

Newton Marina Outfall Environmental Supporting Document



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1 Introduction

This report has been produced to support a Marine Construction Licence Application under the Marine (Scotland) Act 2010 to Marine Scotland for the construction of an outfall pipe at the proposed boatyard at Newton Marina, which is within the Stornoway Port Authorities (SPA) harbour boundaries. The location of the outfall is below Mean Low Water Springs (MLWS) to facilitate dispersion of the discharge into the marine environment. As this involves the deposit of the pipe and associated rock etc, below Mean High Water Springs (MHWS) a construction licence is required under the Marine (Scotland) Act 2010.

Marine Scotland have confirmed that the works will not require screening under the Marine Works (Environmental Impact Assessment) Regulations 2017.

This report describes the planned works, construction methods, and further supporting information to give an understanding of the whole project. The purpose of this report is to ensure that an appropriate level of information is provided to allow the licence to be determined whilst demonstrating compliance with Scotland's National Marine Plan.

2 Project Description

SPA have reclaimed land on the north east side of Goat Island in Stornoway Harbour, and have planning consent to construct a boatyard for the storage and maintenance of vessels (20/00006/PPD). The facility includes a Boat Washdown and Hoist Manoeuvring Area (BW & HMA), and a Marine Engineering Workshop. The surface water drainage and effluents from these areas will combine into a single discharge stream, and discharge via gravity to sea. The outfall pipe terminates with a 300mm diameter Ductile Iron (DI) pipe fitted with a duckbill valve, which will be below Mean High Water Springs (MHWS).

The Marine Engineering Workshop is a metal clad framed building with two boat repair areas, in addition to a machinery area and storage area. Drainage from this building contains rainwater only, via downpipes. The BW & HMA is a concrete hardstanding area to the north west of the Marine Engineering Workshop, and the surface water from this area will be from routine boat washing to remove marine growth prior to storage, and from infrequent hydroblasting activities to remove coatings from vessels. The concrete hardstanding has engineered falls towards two slot drains; the surface drainage water is routed via a settlement tank or directly to an oil interceptor. This then combines with the roof drainage from the Marine Engineering Workshop, and on to the discharge point.

For information, the sinks and toilets within the building will discharge to the Scottish Water foul drainage system and are outwith this application.

Water Environment (Controlled Activities) Regulation 2011 as amended (CAR) consent for the combined trade effluent discharges has been provisionally issued under reference CAR/S/1190255.

2.1 Location

The proposed outfall is part of the Newton Marina complex, on reclaimed land on the north east side of Goat Island within Stornoway Harbour, at NB4260 3228. Please see Drawing 70.NM.01 for red line boundary details and Drawing 161093-1000(A) for the overall site layout.





3 Project Details

3.1 Proposed Design

The full design detail is shown on Drawing 161093-409(C).

The outfall terminates within Stornoway harbour at the toe of an existing rock armour revetment wall on Goat Island. A 300mm diameter ductile iron (DI) pipe will be installed in the embankment, encased within a 200mm bed of concrete. The concrete provides bedding for the rock armour and protection to the pipe through the embankment. A 7.9m section of DI pipe will be connected using a DI pipe angle, and will sit flush against the revetment to the toe of the embankment. This will be attached via another DI pipe angle to the final section of pipe leading to a tideflex duckbill valve.

This final section of horizontal DI pipe will be attached by stainless steel pipe clamps to precast concrete blocks. The concrete blocks support the pipe before the termination onto rock fill through a Tideflex Duckbill Check Valve (Tideflex Series 35 Flanged Check Valve; see Appendix 1 for datasheet).

Prior to installation, the DI pipe will be protected with a cold-applied bituminous rubber and Polyethylene layered tape to prevent corrosion in the marine environment (Maflowrap 50/40 SET cold applied tape; see Appendix 2 for datasheet).

3.2 Construction Method Statement

Construction works will be scheduled to fit with low spring tides as far as practicable. The bulk of works should be completed within 2 or 3 tides. However, two weeks have been assumed for the completion of the works

Access for the construction will be gained from the slipway adjacent to the Marine Engineering Workshop, and a tracked excavator will track to site along the seabed on a low spring tide. Prior to works the excavator will be inspected to ensure that it arrives on site in a clean condition, and that it is appropriately maintained with no fuel, oil or hydraulic fluid leaks. The rock armour will be removed from the wall and stockpiled above MHWS, and the DI pipe will be laid horizontally encased within the concrete protection and rock armour replaced around the pipe.

At the base of the embankment a section of the seabed will be excavated at low tide with approximately 2m³ of seabed material sideswiped onto the adjacent seabed. This excavated area will receive the concrete blocks and armour fill material.

The lengths of DI pipe will be bolted together and lifted into place with the excavator, and attached to the existing DI pipe using a DI pipe angle. Two concrete blocks will be lifted into place, and the pipe will then be bolted to the blocks using resin-in anchors. The anchors will be pre-fitted to ensure they will be 'dry-fitted' once in place; this is to minimise the amount of work to be carried out in the tidal zone and prevent potential delays. Armour stone will be placed on the seaward side of the blocks which the outfall will discharge onto, this is to prevent seabed scouring. The Tideflex non-return valve will then be bolted to the DI pipework.





4 Scotland's National Marine Plan

As the project is partly below the MHWS and within 12 nautical miles (nm) of the Scottish Coastline it falls within the remit of the Marine (Scotland) Act 2010. The 2015 Scottish National Marine Plan (NMP) covering inshore waters is a requirement of the Act. The NMP lays out the Scottish Minister's policies for the sustainable development of Scotland's seas and provides General Planning Principles (GENs), some of which apply to this development. Many GENs are specific to environmental topics; these are identified in Table 4.1 below, along with the considerations made during design development in order to meet the requirements.

General Planning Principles	Requirements	Newton Marina considerations
GEN 2: Economic benefits	Sustainable development and use which provides economic benefit to Scottish communities is encouraged when consistent with the objectives and policies of this Plan.	The ability to wash boats allows them to be stored out of the water and maintained in the Marine Engineering Workshop which provides an economic benefit associated with jobs in the engineering workshop. Furthermore local vessels benefit from local maintenance which may minimise unproductive time when vessels are out of the water.
GEN 4: Co-existence	Proposals which enable coexistence with other development sectors and activities within the Scottish marine area are encouraged in planning and decision-making processes, when consistent with policies and objectives of the Plan.	The outfall will not affect any other operations in the harbour.
GEN: 7 Landscape/seascape:	Marine planners and decision makers should ensure that development and use of the marine environment take seascape, landscape and visual impacts into account.	The outfall is a small development with minimal visual impact on the surrounding harbour landscape. The outfall is at the base of a revetted sea wall, only a short section of pipe will be visible vertically on the revetment wall.
GEN 9: Natural Heritage	 Development and use of the marine environment must: a) Comply with legal requirements for protected areas and protected species. b) Not result in significant impact on the national status of Priority Marine Features. c) Protect and, where appropriate, enhance the health of the marine area. 	Ecological features of interest have been considered within this Marine Licence application, and legal requirements have been taken into consideration throughout. There are no significant residual impacts on any Priority Marine Features from the proposed development; see analysis in Section 5.3.

Table 4.1: Applicable Scottish National Marine Plan GENs





General Planning Principles	Requirements	Newton Marina considerations
GEN 10: Invasive Non-Native Species	Opportunities to reduce the introduction of invasive non-native species to a minimum or proactively improve the practice of existing activity should be taken when decisions are being made.	The possible sources of invasive non-native species associated with the project have been identified and appropriate mitigation proposed to minimise the chance of their introduction; see section 5.4. Operational considerations were included in the Goat Island Discharge Considerations report, supporting the CAR licence application for the discharge, provided as Appendix 3.
GEN 12: Water Quality and Resource	Developments and activities should not result in a deterioration of the quality of waters to which the Water Framework Directive, Marine Strategy Framework Directive or other related Directives apply.	This development will not have any significant impacts on water quality due to the localised nature of the construction work.
GEN 13 Noise:	Development and use in the marine environment should avoid significant adverse effects of man-made noise and vibration, especially on species sensitive to such effects.	This development will not have any effects of noise or vibration due to the limited duration and localised nature of the work. Fixings to the concrete blocks will be pre-drilled to remove noise impacts within the working area.
GEN 14: Air Quality	Development and use of the marine environment should not result in the deterioration of air quality and should not breach any statutory air quality limits.	No significant effects on air quality are predicted.





5 Environmental Considerations

5.1 Water Quality

Construction impacts include the increase of sediment in the water column due to the sideswiping of seabed material. The seabed material in this area is relatively course, sand and gravels, as such sediments should drop out quickly and hence, impacts will be short lived and very localised.

The use of an excavator to excavate a small area of seabed and place the materials will introduce a risk of loss of containment of fuel, oils and hydraulic fluids from the plant, however, standard mitigation will minimise these risks see Section 5.3.

The operational effects of discharges through the drainage system have been rigorously assessed as part of the CAR licencing process due to the potential to discharge heavy metals, and concluded there will be no significant effect on the water quality. Please see Appendix 3 for the Goat Island Discharge Considerations report, which supported the CAR licence application for the discharge.

5.2 Ecological Impacts

5.2.1 Designated Sites and Shellfish Areas

Two marine designated sites have been identified within 20km of the development; sites further away are not considered due to the localised effects of the work.

North-east Lewis Nature Conservation Marine Protected Area (NCMPA) located to the south of Stornoway Harbour, the boundary of which is 2km away. Features of the NCMPA are the Marine Geomorphology of the Scottish Shelf Seabed, Quarternary geomorphology and geomorphology of Scotland, Risso's dolphin (*Grampus griseus*), and Sandeels.

Inner Hebrides and the Minches Special Area of Conservation (SAC) located to the south of Stornoway harbour, the boundary of which is 3km away. The SAC is designated for harbour porpoise (*Phocoena phocoena*).

The geomorphological features of the NCPMA will not be affected by the development, and potential impacts to the marine mammals are discussed in section 5.2.2. There are no onshore designations within 3km; designated sites that are further away will not be adversely affected by the development.

A designated Shellfish harvesting area, Loch Leurbost, lies 13km to the south and is used for the production of Common Mussels (*Mytilus edulis*) and Pacific Oysters (*Crassotrea gigas*) for human consumption. This site is too far away to be affected by the development.

5.2.2 Marine Mammals

As discussed in Section 5.2.1 there are two marine mammal designated sites nearby for Risso's dolphin and harbour porpoise, other marine mammals including seals and whales may utilise the wider Stornoway Harbour area. However, they are highly unlikely to be within the development footprint due to the shallow nature and proximity to the rock armour and human activity. Impacts will be very localised, and as such no, or negligible potential for disturbance or harm of marine mammals are expected.





5.2.3 Benthic habitat

The seabed in this location is sand and gravels in composition, and a survey of the proposed outfall location indicated that there were no priority marine features present. As shown in Figure 5.2.3.1 common seaweed species present were: brown seaweed (*Fucus sp*), brown algae and gutweed (*Ulva sp*.).



Figure 5.2.3.1: Photograph of benthic habitat at location of construction works

It is not anticipated that there will be any potential impacts on the benthic habitat at this location. The excavator will undertake limited tracking into and out of site along the seabed at low tide, and thus the impact is considered insignificant.

5.2.4 Otters (Lutra lutra)

Otters are known to be present within the Stornoway Harbour area. The rock armour, the outfall is to be installed on, was placed in the last couple of years, since then humans have been working in and around the marina causing disturbance. It is noted that there is availability of less disturbed higher quality habitat in other areas of the harbour. No signs of otters were noted during a site visit, there was no evidence of layups or holts in the rock armour revetment where the pipeline is to be installed.

Otters are however, a European Protected Species, and as they could be present in the area, then mitigation is proposed to ensure no inadvertent harm to otters occurs.

