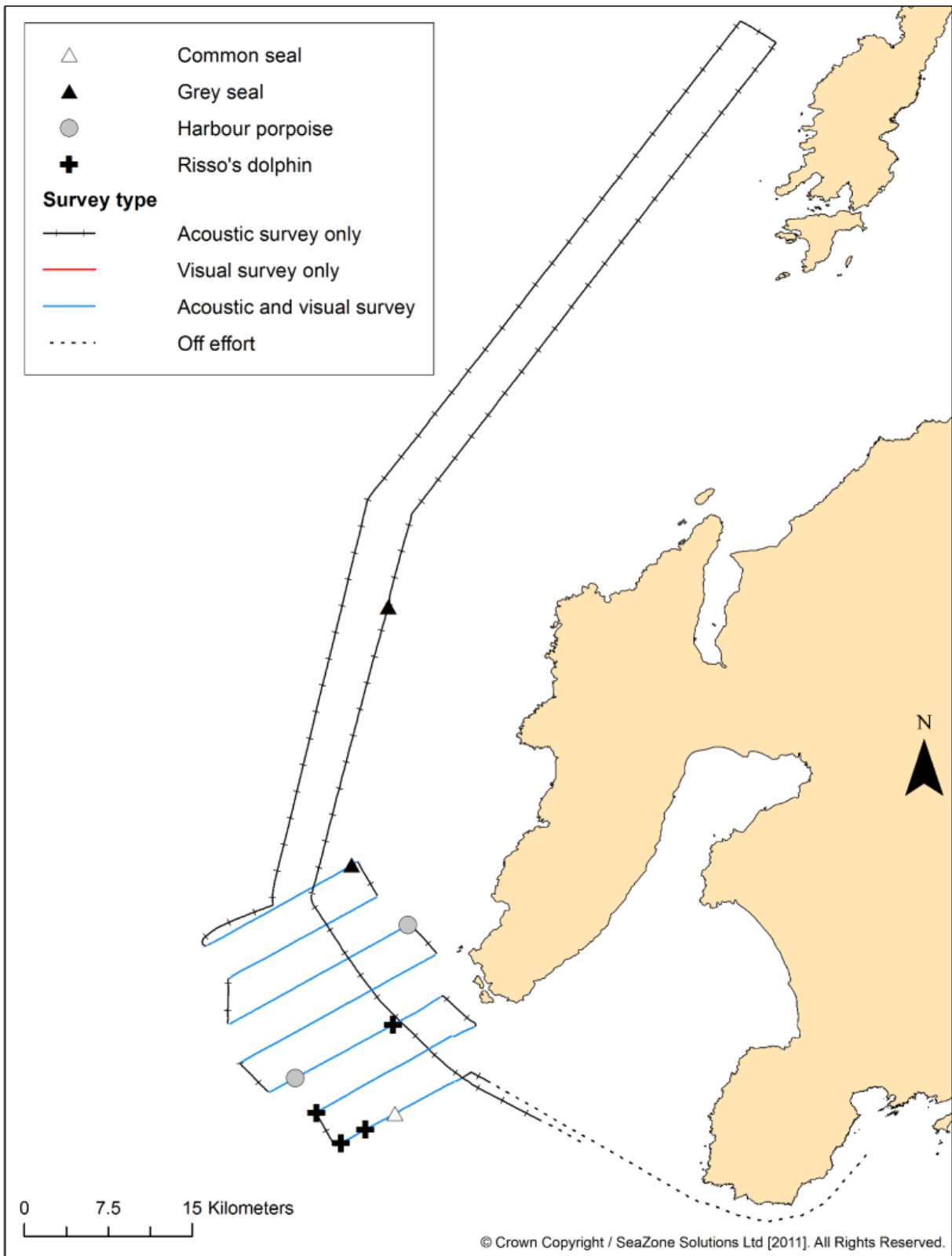


Figure A35. Survey 20 (July 27, 2011) effort and marine mammal sightings.