5.3 Environmental Mitigation Measures

All plant and machinery will be inspected daily, and prior to work to check for possible oil leaks, and that it is in good condition. This will mitigate against oil leaks and plant breakdowns. Should any leaks be identified after the works have commenced, the plant will be moved above high tide water levels and isolated immediately with the use of spill kits. Spill kits will be on site at all times. Re-fuelling will take place away from the water in designated areas only, and re-fuelling bowsers will be double skinned. Where practicable, biodegradable hydraulic fluids will be utilised in machinery.





In order to reduce the risk of invasive non-native species being introduced to the construction location, plant will be brought to site as clean as practicably possible, and air-dried between sites. All equipment will be inspected prior to mobilisation on site; any equipment carrying excessive sediment deposits will be returned to the supplier.

To ensure that otters are not harmed during the works some general mitigation measures are proposed. Works should be carried out in daylight hours, and noise sources will be minimised where possible. Measures to prevent entrapment such capping pipes and tubes, and fencing any material stockpiles and excavations will be adhered to. All working areas, material heaps, pipes and machinery will be checked daily and prior to work for any mammals and birds.

In summary, the following mitigation measures will be applied during the work:

- Plant will be properly cleaned before arrival on site, and air dried where practicable;
- Plant inspections taken daily before use;
- Working area, stockpiled material, and any pipes to be checked for mammals and birds daily, and prior to work;
- Immediate access to spill kits in the vicinity of the construction work;
- Re-fuelling of plant to be undertaken away from the marine environment;
- Minimal tracking by tracked excavator;
- Use of a protection tape system on the pipework to minimise corrosion;
- Pre-fitting the concrete blocks with fixings to minimise working in the intertidal zone;
- Noise to be kept to a minimum; and
- Pipes in storage to be capped off to prevent entry by otters or other mammals.

6 Conclusion

Environmental effects of this work are deemed short-term and insignificant due to the highly localised and temporary nature of the construction works. Utilising the mitigation measures detailed in Section 5.3 will ensure any environmental impact will be negligible. The proposals align to the Scottish National Marine Plan.





7 Glossary

Acronym	Definition
BW & HMA	Boat Washdown and Hoist Manoeuvring Area
DI	Ductile Iron
km	Kilometres
m	Metres
MHWS	Mean High Water Spring
MLWS	Mean Low Water Spring
mSAC	marine Special Area of Conservation
mSPA	marine Special Protection Areas
NCMPA	Nature Conservation Marine Protected Areas
NMP	National Marine Plan
PMFs	Priority Marine Features
SAC	Special Areas of Conservation
SEPA	Scottish Environment Protection Agency
SPA	Special Protection Areas
SPA	Stornoway Port Authority
SSSI	Sites of Special Scientific Interest





Appendix 1: Tideflex Series 35 Flanged Check Valve Technical Datasheet



Series 35—Flanged Check Valve

Materials of Construction

- Pure Gum Rubber, Neoprene, Chlorobutyl, Buna-N, Polyurethane Hypalon, Viton, EPDM, Food Grade
- Galvanized Steel, Stainless Steel

The Tideflex® Technologies Series 35 Check Valve is manufactured identically to the Tideflex® Check Valve, with the addition of an integral elastomer flange as part of the valve. The standard flange size drilling conforms to ANSI B16.5 and ANSI B16.47, Class 150 standards. All other domestic and international standards, as well as customer specified flange dimensions, are available. The Series 35 Check Valve is furnished complete with 3/8" thick steel back-up rings for installation.

In some applications and installations, a slip-over pipe Check Valve is not feasible because of an existing flange in the piping system or an existing flange cemented in the outfall piping system vault. In these cases, the Series 35 Check Valve is the solution.

The Tideflex® Technologies Series 35 Check Valve is simple in design, with only one part - the all-rubber duck bill check sleeve.

There are no seats or interference fits to corrode or freeze valve operation, making the Series 35 virtually maintenance free. The Series 35 seals completely around solids, making it ideal for fly ash, raw sewage, sludge, lime, mining slurries, and many other abrasive and corrosive slurries.





DIMENSIONS SERIES 35

ANSL FLANGE INSIDE FLANGE MAXIMUM MAXIMUM					
FLANCE	OD	DIAMETER	THICKNESS	LENGTH	HEIGHT
SIZE	0.D.	R	C	I	н
SILE	Δ.	в	U	L	
1/2 "	3-1/2 "	1/2 "	1/2 "	2-1/2 "	1-1/4 "
3/4 "	3-7/8"	3/4"	1/2 "	3"	1-1/2 "
1"	4-1/4"	1"	1/2 "	3"	1-1/2 "
1-1/4 "	4-5/8"	1-1/4 "	1/2 "	5-3/4"	2-3/4"
1-1/2 "	5"	1-1/2 "	1/2 "	5-3/4"	3-5/8"
2 "	6"	2 "	1/2 "	5-3/4"	3-5/8"
2-1/2 "	7-	2-1/2 "	1/2 "	7-1/2 "	4-5/8 "
3"	7-1/2 "	3"	3/4 "	9"	5-3/8"
4"	9"	4"	3/4 "	12 "	7"
5"	10 "	5"	3/4 "	15-1/4"	8-7/8"
6"	11 "	6"	1"	15-5/8"	10-3/8"
8	13-1/2 "	8"	1"	16-1/2 "	13.
10	16-	10"	1-	21-1/2	16-7/8
12	19-	12"	1.	26-1/2	20-1/8
14	21	14"	1"	25-3/8	21-1/2
16	23-1/2	15-1/4"	1.	27-1/2	22-1/4
18	25	17-1/2	1-1/2	30	26-3/4
20	27-1/2	19-1/4	1-1/2	32-3/8	32-1/2
22	29-1/2	21-1/4	1-1/2	35-1/2	32-1/2
24	32	24	1-1/2	40-1/2	40.1/2"
30	30°3/4 41-3/4"	32"	1-1/2	45	49-1/2
36"	41-5/4	35.1/4"	1-1/2	51-5/6	40
42"	40	42"	2"	60-1/4"	72-1/2 "
48"	50-1/2"	48"	2-	50"	77-1/2"
60 "	73"	60 "	2"	72 "	96-3/4"
72."	86-1/2."	72 "	2-	95"	102"
84"	99-3/4"	84"	2"	92 "	110-1/2 "
04	77-514	04	~	14	110-172

Website: www.althon.co.uk







Appendix 2: Maflowrap 50/40 SET cold applied tape Technical Datasheet



Cold Applied Tapes Bitumen





Technical Data Sheet

DESCRIPTIONMaflowrap 50/40 SET is a 1.10mm, cold applied coating designed to provide
protection against corrosion and electrolysis on below grade metal
substrates. The anti-corrosion bituminous rubber compound provides self
sealed joints at longitudinal and end of roll overlaps, and is highly resistant
to cathodic elasticity. The unique extruded PVC carrier is engineered for
toughness, conformability and controlled elasticity.
Maflowrap 50/40 SET is a Temperate grade tape.

RECOMMENDED USE A medium duty, cold-applied PVC pipe wrap for use on buried and submarine line pipe. For field welds, fabrications, bends and fittings.

SUBSTRATE COMPATIBILITY Steel, Stainless Steel, Ductile Iron, Other Metals, FBE, PE, Plastic Pipe

SURFACE PREPARATION The surface to be wrapped should be as clean as possible. Remove metal burrs and other projections, and all loose matter, any existing coatings, dirt, rust and foreign debris. Ensure all oil and grease is removed with solvent.

Inspect old pipework or factory coatings and remove any loose coating back to sound material with wire brushing. Where new or existing steelwork has been subjected to chemical attack, salt spray, fungi or bacteria other methods may be used.

Maflowrap 50/40 SET meets all of the performance criteria listed in the most

PRIMERMaflowrap 50/40 SET requires a primer to allow for permanent adhesion.
Maflowrap Primer B400 should be applied and allowed to dry prior to applica-
tion of the tape. See the application guideline for more details.

REFERENCE

recent revision of:

NACE SP0109 (Cold-Applied Laminate Polymeric Tapes)

SAFETY	Refer to Safety Data Sheet: SDS-MAFLOWRAP
APPLICATION	Refer to Application Guidelines: AG-COLD-APPLIED-BITUMEN-TAPE

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50/40 SET

Cold Applied Tapes Bitumen

Typical Data

Property	Metric	US Customary	Test Method
Backing Colour	Black	Black	ASTM D1000
Total Thickness	1.10 mm	43 mils	ASTM D1000
Backing Thickness	0.38 mm	15 mils	ASTM D1000
Adhesive Thickness	0.72 mm	28 mils	ASTM D1000
Cathodic Disbondment, 30 days	<10 mm radial	<0.4 in ²	ASTM G8
Adhesion to Self*	3.0 N/mm	18.8 lb/in	ASTM D1000
Adhesion to Primed Steel*	3.0 N/mm	18.8 lb/in	ASTM D1000
Tensile Strength	16.0 N/mm ²	2325 psi	ASTM D638
Tensile Modulus	10.5 N/mm ²	1525 psi	ASTM D638
Tear Resistance	20 N	4.5 lbf	ASTM D1004
Elongation	300%	300%	ASTM D638
Dielectric Strength	30 kV	30 kV	BS2782
Holiday Detection Setting	8 kV	8 kV	NACE RP0274
Impact Resistance	L 8	70 in lb	ASTM G13
Water Vapor Permeability	0.36 g/(24h*m²)	0.025 g/(24h*100 in ²)	ASTM E96 Procedure B
Water Absorption	<0.5%	<0.5%	ASTM D570
Insulation Resistance	10 ¹² Ohms/cm ²	10 ¹² Ohms/cm ²	ASTM D257
Storage Temperature Range	<50°C	<122°F	
Application Temperature Range	+5°C to +35°C	+41°F to +95°F	
Service Temperature Range	-20°C to +75°C	-4°F to +167°F	

* Peak Mean Adhesion

ORDERING INFORMATION

Dimension	Sizes Available
Width	50, 100, 150, 225, 300, 450 mm
Length	15 - 60 m





Appendix 3: Goat Island Discharge Report





Goat Island Boatshed: Discharge Considerations



No: 70_REP_01_v2 Date:30/04/2021





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1 Introduction

Stornoway Port Authority (SPA) have reclaimed land on the north east side of Goat Island, they have planning consent to make it into a boat yard for the storage and maintenance of vessels (20/00006/PPD). The facility includes a Boat Washdown and Hoist Manoeuvring Area (BW & HMA), and a Marine Engineering Workshop. The surface water drainage and effluents from these areas requires consent under the Water Environment (Controlled Activities) Regulations 2011 (as amended) (CAR). A CAR licence application has been submitted to the Scottish Environment Protection Agency (SEPA) who have requested additional information. This report provides the additional information to support the licence application process. It provides a description of the facility, the planned activities to be undertaken in the area and associated discharges, the design of the drainage facility and abatement provided. Consideration is then given to the effects any discharge may have on the receiving water body's water quality.

To provide an understanding of the planned activities and the associated discharges various numbers have been utilised throughout this report. These are all based on current understanding of probably use, for example the number of vessels likely to be cleaned, they are used to provide an understanding of an 'average year' to inform the CAR licencing process and should not be considered as the upper bounding case.

2 The Facility

The Marine Engineering Site as shown in Drawing 161093-0100, is built on recently reclaimed land on the north east side of Goat Island (Drawing 161093-1000), it includes:

- A Marine Engineering Workshop;
- A Boat Washdown and Hoist Manoeuvring Area (BW & HMA);
- Disabled Parking;
- Storage tanks (Water and Diesel); and
- Laydown space.

The Marine Engineering Workshop is a metal clad framed building with two 20m by 9m boat repair areas, in addition to a machinery area and storage area. A link Corridor connects the main workshop to office and welfare facilities as shown in Drawing 161093-101.

The BW & HMA is a concrete hard standing area to the North of the Marine Engineering Workshop, the area is drained as discussed in Section 4.

Disabled access is provided by ramps around the facilities and two disabled parking facilities.

Water tanks and an associated pump booster are located to the south of the Marine Engineering Workshop to provide water for boat washing. A 2.35m³ bunded diesel tank is located to the west of the Marine Engineering Workshop at the north end of the building, adjacent to the BW & HMA.

3 Planned Activities

Boats removed from the water for maintenance, or storage will be washed in line with SPA policy to ensure that the boat storage area and the Marine Engineering Workshop are kept clean and to avoid issues due to unpleasant odours associated with any marine growth present on vessels. Washing is also required for vessels removed from the water prior to being moved





elsewhere by land to prevent the spread of Invasive Non-Native Marine Species (INNMS). Note any vessels being delivered by road to the yard, will previously have been cleaned, such that INNMS are not imported to the area.

Boats utilising the Marine Engineering Workshop are likely to range from 8m to 24m in length, two boats can be worked on at a time. Duration of repairs will depend on the scope of works, but typically a boat might be in the workshop for a week. As such, up to 100 vessels a year could utilise the facility, and hence require cleaning.

Between 25 and 30 smaller vessels and pleasure craft are expected to be taken out of the water in autumn for storage through the winter months and re-launched in spring. The timing of removals will depend on owner preference. Overall, there will be approximately 130 vessels per year requiring cleaning.

As mentioned in Section 1 these numbers are based on current understanding, however due to the physical constraints of the Marine Engineering Workshop and the amount of storage space, it is unlikely that there will be significantly more vessels washed. There is a potential for less, if the Marine Engineering Workshop is not fully utilised due to a lack of customer demand, or if they have a vessel requiring work which takes longer than 1 week. An average of 130 vessels per annum has been utilised for the purpose of this assessment.

As part of the boat maintenance activities, hydro-blasting will be utilised to remove coatings from vessels, this activity is currently expected to be carried out four or five times a year as required. As this will be determined by customer demand, it would be reasonable to expect that this figure will vary from year to year. However, an average of 5 per year is appropriate for the purpose of this assessment.

4 Drainage Design

The drainage design is shown in Drawing 161093-204, note the outfall location on this drawing is no longer correct. The outfall is located as shown on Drawing 161093-409. All foul effluents from the welfare areas are discharged to the exiting foul water gravity sewage system which is eventually pumped to an existing Scottish Water public sewer.

The roof drains from the Marine Engineering Workshop are routed through 100mm diameter uPVC twin wall pipes around the building to manhole SMH7 where a 150mm diameter pipe connects it to manhole SMH11 shown on Drawing 161093-409. The main floor of the Workshop is level, however there is a ramped entrance at the main doors which drains towards a slot drain on the BW & HMA surface area.

The concrete surface of the BW & HMA has engineered falls towards two 225mm slot drains, the grated outlet boxes from which join into 150mm diameter uPVC twin walled pipes with the flow from the two slot drains combining at manhole SMW8. There are gate valves associated with manhole SMH9 which allow the flow to be routed via a Klargester W1/100 Settlement Tank, or directly to the Klargester NSF-A020 Full retention Class 1 Oil Interceptor.

The outflow from the oil interceptor joins the roof drain outflow at manhole SMH11 shown on 161093-409, from there both effluents are routed through a 300mm diameter uPVC twin walled pipe to manhole SMH12 shown on Drawing 161093-409 and on to the discharge point. The roof drainage and surface water drains are all designed to utilise gravity, as such there are no pumps in the system.





As shown on Drawing 161093 -409 the discharge pip is routed down the outer slope of the rock armour, 60m out from the toe of the revetment into the sea below MLWS.

4.1 Drainage Capacity

The rainfall intensity utilised for the drainage design is 50mm/hr which is $0.014l/s/m^2$. In accordance with BS752-2008, the area is category 2, and hence should have a rainfall design frequency of 1 in 5 years, and as it is smaller than $4000m^2$ a rainfall event of 5 minutes is appropriate. Figure NA.3 of the British Standards shows the constant rate 5-minute rainfall for a 1 in 5-year return period for Stornoway as $0.012l/s/m^2$, hence the design of the drainage system has additional capacity to allow up to 2.17l/s of wash waters to be discharged from the $1085m^2$ BW & MHA even during a 1 in 5-year, 5-minute rainfall event.

4.2 In Drainage System Abatement

4.2.1 Screening

The slot drain covers will prevent items of 8mm and greater from entering the drainage system, the outlet boxes from the slot drains include grates which will also help to remove debris from the run-off waters.

4.2.2 Klargester W1/100 Settlement Tank

When boat washing and hydrobasting activities are being carried out the gate valves associated with manhole SMH9 (Drawing 161093-208) will be configured such that the effluents are routed to the settlement tank.

The settlement tank is designed to slow down the effluent giving time for solids to drop-out of suspension. The settlement tank has a total capacity of 10m³, 50% of this can be utilised for silt, it can accommodate maximum flow rates of 27l/s, providing a 6 minute hydraulic retention time at these flow rates. The retention time will be higher for lower flow rates.

Settlement effectiveness is dependent on the settlement area, the particle size and the time allowed. Hence the longer the effluent has in the settling tank the smaller the particle size that will be removed. The settlement tank is 3915mm long with a diameter of 2020mm, however the operational depths is 1.48m, with a settling area of 7m² at that depth.

4.2.3 Klargester NSF-A020 Oil Interceptor

A Class 1 oil interceptor the Klargester NSF-A020 has been specified for inclusion in the drainage system. It can store 2000l of silt and 200l of oil, it is designed for flow rates of up to 20l/s. The maximum residual oil discharged from a Class 1 oil interceptor in accordance with BS EN 858-1-2002 is 5mg/l.

There is also a penstock on the oil interceptor such that discharges from the drainage system can be stopped.





5 Discharges

5.1 Rainwater

The area draining into the oil interceptor including the BW & HMA is 1,085m². The roof area is approximately 1,145m². The average annual rainfall based on the met office data collated at the Stornoway Airport between 1981 and 2010 is 1248.5mm with 205days of rainfall of more than 1mm a day. Peak rainfall levels occur in October when there is 139.4mm of rain on average and 21 days with rainfall of greater than 1mm (Met Office, 2021).

Based on the afore mentioned average rainfall figures the volume of rainwater being discharged annually is 2,784m³, 1,354m³ of which is associated with the BW & HMA and hence passes through the oil interceptor each year.

5.2 Wash Down Activities

Washing of vessels is required to remove saltwater and any marine growth from boats. Saltwater is removed to help to prevent deterioration of the vessel (rusting and rotting), while marine growth is removed for a range of reasons:

- To prevent build-up on the hull which will reduce the efficiency of the vessel in the water due to drag;
- To remove the material before it starts to decompose and gives rise to odours which may cause a nuisance;
- To ensure alignment with best practice with regard to INNMS, removing marine growth at the harbour a vessel was removed from the water, prevents the spread of species to another area if, the vessel is launched elsewhere; and
- To ensure that boat yard is kept clean.

The bulk of marine growth will be scraped off the vessel and collected (swept-up) for disposal prior to washing being undertaken. Pressure washers are then used to clean the vessels.

5.2.1 Volume and Frequency

The Honda GX390 pressure washer, which has been identified as being suitable for the work has a flowrate of 15l/min. For large vessels two pressure washers may be in use at one time, hence a maximum flow rate of 0.5l/s. Large vessel will take up to 2.5 hours to clean with two pressure washers hence utilising 4.5m³ of water. However, small vessels may need as little as 0.9m³ of water to wash them. Due to the range of vessels washed an average of 2.7m³ of effluent is assumed to arise from each boat washing activity.

As explained in Section 3 there will be regular washing of vessels requiring maintenance throughout the year (2 a week), and around 30 vessels requiring washing in the autumn when they are removed from the water for winter. Total volume of washing water based on average of 130 vessels a year is 351m³ per annum.

5.3 Hydro-Blasting

Hydro Pressure Water Jetting (Hydro-blasting) is utilised to remove old coatings, rust and corrosion from vessels to leave a clean surface for inspection and recoating. Only one hydro-blast unit will be utilised. Hydro-blasting utilises water flow rate of 24l/min (0.4l/s). Due to the physicality of utilising a hydro-blast unit, it can only be operated by one person for 40 minutes





at a time. Assuming a 20-minute break between uses, in a 10-hour working day it can be used for 6 hours 40 minutes, over which time it would generate 9.6m³ of effluent. The largest vessels will take upto three days to treat. As discussed in Section 3, hydro-blasting will be undertaken on average 5 times a year giving rise to upto 144m³ of effluent per annum.

6 Potential Contaminants

6.1 Marine Growth

Marine growth not removed by scraping, will be washed off during the pressure washing process. The material will be made up of naturally occurring organics. Vessels being cleaned will have been removed from local waters and be required to comply with all relevant marine legislation, as such are highly unlikely to have INNMS present.

6.2 Oils and Greases

Vessels utilise fuel oils, lubrication oils and greases, there is a potential for small volumes of these to be present on the surfaces which are washed down, and hence reach the BW & HMA drainage system.

In addition, oils and greases will be utilised within the Marine Engineering Workshop. Although there are suitable storage arrangements for oils and greases when they aren't in use, there is a potential for spills during maintenance works from containers and vessel components. There will be spill kits and spill procedures in place to deal with any spillages, however if they were to escape the workshop then they would enter the BW & HMA drainage system.

A 2.35m³ diesel tank is proposed adjacent to the Marine Engineering Workshop, it will be fully bunded in compliance the relevant General Binding Rules of CAR. It is therefore unlikely that a tank failure would lead to diesel reaching the drainage system. Any problems during filling of the tank or refuelling activities from the tank may lead to smaller volumes (<5% of the tanks which is <118l) of diesel reaching the BW & HMA drainage system.

6.3 Antifoul

Antifoul coatings are utilised to prevent the build-up of marine growth below the water line on vessels. Build-up of growth causes drag which can slow the vessel, lead to increased fuel costs and associated carbon emissions. The reduction in fouling also aids in preventing the spread of INNMS. Coatings also protect vessels for corrosion and abrasion (Tripathi, 2016).

The prohibition of the use of organotin's including tributyltin (TBT) within antifouling coatings was implemented via the EC Regulation No. 782/2003, it stopped the application and reapplication of organotin compounds to ships from the 1st of July 2003. As such it is highly unlikely that vessels have not been recoated with alternative coatings in the last 17 years since they were banned. If a vessel presents at the Marine Workshop that may have organotin coatings still present on them, it will not be subject to hydro-blasting, until it has been proven that no organotin's are present by the appropriate documentation or sample analysis.

Antifouling coatings fall under the Biocidal Products Regulation (EU) No.528/2012 (BPR) and hence have to be approved for use. However, this doesn't mean that the active ingredients cannot leach into the sea where they may accumulate.





Self-Polishing Copolymer (SPC) antifouling paint releases biocide through its life. The selfpolishing mechanism which ensures a consistent renewal of paint film and biocide release is dependent on speed and vessel activity, the rate of polish being greatly reduced for stationary vessels (approximately halved). SPC's active ingredient is commonly Copper, Zinc is used to increase the release rate of the Copper. Copper leaches out slowly into the seawater, where it can persist and possibly enter the food chain.