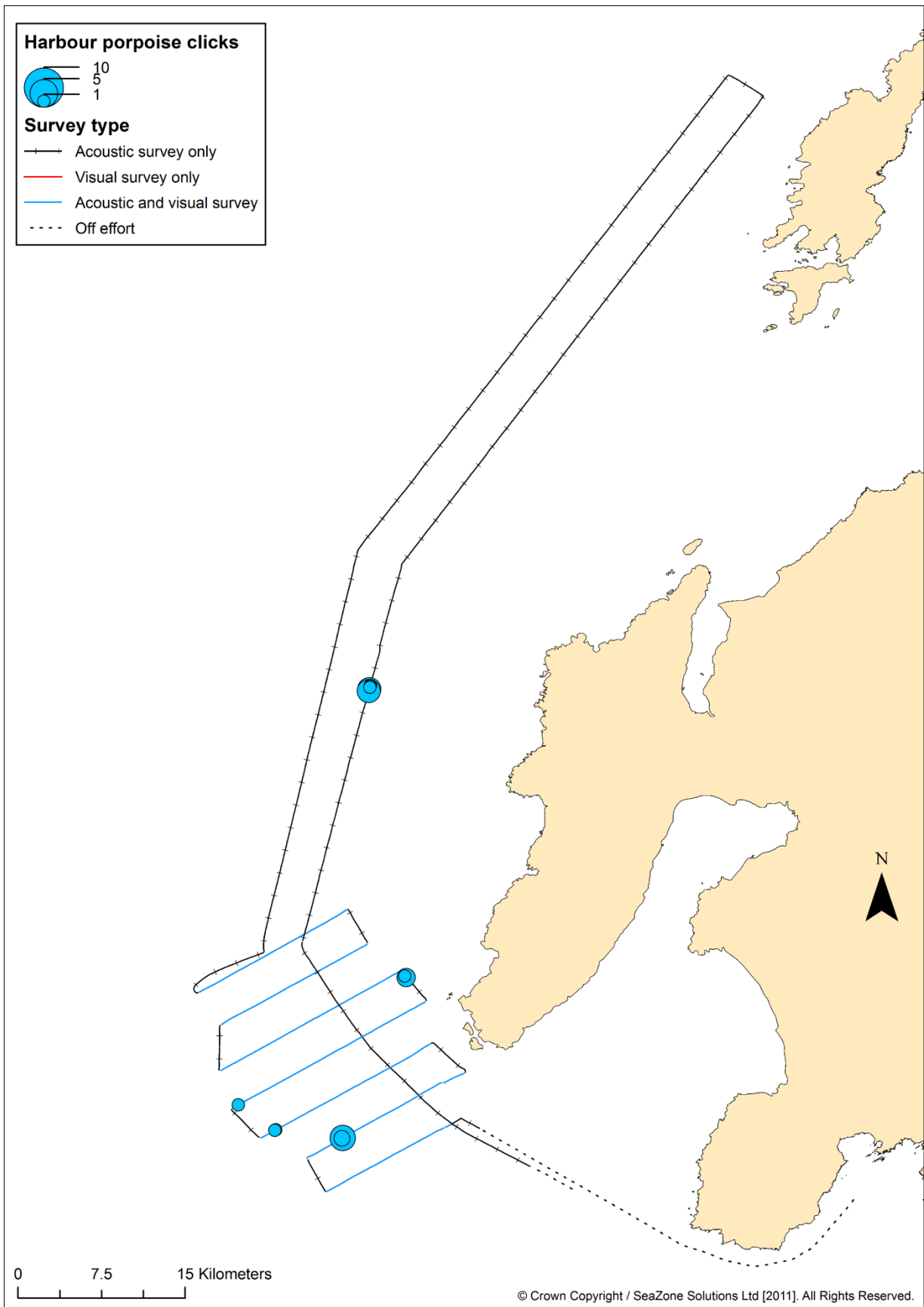


Figure A36. Survey 20 (July 27, 2011) effort and harbour porpoise click detections.