Currently Copper based coatings are the most popular, the common antifouling's utilised in the Stornoway harbour area are as follows:

- Hempel's antifouling classic 76110
- Teamac antifouling A plus (supplied by local chandlers)
- Teamac antifouling D plus (supplied by local chandlers)
- International boat guard 100
- Jotun Seaforce 30 (supplied to customers by Macmillan Engineering)
- Coppercoat

All of which utilise a form of Copper as the main biocide. The first four listed above have rosinbased resin coats and contain Zinc Oxide. Jotun Seaforce 30 also contains Zinc Oxide however it is an acrylic based coating. Coppercoat is an epoxy resin containing Copper but no Zinc Oxide.

The safety data sheets for the mentioned coatings have been provided in Appendix 1. It should be noted that many contain solvents, these are associated with the application of the coating, and will either evaporate off as the coating dries or become bound into the coating as it sets.

Copper is a highly effective at deterring the growth of marine organisms, however it reacts with chlorine in seawater into cupric hydrochloride. This unstable substance is washed off the boat with any silt and slime by the movement of water, revealing the new fresh Copper rich surface below, hence it is classed as an SPC.

The release rate of Copper from paint increases with salinity due to the reaction of Copper Oxides with Chlorine (Lagerström, Ytreberg, Wiklund, & Granhag, 2020). Salinity can also increase in solubility of Rosin used as a base for many antifoul coatings, increasing the rate of release of Copper.

The release rate of Copper from pleasure craft has been measured as 8.2µg/cm²/day (Valkirs, Seligman, Haslbeck, & Caso, 2003). However, this will be less for static vessels.

Schiff et al, assessed the release rates of Copper associated with hull cleaning activities, they identified that it generated 8.6 μ g dissolved Copper/cm² per cleaning event for the modified epoxy coatings. They compared this to passive leaching of Copper for a 9.1m power boat over a period of a month and found that on a mass basis, roughly 95% of Copper is emitted during passive leaching compared to hull cleaning activities (Schiff, Diehl, & Valkirs, 2004).

The largest dimensioned vessel that could be taken into the Marine Engineering Workshop is 24m long. 24m long, 7m beam and 2.5m draft fin keeled and medium draft sail boats have underwater areas of $114m^2$ and $171m^2$ respectively (Nautix, 2021). Based on 8.6 µg dissolved Copper/cm² which is 0.086g/m² then the cleaning of a 24m long medium draft boat (assuming an area of $171m^2$) would generate 14.706g of Copper during cleaning.





As discussed in Section 5.2.1, in the region of 4.5 m^3 of water would be used to clean a vessel of this size over a 2.5 hour period. Hence the water generated would contain 3.286g/m³ which is 3286µg/l. This is calculated based on the largest vessel, however as discussed in Section 5.2.1 smaller boats will be quicker to clean and hence use less water, this will be directly proportionate to their surface area, hence it can be assumed that the concentration of Copper in the effluents arising will be similar to that for larger vessels.

As per Section 5.2.1 the total volume of washing water based on 130 vessels is 351m³ a year, assuming a Copper concentration of 3.286g/m³, then 1.154kg of Copper would be released to the drainage system a year.

It should be recognised that the 30 boats taken out of the water for winter, would have emitted Copper into the harbour over the 5 months they would have been moored up for. According to Schiff et al the cleaning of a boat is approximately equivalent to a boat being in the water for a month (Schiff et al., 2004). Even taking account of the boats being moored up and hence Copper leaching rates being less, cleaning emissions will at least be offset by the boats being out of the water for 5 months.

If present in the antifoul, Zinc can also be removed by cleaning activities, however the Zinc content of the antifoul coatings is much less than the Copper content, as such the amount of Zinc lost will be proportionally less than the Copper arising. In the absence of data on Zinc it is pessimistically assumed that the same amount of Zinc will be discharged as Copper on a mass basis noting that their respective atomic weights are 65.38 and 63.546g/mol and hence are very similar.

The release rates of soluble copper and zinc during hydro-blasting is reportedly higher than from washing, these are reportedly between 7.25 and $45.56\mu g/cm^2$ for Copper and 9.03 to $112.2\mu g/cm^2$ for Zinc (Soon et al, 2020).

Based on the largest sized vessels then hydro-blasting a vessel would give rise to between 12.40 and 77.9g of Copper and between 15.44g and 191.86g of Zinc. Assuming five vessels are hydro-blasted a year this is between 62g and 389.5g of Copper and 77.2 and 959.3g of Zinc.

6.4 Hydro-Blasting Generated Solids

Hydro-blasting is designed to remove coatings from vessels. The coatings will come off as flakes, these are likely to be washed towards the drainage system. Antifoul coatings are typically 300μ m to 500μ m thick (400μ m on average), as discussed in Section 6.3 the largest vessels will have a surface area of $171m^2$, hence the total volume of coating present on a vessel of this size assuming 400μ m thickness is $0.0684m^3$ (68.4l). The density of antifoul provided on the safety datasheets in Appendix 1 are the wet densities and are in the region of 1.4-1.6, however the dry density will be higher due to the loss of solvents. A conservative assumption of a density of 2 has been assumed for the purpose of this assessment. A large vessel would therefore give rise to 136.8kg of coating flakes. If it takes $28.8m^3$ of water to hydro-blast a vessel of this size (3 days of $9.6m^3$) then the solid content would be $4.75kg/m^3$ of wash water.

Worst case is that five of the largest vessels are washed in one year, this will give rise to a total of 684kg of coating particulates per annum. Flake sizes will vary, however based on the





Seaforce 30 data single coats dry film thickness should be 75 to $175\mu m$. Antifoul coatings flake and hence the film thickness is expected to be the smallest dimension of flakes arising.

Antifouls will be applied within the Marine Engineering Workshop, with appropriate floor coverings in place to catch 'splashes' of paint which will be disposed of as solid waste. These would also absorb any spills of antifoul to some extent. In event of larger spills, the spill kit would be utilised in line with the spill procedure, to prevent discharge to drain.

7 Abatement

7.1 Oil

As described in Section 4.1.2 the oil interceptor has a capacity of 200l of oil, this is equivalent to a barrel of oil. It is highly unlikely that spillage of a full barrel of oil would occur but if it were to occur then spill procedures should ensure that it doesn't all reach the drainage system however, if it were to, then it would be contained by the oil interceptor and the capacity of the drainage system overall.

Oil associated with surfaces of vessels which are washed, and small spillages/leaks will be appropriately abated by the oil interceptor, giving rise to discharges with <5mg/l.

If antifoul paints were to reach the BW & HMA drains, then the penstock on the oil interceptor would be closed in accordance with the spill procedure to prevent discharge to the environment and allow the situation to be recovered.

7.2 Particulate Abatement

Solids can be discharged with liquids into the drainage system small solids may be suspended within the water, whereas larger particles can be pushed into the drains, by sweeping or by the force of the power washers. Solids can be suspended due to their very small size (i.e. are colloidal) or due to the motion of the water. Particulate greater than 8mm will be caught by the drainage grates. Smaller particulates from washing and hydro-blasting activities will enter the Klargester W1/100 settling tank.

Flowrates associated with hydro-blasting are 0.4l/s of water while two power washers generate 0.5l/s of water. The settling tank provides 6 minutes of settling for flowrates of 20l/s. Hence much longer settling times are afforded, allowing time for even small particles to settle out. Settling tanks are designed to remove silts which are typically >63 μ m in diameter. As discussed in Section 6.3 flakes of antifoul are expected to have dimensions much larger than this and hence will settle out quickly.

Note particulates in the settling tank are not deemed to be an ongoing source of Copper and Zinc to the environment for the following reasons:

- Antifoul coatings being removed by hydro-blasting will be depleted of Copper and Zinc, hence why they are being replaced as such the source is very low.
- Freshwater is used for cleaning and hydro-blasting, hence the salinity in the settling tank will be very low, as such there will be a lack of chlorine present to react with the Copper and Zinc to make the metals soluble.





Any particulate entering the drainage system when washing or hydro-blasting isn't being undertaken will settle out in the oil interceptor, and hence only the smallest particles will be discharged.

8 Water Quality Effects

Table 8.1 details the discharges expected in a typical year from the drainage system, based on the calculations made in the previous sections.

Total Annual Discharge	3,279m ³
Annual Rainwater Discharge	2,784m ³
Wash Water Annual Discharge	351m ³
Wash Water Peak Flow	0.5l/s
Wash Water per Vessel Discharge Average	2.7m ³
Wash Water per Vessel Discharge Maximum	4.5m ³
Wash Water Copper Concentration	3.286g/m ³
Wash Water Copper Total Annual Discharge	1.154kg
Wash Water Zinc Concentration	3.286g/m ³
Wash Water Zinc Total Annual Discharge	1.154kg
Hydro-Blasting Annual Discharge to Drainage System	144m ³
Hydro-Blasting Particulate Concentration to Drainage System	4.75kg/m ³
Hydro-Blasting Total Particulates to Drainage System	684kg
Hydro-Blasting Copper Concentration	2.705g/m ³
Hydro-Blating Total Copper	0.3895kg
Hydro-Blasting Zinc Concentration	6.66g/m ³
Hydro-Blating Total Zinc	0.95931kg
Total Particulates Discharged to Sea	trace
Oil Discharges to sea.	<0.5mg/l
Total Annual Copper Discharge (worse case)	1.544kg
Total Annual Zinc Concentration (worse case)	2.113kg
Average Copper Concentration of Total Discharge	0.4707g/m ³
Average Zinc Concentration of Total Discharge	0.6450g/m ³

Table 8.1: Discharge Information Annual Averages

In accordance with WAT-SG-53 the Environmental Quality Standard (EQS) for Copper in saltwater is 5.09μ g/l and 7.9μ g/l for dissolved Zinc.

Hence, the effluent containing 3286μ g/l of Copper and Zinc would need to be diluted 646 times to be below the EQS for Copper and 416 times to meet the Zinc EQS. Assuming a maximum volume of $4.5m^3$ discharged from one vessel clean in on a dry day then it would need to discharge into approximately $3,000m^3$ of water to reach the EQS.

Hydro-blasting gives rise to higher concentrations of Zinc $6660\mu g/l$, this would need diluted 843 times to be below the EQS for Zinc. There could be $9.6m^3$ of water a day from hydro-blasting hence it would need diluted in $8093m^3$ of water.





As Shown in Drawing 161093-409 the outfall discharges directly into the sea below MLWS.

The discharge is into the Stornoway Harbour (Waterbody ID: 200191), which is a coastal water covering and area of approximately 3.1km^2 , the water depths vary from 0 to over 10m, assuming an average of 5m water depth the total volume of water present is 15.5million m³. Hence the dilution factor of 3000 can be provided 5000 times over within the water body, when it is only required 130 times a year. Furthermore, the Stornoway Harbour Body is directly linked to the Gob na Greige to Rubha Raerinis (Waterbody ID: 200188) which has an area 40.3km^2 and water depths of >10m for the majority of it, this in turn connects into the Minch and on into the Atlantic Ocean.

As such it is highly unlikely that discharges of Copper or Zinc will give rise in a breach of EQS for either metal, hence the chemical water quality status of the development will not be impacted by the discharge.

9 Conclusion

The detailed review of activities likely to be carried out on the BW & HMA and in the Marine Engineering Workshop has identified that there is a potential for Copper, Zinc, particulates (antifoul flakes) and oils to be discharged to the drainage system. The inclusion of a settlement tank and oil interceptor will abate the majority of oils and particulates, only soluble Copper and Zinc are expected to be released to the marine environment. The annual average quantity of 1.544kg and 2.113kg a year of copper and zinc respectively and a discharge concentration of 3.286g/m³ of copper during boat cleaning activities and 6.66g/m³ of zinc during hydroblasting will be readily diluted within the Stornoway Harbour waterbody to levels well below the respective EQS. As such there is no predicted reduction in the chemical or biological status of the waterbody due to the discharges for the Goat Island Facility.