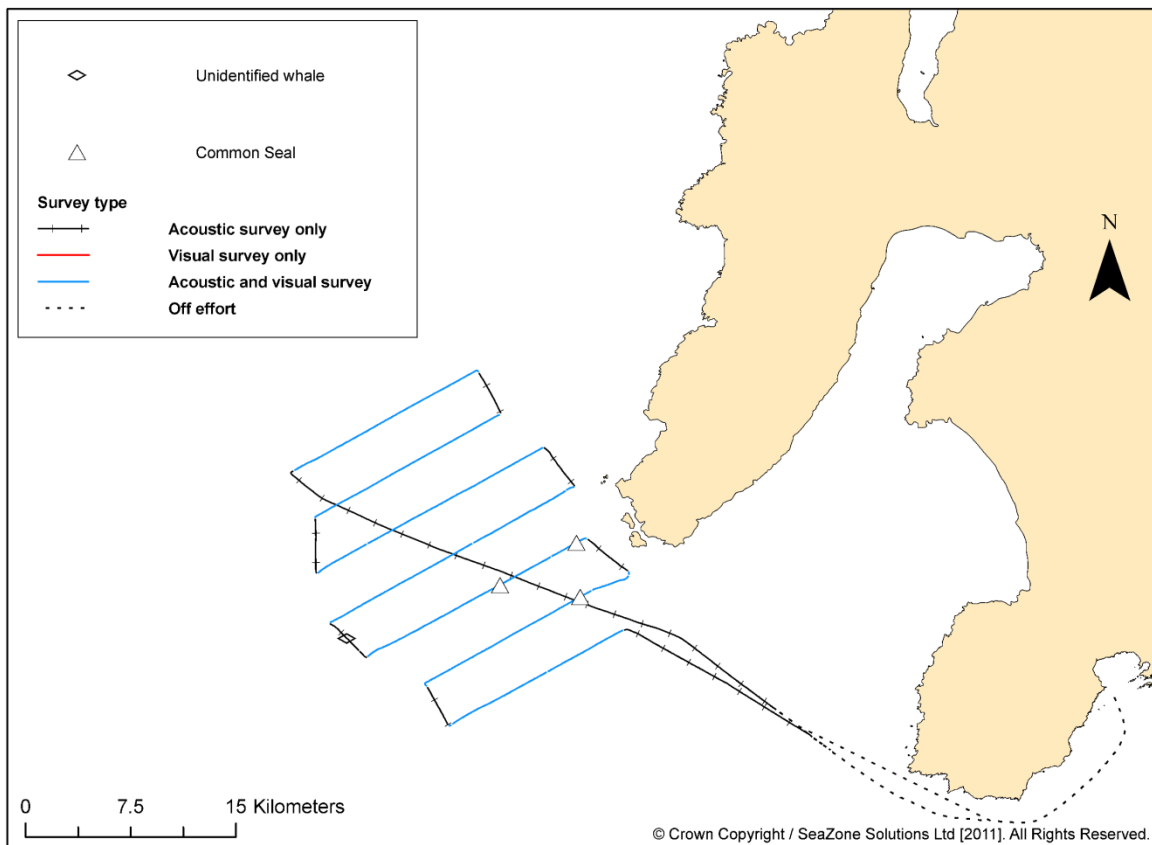


Figure A37. Survey 21 (August 23, 2011) effort and marine mammal sightings.

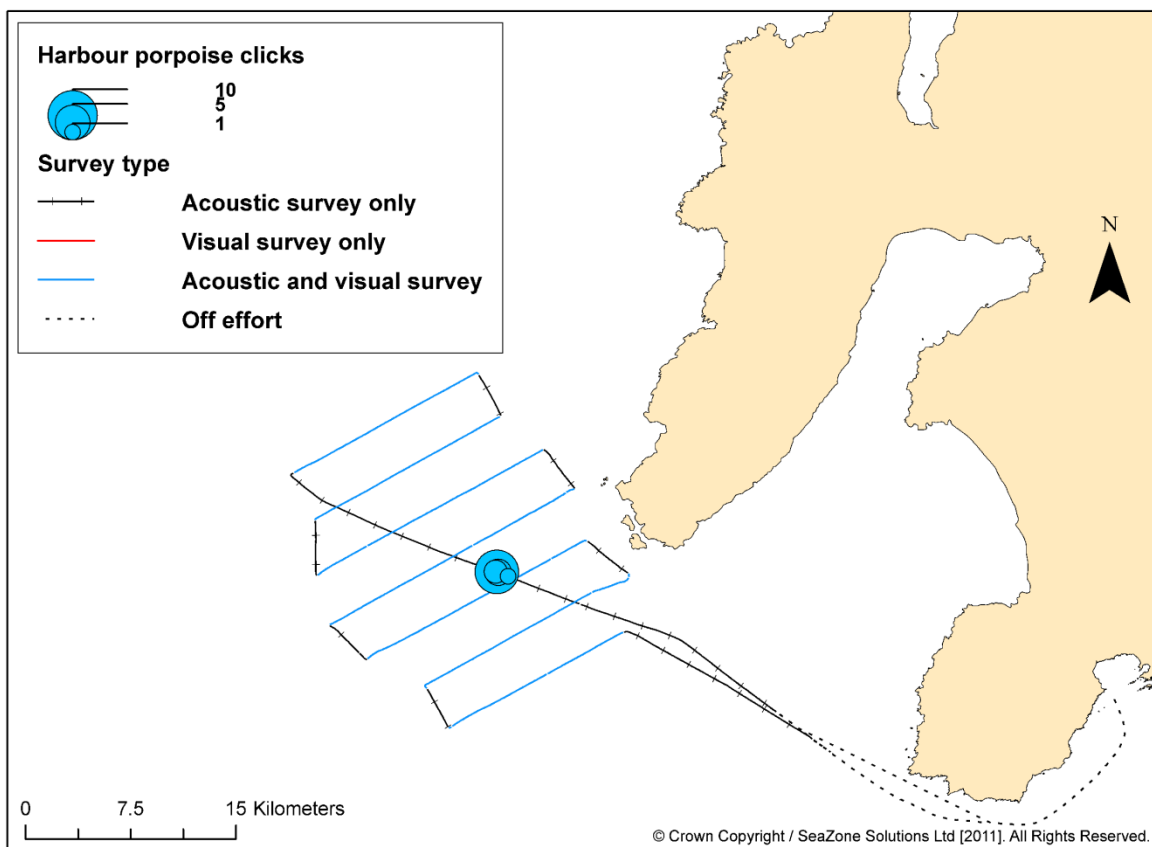


Figure A38. Survey 21 (August 23, 2011) effort and harbour porpoise click detections.