10 References

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11 Glossary

Acronym	Definition
BW & HMA	Boat Washdown and Hoist Manoeuvring Area
EQS	Environmental Quality Standard
INNMS	Invasive, Non-Native Marine Species
SPA	Stornoway Port Authority
SPC	Self-Polishing Copolymer





Appendix 1 – Safety Data Sheets for Antifoul Coatings



SAFETY DATA SHEET

525/C256 - ANTIFOULING 'A' PLUS - RED, WHITE, BLACK & BLUE

According to Regulation (EC) No 1907/2006, Annex II, as amended. Commission Regulation (EU) No 2015/830 of 28 May 2015.

SECTION 1: Identification of the substance/mixture and of the company/undertaking				
1.1. Product identifier				
Product name	525/C256 - ANTIFOULING 'A' PLUS - RED, WHITE, BLACK & BLUE			
Product number	525/C256/65P, 1P, 2P & 4P			
1.2. Relevant identified uses	of the substance or mixture and uses advised against			
Identified uses	AS A COATING TO DISCOURAGE FOULANT FORMATION ON BOAT HULLS AND MARINE STRUCTURES ALSO SUITABLE AS A BOOTTOPPING			
1.3. Details of the supplier of	f the safety data sheet			
Supplier	TEAL & MACKRILL LIMITED LOCKWOOD STREET HULL HU2 0HN			
	+44(0)1482 320194(T) +44(0)1482 219266(F) info@teamac.co.uk			
Contact person	Technical Department -, 08.30 - 16.30 hrs Mon - Thurs, 08.30 - 15.00 hrs Fri, as above			
1.4. Emergency telephone n	umber			
Emergency telephone	+44 (0) 1482 320194 Teamac (08.30 - 16.30 hrs Mon - Thurs, 08.30 - 15.00 hrs Fri)			
SDS No.	11165			
SECTION 2: Hazards identif	ication			
2.1. Classification of the sub	stance or mixture			
Classification (EC 1272/200	<u>8)</u>			
Physical hazards	Flam. Liq. 3 - H226			
Health hazards	Eye Dam. 1 - H318 Skin Sens. 1 - H317			
Environmental hazards	Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410			
2.2. Label elements				
Pictogram				
Signal word	Danger			

525/C256 - ANTIFOULING 'A' PLUS - RED, WHITE, BLACK & BLUE

Hazard statements	H226 Flammable liquid and vapour. H318 Causes serious eye damage. H317 May cause an allergic skin reaction. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements	 P102 Keep out of reach of children. P101 If medical advice is needed, have product container or label at hand. P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 Avoid breathing vapour/ spray. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P501 Dispose of contents/ container in accordance with national regulations.
Supplemental label information	EUH066 Repeated exposure may cause skin dryness or cracking.
Contains	COPPER (1) THIOCYANATE 30.54%, ROSIN 21.07%, ZINC PYRITHIONE 3%
Supplementary precautionary statements	 P270 Do not eat, drink or smoke when using this product. P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P370+P378 In case of fire: Use alcohol resistant foam, carbon dioxide or dry powder to extinguish. P403+P235 Store in a well-ventilated place. Keep cool.

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients					
3.2. Mixtures					
COPPER (1) THIOCYANATE 30.54%			30-60%		
CAS number: 1111-67-7	EC number: 207-337	-4			
M factor (Acute) = 10	M factor (Chronic) = 1				
Classification Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410		Classification (67/548/EEC or 1999/45/EC) Xn;R20/21/22. R32.			
ROSIN 21.07%			10-30%		
CAS number: 8050-09-7	EC number: 232-475	-7	REACH registration number: 01-		
			2119480418-32-0032		
Classification		Classification (67/54	8/EEC or 1999/45/EC)		

525/C256 - ANTIFOULING 'A' PLUS - RED, WHITE, BLACK & BLUE

Calcium Carbonate				10-30%
CAS number: 1317-65-3	EC number: 215-27	9-6		
Classification Not Classified		Classification (67/5	48/EEC or 1999/45/EC)	
HYDROCARBONS, C9, AROMATICS				10-30%
CAS number: —	EC number: 918-66	8-5	REACH registration number: 01- 2119455851-35-xxxx	
Classification Flam. Liq. 3 - H226 STOT SE 3 - H335, H336 Asp. Tox. 1 - H304 Aquatic Chronic 2 - H411		Classification (67/5 Xn;R65. Xi;R37. N;	48/EEC or 1999/45/EC) R51/53. R10,R66,R67.	
HYDROCARBONS C9-C11, <2% ARO	MATICS			5-10%
CAS number: —	EC number: 919-85	7-5	REACH registration number: 01- 2119463258-33-XXXX	
Classification Flam. Liq. 3 - H226 STOT SE 3 - H336 Asp. Tox. 1 - H304		Classification (67/5 Xn;R65. R10,R66,F	48/EEC or 1999/45/EC) R67.	
Zinc Oxide				1-5%
CAS number: 1314-13-2	EC number: 215-22	2-5	REACH registration number: 01- 2119463881-32	
M factor (Acute) = 1	M factor (Chronic) =	1		
Classification Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410		Classification (67/5 N;R50/53.	48/EEC or 1999/45/EC)	
ZINC PYRITHIONE 3%				1-5%
CAS number: 13463-41-7	EC number: 236-67	1-3		
M factor (Acute) = 1	M factor (Chronic) =	1		
Classification Acute Tox. 3 - H301 Acute Tox. 3 - H331 Eye Dam. 1 - H318 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410		Classification (67/5 T;R23. Xn;R22. Xi;	48/EEC or 1999/45/EC) R41. N;R50.	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

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General information	If in doubt, get medical attention promptly. Show this Safety Data Sheet to the medical personnel.		
Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Loosen tight clothing such as collar, tie or belt. Get medical attention if symptoms are severe or persist.		
Ingestion	Rinse mouth thoroughly with water. Get medical advice/attention if you feel unwell. Do not induce vomiting unless under the direction of medical personnel.		
Skin contact	Rinse with water.		
Eye contact	Remove any contact lenses and open eyelids wide apart. Rinse with water. Get medical attention if any discomfort continues.		
Protection of first aiders	First aid personnel should wear appropriate protective equipment during any rescue.		
4.2. Most important symptoms	and effects, both acute and delayed		
General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.		
Inhalation	During application and drying, solvent vapours will be emitted. Vapours in high concentrations are narcotic.		
Ingestion	No specific symptoms known.		
Skin contact	Discoloration of the skin.		
Eye contact	No specific symptoms known. May be slightly irritating to eyes.		
4.3. Indication of any immediat	e medical attention and special treatment needed		
Notes for the doctor	Treat symptomatically.		
SECTION 5: Firefighting meas	ures		
5.1. Extinguishing media			
Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Do not use water jet as an extinguisher, as this will spread the fire.		
5.2. Special hazards arising fro	om the substance or mixture		
Specific hazards	Protection against nuisance dust must be used when the airborne concentration exceeds 10 mg/m3. Oxides of carbon. Oxides of nitrogen. Fire creates: Thermal decomposition or combustion products may include the following substances: Acrid smoke or fumes. Carbon monoxide (CO). Carbon dioxide (CO2). Nitrous gases (NOx).		
5.3. Advice for firefighters			
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.		
SECTION 6: Accidental release measures			
6.1. Personal precautions, protective equipment and emergency procedures			
Personal precautions	Avoid inhalation of vapours and contact with skin and eyes. Ensure suitable respiratory protection is worn during removal of spillages in confined areas.		

6.2. Environmental precautions
Environmental precautions	Avoid the spillage or runoff entering drains, sewers or watercourses. Contain spillage with
	sand, earth or other suitable non-combustible material. Spillages or uncontrolled discharges
	into watercourses must be reported immediately to the Environmental Agency or other
	appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with non-combustible, absorbent material. Collect and place in suitable waste disposal containers and seal securely. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Read and follow manufacturer's recommendations. Eliminate all sources of ignition. Vapours may accumulate on the floor and in low-lying areas. Use explosion proof electric equipment. Do not eat, drink or smoke when using the product. Avoid inhalation of vapours/spray and contact with skin and eyes. The Manual Handling Operations Regulations may apply to the handling of containers of this product. To assist employers, the following method of calculating the weight for any pack size is given. Take the pack size volume in litres and multiply this figure by the specific gravity value given in section 9. This will give the net weight of the coating in kilograms. Allowance will then have to be made for the immediate packaging to give an approximate gross weight.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions	Keep container tightly closed. Keep containers upright. Protect from light. Store in closed original container at temperatures between 5°C and 25°C. Store away from the following materials: Oxidising materials. Acids. Alkalis.
Storage class	Flammable liquid storage. The storage and use of this product is subject to the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR). The requirements are given in the HSE Approved Code of Practice and Guidance, Storage of Dangerous Substances: DSEAR. Up to 250 litres of liquids with a flashpoint above 32C but below 55C may be kept in a workroom provided they are kept in closed containers in a marked, fire-resisting cupboard or bin. Larger quantities must be kept in a separate , marked storeroom conforming to the structural requirements contained in the HSE guidance note Storage of Flammable Liquids in Containers.

7.3. Specific end use(s)

Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits COPPER (1) THIOCYANATE 30.54%

Long-term exposure limit (8-hour TWA): OES 1.0 Cu mg/m3 total dust Short-term exposure limit (15-minute): OES 2.0 Cu mg/m3 total dust

Calcium Carbonate

Long-term exposure limit (8-hour TWA): WEL 10 mg/m³ inhalable dust Long-term exposure limit (8-hour TWA): WEL 4 mg/m³ respirable dust

HYDROCARBONS, C9, AROMATICS

Long-term exposure limit (8-hour TWA): WEL 19 ppm 100 mg/m³ vapour

ZINC PYRITHIONE 3%

Long-term exposure limit (8-hour TWA): WEL 0.35 mg/m³

WEL = Workplace Exposure Limit

ROSIN 21.07% (CAS: 8050-09-7)

DNEL	Workers - Dermal; Long term : 25 mg/kg/day Workers - Inhalation; Long term : 176.32 mg/m³ General population - Dermal; Long term : 15 mg/kg/day General population - Inhalation; Long term : 52.174 mg/m³ General population - Oral; Long term : 15 mg/kg/day	
PNEC	- Fresh water; 0.005 mg/l - marine water; 0.0005 mg/l - STP; 1000 mg/l - Sediment (Marinewater); 10.8 mg/kg - Soil; 21.4 mg/kg	
	HYDROCARBONS, C9, AROMATICS	
DNEL	Consumer - Oral; Long term systemic effects: 11 mg/kg/day Consumer - Dermal; Long term systemic effects: 11 mg/kg/day Consumer - Inhalation; Long term systemic effects: 32 mg/m ³ Industry - Dermal; Long term systemic effects: 25 mg/kg/day Industry - Inhalation; Long term systemic effects: 150 mg/m ³	
PNEC	No PNEC available. Substance is a hydrocarbon UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for the risk assessment of this complex substance.	
HYDROCARBONS C9-C11, <2% AROMATICS		
DNEL	Consumer - Oral; Long term systemic effects: 300 mg/kg/day Industry - Inhalation; Long term systemic effects: 1500 mg/m ³ Industry - Dermal; Long term systemic effects: 300 mg/kg/day Consumer - Dermal; Long term systemic effects: 300 mg/kg/day Consumer - Inhalation; Long term systemic effects: 900 mg/m ³	
PNEC	No PNEC available. Substance is a hydrocarbon UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for the risk assessment of this complex substance.	
Zinc Oxide (CAS: 1314-13-2)		
DNEL	Professional - Dermal; Long term systemic effects: 83 mg/kg/day Professional - Inhalation; Long term systemic effects: 5 mg/m ³ Consumer - Inhalation; Long term systemic effects: 2.5 mg/m ³ Consumer - Dermal; Long term systemic effects: 83 mg/kg/day Consumer - Oral; Long term systemic effects: 0.83 mg/kg	

PNEC

- Fresh water; 0.0206 mg/l
- marine water; 0.0061 mg/l
- Sediment (Freshwater); 117 mg/kg
- STP; 0.1 mg/l
- Sediment (Marinewater); 56.5 mg/kg
- Soil; 35.6 mg/kg

8.2. Exposure controls

Protective equipment







Appropriate engineering Provide adequate general and local exhaust ventilation. Observe any occupational exposure controls limits for the product or ingredients. PREVENT CHILDREN TOUCHING WET PAINT. Unprotected persons should be kept away Personal protection from treated areas. Eye/face protection Wear chemical splash goggles. Hand protection To protect hands from chemicals, gloves should comply with European Standards EN388 and 374. As a general principle, exposure should be managed by means other than the provision of protective gloves. Manufacturer's performance data suggest that the optimum glove for use should be: Polyvinyl alcohol (PVA). Thickness: ≥ 0.2 - 0.3 mm or Polyethylene. Thickness: ≥ 0.062 mm Permeation breakthrough time according to EN374 - class: (1-6) e.g. minimum 480 mins. Caution: The performance of gloves under actual working conditions can be significantly affected by many factors and the information provided according to EN374 may not accord with what is achieved in practice. We recommend that expert professional advice is sought that takes into account of the work processes and working environment applicable for each task where gloves are to be worn. Other skin and body Wear suitable protective clothing (coveralls of a contrasting colour to the product being protection applied, underneath a disposable coverall with hood), suitable gloves and impervious footwear that protects the lower leg Hygiene measures Use engineering controls to reduce air contamination to permissible exposure level. Wash promptly with soap and water if skin becomes contaminated. Remove contaminated clothing and wash the skin thoroughly with soap and water after work. Respiratory protection Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit. If ventilation is inadequate, suitable respiratory protection must be worn. Disposable filtering half mask respirators should comply with European Standard EN149 or EN405. Use respiratory equipment with gas filter, type A2. Only PROFESSIONALS are permitted to apply this product by spray. Air-fed respiratory protective equipment with combined helmet and visor should be worn when this product is sprayed. This should be in addition to other measures to reduce exposure (e.g. in booth design and operation and process modifications). Environmental exposure INPORTANT: Application, maintenance and repair activities must be conducted within a controls contained area to prevent losses and minimise emissions to the environment. This means activities must take place on impermeable hard standings with bunding or on soil covered with an impermeable material. Any losses or waste containing antifouling biocides shall be collected for reuse or disposal.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Viscous liquid. Coloured liquid.
Colour	Various colours
Odour	Characteristic. Organic solvents.
Odour threshold	Not determined.
рН	Technically not feasible.
Melting point	Not determined.
Initial boiling point and range	Not determined.
Flash point	38°C Closed cup.
Evaporation rate	Not determined.
Evaporation factor	Not determined.
Upper/lower flammability or explosive limits	: 0.8
Other flammability	Not determined.
Vapour pressure	Not determined.
Vapour density	heavier than air
Relative density	1.41 - 1.49 @ @ 20C°C
Solubility(ies)	Insoluble in water
Partition coefficient	Not determined.
Auto-ignition temperature	Not determined.
Decomposition Temperature	Not determined.
Viscosity	5.0 (ICI Rotothinner) P @ 25°C
Explosive properties	Not determined.
Explosive under the influence of a flame	Not considered to be explosive.
Oxidising properties	Not determined.
9.2. Other information	
SECTION 10: Stability and rea	ctivity
10.1. Reactivity	
Reactivity	There are no known reactivity hazards associated with this product.
10.2. Chemical stability	
Stability	Stable at normal ambient temperatures and when used as recommended.
10.3. Possibility of hazardous r	reactions
Possibility of hazardous reactions	Not determined.
10.4. Conditions to avoid	
Conditions to avoid	Avoid heat, flames and other sources of ignition. Avoid contact with the following materials: Acids. Oxidising agents.

10.5. Incompatible materials

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Materials to avoid	Strong alkalis. Strong acids. Strong oxidising agents.
10.6. Hazardous decompositio	n products
Hazardous decomposition products	Oxides of carbon. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.
SECTION 11: Toxicological inf	ormation
11.1. Information on toxicologic	cal effects
Toxicological effects	No data recorded.
Acute toxicity - oral ATE oral (mg/kg)	3,331.11
Acute toxicity - inhalation	
ATE inhalation (gases ppm)	23,317.79
ATE inhalation (vapours mg/l)	99.93
ATE inhalation (dusts/mists mg/l)	16.66
General information	Prolonged and repeated contact with solvents over a long period may lead to permanent health problems.
Inhalation	May cause respiratory system irritation. Vapours in high concentrations are narcotic. Symptoms following overexposure may include the following: Headache. Fatigue. Dizziness. Nausea, vomiting. The product contains organic solvents. Overexposure may depress the central nervous system, causing dizziness and intoxication.
Ingestion	Liquid irritates mucous membranes and may cause abdominal pain if swallowed. May cause irritation. Symptoms following overexposure may include the following: Stomach pain. Nausea, vomiting. Diarrhoea. May cause nausea, headache, dizziness and intoxication.
Skin contact	May be absorbed through the skin. Product has a defatting effect on skin. Repeated exposure may cause skin dryness or cracking. May cause allergic contact eczema.
Eye contact	Irritation of eyes and mucous membranes.
Route of exposure	Inhalation Skin absorption. Ingestion. Skin and/or eye contact.
Toxicological information on ingredients.	

ROSIN 21.07%

Acute toxicity - oral	
Acute toxicity oral (LD₅₀ mg/kg)	2,800.0
Species	Rat
ATE oral (mg/kg)	2,800.0
Acute toxicity - dermal	
Acute toxicity dermal (LD₅₀ mg/kg)	2,001.0
Species	Rabbit

ATE dermal (mg/kg)	2,001.0
	HYDROCARBONS, C9, AROMATICS
Acute toxicity - oral	
Acute toxicity oral (LD₅₀ mg/kg)	3,492.0
Species	Rat
Notes (oral LD₅₀)	Based on available data the classification criteria are not met.
ATE oral (mg/kg)	3,492.0
Acute toxicity - dermal	
Acute toxicity dermal (LD₅₀ mg/kg)	3,160.0
Species	Rabbit
Notes (dermal LD₅₀)	Based on available data the classification criteria are not met.
ATE dermal (mg/kg)	3,160.0
Acute toxicity - inhalation	
Acute toxicity inhalation (LC₅ vapours mg/l)	6,193.0
Species	Rat
Notes (inhalation LC ₅₀)	Based on available data the classification criteria are not met.
ATE inhalation (vapours mg/l)	6,193.0
Skin corrosion/irritation	
Animal data	Repeated exposure may cause skin dryness or cracking.
Serious eye damage/irritatio	<u>on</u>
Serious eye damage/irritation	Based on available data the classification criteria are not met.
Respiratory sensitisation	
Respiratory sensitisation	Based on available data the classification criteria are not met.
Skin sensitisation	
Skin sensitisation	Based on available data the classification criteria are not met.
Germ cell mutagenicity	
Genotoxicity - in vitro	Based on available data the classification criteria are not met.
Carcinogenicity	
Carcinogenicity	Based on available data the classification criteria are not met.
IARC carcinogenicity	None of the ingredients are listed or exempt.
Reproductive toxicity	
Reproductive toxicity - fertility	Based on available data the classification criteria are not met.

Reproductive toxicity - development	Based on available data the classification criteria are not met.
Specific target organ toxicit	y - single exposure
STOT - single exposure	STOT SE 3 - H335, H336 May cause respiratory irritation. May cause drowsiness or dizziness.
Target organs	Respiratory system, lungs Central nervous system
Specific target organ toxicit	y - repeated exposure
STOT - repeated exposure	Not classified as a specific target organ toxicant after repeated exposure.
Aspiration hazard	
Aspiration hazard	Asp. Tox. 1 - H304 May be fatal if swallowed and enters airways. Pneumonia may be the result if vomited material containing solvents reaches the lungs.
General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	A single exposure may cause the following adverse effects: Irritation of nose, throat and airway. Difficulty in breathing. Coughing. Vapours may cause headache, fatigue, dizziness and nausea. Central nervous system depression. During application and drying, solvent vapours will be emitted. Vapours in high concentrations are narcotic.
Ingestion	Gastrointestinal symptoms, including upset stomach. Fumes from the stomach contents may be inhaled, resulting in the same symptoms as inhalation. Aspiration hazard if swallowed. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.
Skin contact	Repeated exposure may cause skin dryness or cracking. Discoloration of the skin.
Eye contact	May cause temporary eye irritation.
Route of exposure	Ingestion Inhalation Skin and/or eye contact
Target organs	Central nervous system Respiratory system, lungs
	Zinc Oxide
Acute toxicity - oral	
Acute toxicity oral (LD ₅₀ mg/kg)	5,100.0
Species	Rat
ATE oral (mg/kg)	5,100.0
Acute toxicity - dermal	
Acute toxicity dermal (LD₅₀ mg/kg)	5,100.0
Species	Rat
ATE dermal (mg/kg)	5,100.0

Acute toxicity - inhalation

	Acute toxicity inhalation (LC₅₀ dust/mist mg/l)	5.71
	Species	Rat
	ATE inhalation (dusts/mists mg/l)	5.71
		ZINC PYRITHIONE 3%
	Acute toxicity - oral	
	ATE oral (mg/kg)	100.0
	Acute toxicity - dermal	
	Acute toxicity dermal (LD₅ mg/kg)	2,000.0
	Species	Rat
	Skin corrosion/irritation	
	Animal data	Not irritating.
	Respiratory sensitisation	
	Respiratory sensitisation	Not sensitising.
	Skin sensitisation	
	Skin sensitisation	Not sensitising.
	Carcinogenicity	
	Carcinogenicity	There is no evidence that the product can cause cancer.
	Specific target organ toxicit	y - repeated exposure
	STOT - repeated exposure	Not classified as a specific target organ toxicant after repeated exposure.
SECTION 12: Ecological information		
Ecotoxicity	y There are no data on the ecotoxicity of this product. The product contains a substance which is very toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.	
12.1. Toxicit	<u>y</u>	
Ecological in	nformation on ingredients.	
		COPPER (1) THIOCYANATE 30.54%
	Acute aquatic toxicity	
	LE(C)₅₀	$0.01 < L(E)C50 \le 0.1$
	M factor (Acute)	10
	Acute toxicity - fish	LC50, > 96 hours: 0.07 mg/l, Lepomis macrochirus (Bluegill)
	Chronic aquatic toxicity	
	M factor (Chronic)	1
		ROSIN 21.07%
	Acute aquatic toxicity	

Acute toxicity - fish	LL ₅₀ , 96 hours: >1000 mg/l, Brachydanio rerio (Zebra Fish)
Acute toxicity - aquatic invertebrates	EC₀, 48 hours: 911 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC₀, 72 hours: >1000 mg/l,

HYDROCARBONS, C9, AROMATICS

Toxicity	Aquatic Chronic 2 - H411 Toxic to aquatic life with long lasting effects.
Acute aquatic toxicity	
Acute toxicity - fish	LC₅₀, 96 hours: 9.2 mg/l, Oncorhynchus mykiss (Rainbow trout)
Acute toxicity - aquatic invertebrates	EC₅₀, 48 hours: 3.2 mg/l, Daphnia magna
Acute toxicity - microorganisms	EC₅₀, 48 hours: 2.9 mg/l,
	Zinc Oxide
Acute aquatic toxicity	

LE(C)50	0.1 < L(E)C50 ≤ 1	
M factor (Acute)	1	
Acute toxicity - fish	LC50, 96 hours: 1.1 to 2.5 ppm , Oncorhynchus mykiss (Rainbow trout)	
Acute toxicity - aquatic invertebrates	EC₅₀, 48 hours: 1 mg/l, Daphnia magna NOEC, 48 hours: 0.4 mg/l, Daphnia magna	
Acute toxicity - aquatic plants	EC₅₀, 72 hours: 0.17 mg/l, Selenastrum capricornutum NOEC, 72 hours: 0.017 mg/l, Selenastrum capricornutum	
Chronic aquatic toxicity		
NOEC	0.01 < NOEC ≤ 0.1	
Degradability	Non-rapidly degradable	
M factor (Chronic)	1	
	ZINC PYRITHIONE 3%	
Acute aquatic toxicity		
LE(C)50	$0.1 < L(E)C50 \le 1$	
M factor (Acute)	1	
Acute toxicity - fish	LC50, ~ 96 hours: 0.0026 mg/l, Pimephales promelas (Fat-head Minnow)	
Acute toxicity - aquatic invertebrates	EC₅₀, ~ 48 hours: 0.0082 mg/l, Daphnia magna	
Acute toxicity - aquatic plants	EC₅₀, 96 hours: 0.0012 mg/l, Marinewater algae	
Chronic aquatic toxicity		
M factor (Chronic)	1	

12.2. Persistence and degradability

Persistence and degradability No data available.

Ecological information on ingredients.

ROSIN 21.07%

	Persistence and degradability		The product is readily biodegradable.
	Biodegradation		- Degradation 71%: 28 days
			HYDROCARBONS, C9, AROMATICS
	Persistence and degradability		The degradability of the product is not known.
	Biodegradation		- 78%: 28 days
			ZINC PYRITHIONE 3%
	Persistence and degradability		The product is readily biodegradable.
12.3. Bioacc	cumulative potentia	1	
Bioaccumula	ative potential	No data	available on bioaccumulation.
Partition coe	efficient	Not dete	rmined.
Ecological in	nformation on ingre	dients.	
			ROSIN 21.07%
	Partition coefficier	nt	log Kow: > 6 Probably
			HYDROCARBONS, C9, AROMATICS
	Bioaccumulative p	otential	No data available on bioaccumulation.
	Partition coefficier	nt	Not available.
			Zinc Oxide
	Partition coefficier	nt	log Pow: 2.2
			ZINC PYRITHIONE 3%
	Bioaccumulative p	otential	BCF: 50,
	Partition coefficier	nt	log Pow: 0.93
12.4. Mobilit	y in soil		
Mobility		The proc surfaces	luct contains volatile organic compounds (VOCs) which will evaporate easily from all .
Ecological in	nformation on ingre	dients.	

HYDROCARBONS, C9, AROMATICS

Mobility	No data available.
12.5. Results of PBT and vPv	B assessment
Results of PBT and vPvB assessment	This product does not contain any substances classified as PBT or vPvB.
Ecological information on ingr	edients.
	HYDROCARBONS, C9, AROMATICS
Results of PBT a assessment	Ind vPvB This substance is not classified as PBT or vPvB according to current EU criteria.
	ZINC PYRITHIONE 3%
Results of PBT a assessment	Ind vPvB This substance is not classified as PBT or vPvB according to current EU criteria.
12.6. Other adverse effects	
Other adverse effects	The product contains volatile organic compounds (VOCs) which have a photochemical ozone creation potential.
Ecological information on ingr	edients.
	HYDROCARBONS, C9, AROMATICS
Other adverse e	ffects None known.
SECTION 13: Disposal consid	lerations
13.1. Waste treatment method	<u>ts</u>
General information	Waste is classified as hazardous waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.
Waste class	When this coating, in its liquid state, as supplied, becomes a waste, it is categorised as hazardous waste, with code 08 01 11* (SOLVENT BASED LIQUID WASTE). Part-used containers, not drained and/or rigorously scraped out and containing dried residues of the supplied coating, are categorised as hazardous waste, with code 08 01 11* (SOLVENT BASED LIQUID WASTE). If mixed with other wastes, the above waste code may not be applicable. Used containers, drained and/or rigorously scraped out and containing dry residues of the supplied coating, are categorised as non-hazardous waste, with code 15 01 02 (plastic packaging) or 15 01 04 (metal packaging).
SECTION 14: Transport inform	nation
General	This product is packed in accordance with the Limited Quantity Provisions of CDGCPL2, ADR and IMDG.
14.1. UN number	
UN No. (ADR/RID)	1263
UN No. (IMDG)	1263
UN No. (ICAO)	1263
14.2. UN proper shipping nam	
Proper shipping name (ADR/RID)	PAINT

Proper shipping name (IMDG) PAINT

- Proper shipping name (ICAO) PAINT
- 14.3. Transport hazard class(es)
- ADR/RID class 3
- IMDG class 3
- ICAO class/division

Transport labels



14.4. Packing group

ADR/RID packing group	
IMDG packing group	III
ICAO packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

3



14.6. Special precautions for user

EmS F-E, S-E

Tunnel restriction code (D/E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable. Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations	This product is approved under the Control of Pesticides Regulations 1986. Product C259/- series - H.S.E. No.8375.
EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet	 ATE: Acute Toxicity Estimate. ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. CAS: Chemical Abstracts Service. DNEL: Derived No Effect Level. GHS: Globally Harmonized System. ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air. IMDG: International Maritime Dangerous Goods. LC₅₀: Lethal Concentration to 50 % of a test population. LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose). PBT: Persistent, Bioaccumulative and Toxic substance. PNEC: Predicted No Effect Concentration. REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006. vPvB: Very Persistent and Very Bioaccumulative. MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. cATpE: Converted Acute Toxicity Point Estimate. BCF: Bioconcentration Factor.
Classification abbreviations and acronyms	ECso: 50% of maximal Effective Concentration. Acute Tox. = Acute toxicity Aquatic Acute = Hazardous to the aquatic environment (acute) Aquatic Chronic = Hazardous to the aquatic environment (chronic) Asp. Tox. = Aspiration hazard Carc. = Carcinogenicity Eye Dam. = Serious eye damage Eye Irrit. = Eye irritation Flam. Liq. = Flammable liquid Repr. = Reproductive toxicity Resp. Sens. = Respiratory sensitisation Skin Corr. = Skin corrosion Skin Irrit. = Skin irritation Stin Sens. = Skin sensitisation STOT RE = Specific target organ toxicity-repeated exposure STOT SE = Specific target organ toxicity-single exposure
Training advice	It is recommended that all users of these materials should ensure that they are properly trained in the operation, use and working practices associated with this class of products. This may be in the form of supervised experience, manufacturers training or preferably nationally accredited training courses.
Revision comments	Issued in new format for Reach compliance in accordance with EC 1272/2008 Issued in accordance with Annex II to REACH, as amended by Commission Regulation (EU) No. 2015/830 Revision to sections 2, 8, 11 & 12 for reclassification of solvents.
Issued by	Technical Dept. (P.E.)
Revision date	28/01/2019
Revision	6.1
Supersedes date	10/12/2018
SDS number	11165
SDS status	Approved.

Hazard statements in full	H226 Flammable liquid and vapour. H301 Toxic if swallowed		
	H304 May be fatal if swallowed and enters airways.		
	H317 May cause an allergic skin reaction.		
	H318 Causes serious eye damage.		
	H331 Toxic if inhaled.		
	H335 May cause respiratory irritation.		
	H336 May cause drowsiness or dizziness.		
	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.		
Signature	Initials		

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 525/C258 - ANTIFOULING 'D' PLUS -ALL COLOURS

According to Regulation (EC) No 1907/2006, Annex II, as amended. Commission Regulation (EU) No 2015/830 of 28 May 2015.

SECTION 1: Identification of th	e substance/mixture and of the company/undertaking		
1.1. Product identifier			
Product name	525/C258 - ANTIFOULING 'D' PLUS -ALL COLOURS		
Product number	525/C258/2P,3P,4P,5P		
1.2. Relevant identified uses of	the substance or mixture and uses advised against		
Identified uses	AS A COATING TO DISCOURAGE FOULANT FORMATION ON BOAT HULLS AND MARINE STRUCTURES		
1.3. Details of the supplier of the	le safety data sheet		
Supplier	TEAL & MACKRILL LIMITED LOCKWOOD STREET HULL HU2 0HN		
	+44(0)1482 320194(T) +44(0)1482 219266(F) info@teamac.co.uk		
Contact person	Technical Department -, 08.30 - 16.30 hrs Mon - Thurs, 08.30 - 15.00 hrs Fri, as above		
1.4. Emergency telephone num	iber		
Emergency telephone	+44 (0) 1482 320194 Teamac (08.30 - 16.30 hrs Mon - Thurs, 08.30 - 15.00 hrs Fri)		
SDS No.	10489		
SECTION 2: Hazards identification	tion		
2.1. Classification of the substa	ince or mixture		
Classification (EC 1272/2008)			
Physical hazards	Flam. Liq. 3 - H226		
Health hazards	Acute Tox. 4 - H302 Eye Dam. 1 - H318 Skin Sens. 1 - H317		
Environmental hazards	Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410		
2.2. Label elements			
Pictogram			
Signal word	Danger		

525/C258 - ANTIFOULING 'D' PLUS -ALL COLOURS

Hazard statements	 H226 Flammable liquid and vapour. H302 Harmful if swallowed. H318 Causes serious eye damage. H317 May cause an allergic skin reaction. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements	 P102 Keep out of reach of children. P101 If medical advice is needed, have product container or label at hand. P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 Avoid breathing vapour/ spray. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301+P312 IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell. P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P501 Dispose of contents/ container in accordance with national regulations.
Supplemental label information	EUH066 Repeated exposure may cause skin dryness or cracking.
Contains	CUPROUS OXIDE 29.31%, ROSIN 21.33%, ZINC PYRITHIONE 2.86%
Supplementary precautionary statements	 P264 Wash contaminated skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P333+P313 If skin irritation or rash occurs: Get medical advice/ attention. P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish. P403+P235 Store in a well-ventilated place. Keep cool.

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients			
3.2. Mixtures			
CUPROUS OXIDE 29.31%		10-30%	
CAS number: 1317-39-1	EC number: 215-270-7	REACH registration number: 01- 2119513794-36-0000	
M factor (Acute) = 100	M factor (Chronic) = 100		
Classification	Classificatio	on (67/548/EEC or 1999/45/EC)	
Acute Tox. 4 - H302 Acute Tox. 4 - H332 Evo Dom 1 H218	X11,1522. N,1	NOU/33 .	
Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410			

ROSIN 21.33%			10-30%	%
CAS number: 8050-09-7	EC number: 232-47	75-7	REACH registration number: 01- 2119480418-32-0032	
Classification Skin Sens. 1 - H317		Classification (67/5 R43	48/EEC or 1999/45/EC)	
Calcium Carbonate			10-30%	%
CAS number: 1317-65-3	EC number: 215-27	'9-6		
Classification Not Classified		Classification (67/5 -	48/EEC or 1999/45/EC)	
HYDROCARBONS, C9, AROMATICS			10-30%	%
CAS number: —	EC number: 918-66	8-5	REACH registration number: 01- 2119455851-35-xxxx	
Classification Flam. Liq. 3 - H226 STOT SE 3 - H335, H336 Asp. Tox. 1 - H304 Aquatic Chronic 2 - H411		Classification (67/5 Xn;R65. Xi;R37. N;	48/EEC or 1999/45/EC) R51/53. R10,R66,R67.	
HYDROCARBONS, C9-C11, <2% ARC	MATICS		5-10%	%
CAS number: —	EC number: 919-85	57-5	REACH registration number: 01- 2119463258-33-XXXX	
Classification Flam. Liq. 3 - H226 STOT SE 3 - H336 Asp. Tox. 1 - H304		Classification (67/5 Xn;R65. R10,R66,F	48/EEC or 1999/45/EC) R67.	
Zinc Oxide			1-5%	%
CAS number: 1314-13-2	EC number: 215-22	2-5	REACH registration number: 01- 2119463881-32	
M factor (Acute) = 1	M factor (Chronic) =	= 1		
Classification Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410		Classification (67/5 N;R50/53.	48/EEC or 1999/45/EC)	

ZINC PYRITHIONE 2.86%		1-5%
CAS number: 13463-41-7	EC number: 236-671-3	
M factor (Acute) = 1	M factor (Chronic) = 1	
Classification Acute Tox. 3 - H301 Acute Tox. 3 - H331 Eye Dam. 1 - H318 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	Classification (67/548/EEC or 1999/45/EC) T;R23. Xn;R22. Xi;R41. N;R50.	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid mea	asures	
General information	If in doubt, get medical attention promptly. Show this Safety Data Sheet to the medical personnel.	
Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Loosen tight clothing such as collar, tie or belt. Get medical attention if symptoms are severe or persist.	
Ingestion	Rinse mouth thoroughly with water. Get medical advice/attention if you feel unwell. Do not induce vomiting unless under the direction of medical personnel.	
Skin contact	Rinse with water.	
Eye contact	Remove any contact lenses and open eyelids wide apart. Rinse with water. Get medical attention if any discomfort continues.	
Protection of first aiders	First aid personnel should wear appropriate protective equipment during any rescue.	
4.2. Most important symptoms	and effects, both acute and delayed	
General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.	
Inhalation	During application and drying, solvent vapours will be emitted. Vapours in high concentrations are narcotic.	
Ingestion	No specific symptoms known.	
Skin contact	Discoloration of the skin.	
Eye contact	No specific symptoms known. May be slightly irritating to eyes.	
4.3. Indication of any immediate medical attention and special treatment needed		
Notes for the doctor	Treat symptomatically.	
SECTION 5: Firefighting meas	ures	

5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards	Protection against nuisance dust must be used when the airborne concentration exceeds 10 mg/m3. Oxides of carbon. Oxides of nitrogen. Fire creates: Thermal decomposition or combustion products may include the following substances: Acrid smoke or fumes. Carbon monoxide (CO). Carbon dioxide (CO2). Nitrous gases (NOx).	
5.3. Advice for firefighters		
Special protective equipmentWear positive-pressure self-contained breathing apparatus (SCBA) and appropriate proor firefightersclothing.		
SECTION 6: Accidental release	e measures	
6.1. Personal precautions, prot	ective equipment and emergency procedures	
Personal precautions	Avoid inhalation of vapours and contact with skin and eyes. Ensure suitable respiratory protection is worn during removal of spillages in confined areas.	
6.2. Environmental precautions	<u>}</u>	
Environmental precautions	Avoid the spillage or runoff entering drains, sewers or watercourses. Contain spillage with sand, earth or other suitable non-combustible material. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.	
6.3. Methods and material for c	containment and cleaning up	
Methods for cleaning up	Absorb spillage with non-combustible, absorbent material. Collect and place in suitable waste disposal containers and seal securely. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.	
6.4. Reference to other section	s	
Reference to other sections	For personal protection, see Section 8.	
SECTION 7: Handling and stor	age	
7.1. Precautions for safe handl	 ing	
Usage precautions	Read and follow manufacturer's recommendations. Eliminate all sources of ignition. Vapours may accumulate on the floor and in low-lying areas. Use explosion proof electric equipment. Do not eat, drink or smoke when using the product. Avoid inhalation of vapours/spray and contact with skin and eyes. The Manual Handling Operations Regulations may apply to the handling of containers of this product. To assist employers, the following method of calculating the weight for any pack size is given. Take the pack size volume in litres and multiply this figure by the specific gravity value given in section 9. This will give the net weight of the coating in kilograms. Allowance will then have to be made for the immediate packaging to give an approximate gross weight.	
7.2. Conditions for safe storage	ə, including any incompatibilities	
Storage precautions	Keep container tightly closed. Keep containers upright. Protect from light. Store in closed original container at temperatures between 5°C and 25°C. Store away from the following materials: Oxidising materials. Acids. Alkalis.	
Storage class	Flammable liquid storage. The storage and use of this product is subject to the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR). The requirements are given in the HSE Approved Code of Practice and Guidance, Storage of Dangerous Substances: DSEAR. Up to 250 litres of liquids with a flashpoint above 32C but below 55C may be kept in a workroom provided they are kept in closed containers in a marked, fire-resisting cupboard or bin. Larger quantities must be kept in a separate , marked storeroom conforming to the structural requirements contained in the HSE guidance note Storage of Flammable Liquids in Containers.	

7.3. Specific end use(s)

Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

CUPROUS OXIDE 29.31%

Long-term exposure limit (8-hour TWA): WEL 1 as Cu mg/m3 total dust Short-term exposure limit (15-minute): WEL 2 as Cu mg/m3 total dust

Calcium Carbonate

Long-term exposure limit (8-hour TWA): WEL 10 mg/m³ inhalable dust Long-term exposure limit (8-hour TWA): WEL 4 mg/m³ respirable dust

HYDROCARBONS, C9, AROMATICS

Long-term exposure limit (8-hour TWA): WEL 19 ppm 100 mg/m³ vapour

ZINC PYRITHIONE 2.86%

Long-term exposure limit (8-hour TWA): WEL 0.35 mg/m³ WEL = Workplace Exposure Limit

CUPROUS OXIDE (CAS: 1317-39-1)

DNEL	Workers - Dermal; Long term systemic effects: 137 mg/kg/day Workers - Dermal; Long term systemic effects: 13.7 slurries or copper compounds in solution mg/kg/day
PNEC	 Fresh water; micro l/g dissolved Cu/L marine water; 5.2 micro l/g dissolved Cu/L Sediment (Freshwater); 87 mg/kg Sediment (Marinewater); 676 mg/kg Soil; 65 mg/kg STP; 0.23 mg/l
	ROSIN 21.33% (CAS: 8050-09-7)
DNEL	Workers - Dermal; Long term : 25 mg/kg/day Workers - Inhalation; Long term : 176.32 mg/m ³ General population - Dermal; Long term : 15 mg/kg/day General population - Inhalation; Long term : 52.174 mg/m ³ General population - Oral; Long term : 15 mg/kg/day
PNEC	- Fresh water; 0.005 mg/l - marine water; 0.0005 mg/l - STP; 1000 mg/l - Sediment (Marinewater); 10.8 mg/kg - Soil; 21.4 mg/kg
	HYDROCARBONS, C9, AROMATICS
DNEL	Consumer - Oral; Long term systemic effects: 11 mg/kg/day Consumer - Dermal; Long term systemic effects: 11 mg/kg/day Consumer - Inhalation; Long term systemic effects: 32 mg/m ³ Industry - Dermal: Long term systemic effects: 25 mg/kg/day

Industry - Inhalation; Long term systemic effects: 150 mg/m³

PNEC	No PNEC available. Substance is a hydrocarbon UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for the risk assessment of this complex substance.
	HYDROCARBONS, C9-C11, <2% AROMATICS
DNEL	Consumer - Oral; Long term systemic effects: 300 mg/kg/day Industry - Inhalation; Long term systemic effects: 1500 mg/m ³ Industry - Dermal; Long term systemic effects: 300 mg/kg/day Consumer - Dermal; Long term systemic effects: 300 mg/kg/day Consumer - Inhalation; Long term systemic effects: 900 mg/m ³
PNEC	No PNEC available. Substance is a hydrocarbon UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for the risk assessment of this complex substance.
	Zinc Oxide (CAS: 1314-13-2)
DNEL	Professional - Dermal; Long term systemic effects: 83 mg/kg/day Professional - Inhalation; Long term systemic effects: 5 mg/m ³ Consumer - Inhalation; Long term systemic effects: 2.5 mg/m ³ Consumer - Dermal; Long term systemic effects: 83 mg/kg/day Consumer - Oral; Long term systemic effects: 0.83 mg/kg
PNEC	 Fresh water; 0.0206 mg/l marine water; 0.0061 mg/l Sediment (Freshwater); 117 mg/kg STP; 0.1 mg/l Sediment (Marinewater); 56.5 mg/kg Soil; 35.6 mg/kg
ure controls	

8.2. Exposure controls Protective equipment



Appropriate engineering controls

Personal protection

Eye/face protection

Hand protection



Provide adequate general and local exhaust ventilation. Observe any occupational exposure limits for the product or ingredients.

Unprotected persons should be kept away from treated areas.

Wear chemical splash goggles.

To protect hands from chemicals, gloves should comply with European Standards EN388 and 374. As a general principle, exposure should be managed by means other than the provision of protective gloves. Manufacturer's performance data suggest that the optimum glove for use should be: Polyvinyl alcohol (PVA). Thickness: $\geq 0.2 - 0.3$ mm or Polyethylene. Thickness: ≥ 0.062 mm Permeation breakthrough time according to EN374 - class: (1-6) e.g. minimum 480 mins. Caution: The performance of gloves under actual working conditions can be significantly affected by many factors and the information provided according to EN374 may not accord with what is achieved in practice. We recommend that expert professional advice is sought that takes into account of the work processes and working environment applicable for each task where gloves are to be worn.

Other skin and body protection	Wear suitable protective clothing (coveralls of a contrasting colour to the product being applied, underneath a disposable coverall with hood), suitable gloves and impervious footwear that protects the lower leg
Hygiene measures	Use engineering controls to reduce air contamination to permissible exposure level. Wash promptly with soap and water if skin becomes contaminated. Remove contaminated clothing and wash the skin thoroughly with soap and water after work.
Respiratory protection	Respiratory protection must be used if the airborne contamination exceeds the recommended occupational exposure limit. If ventilation is inadequate, suitable respiratory protection must be worn. Disposable filtering half mask respirators should comply with European Standard EN149 or EN405. Use respiratory equipment with gas filter, type A2. Only PROFESSIONALS are permitted to apply this product by spray. Air-fed respiratory protective equipment with combined helmet and visor should be worn when this product is sprayed. This should be in addition to other measures to reduce exposure (e.g. in booth design and operation and process modifications).
Environmental exposure controls	INPORTANT: Application, maintenance and repair activities must be conducted within a contained area to prevent losses and minimise emissions to the environment. This means activities must take place on impermeable hard standings with bunding or on soil covered with an impermeable material. Any losses or waste containing antifouling biocides shall be collected for reuse or disposal.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties		
Appearance	Coloured liquid. Viscous liquid.	
Colour	Red. Black. Blue. Grey. Green.	
Odour	Organic solvents.	
Odour threshold	Not determined.	
рН	Technically not feasible.	
Melting point	Not determined.	
Initial boiling point and range	Not determined.	
Flash point	38°C Closed cup.	
Evaporation rate	Not determined.	
Evaporation factor	Not determined.	
Upper/lower flammability or explosive limits	: 0.8	
Other flammability	Not determined.	
Vapour pressure	Not determined.	
Vapour density	Heavier than air	
Relative density	1.44 - 1.62 @ 20C°C	
Partition coefficient	Not determined.	
Decomposition Temperature	Not determined.	
Explosive properties	Not determined.	
Explosive under the influence of a flame	Not considered to be explosive.	

Oxidising properties	Not determined.	
9.2. Other information		
SECTION 10: Stability and read	ctivity	
10.1. Reactivity		
Reactivity	There are no known reactivity hazards associated with this product.	
10.2. Chemical stability		
Stability	Stable at normal ambient temperatures and when used as recommended.	
0.3. Possibility of hazardous reactions		
Possibility of hazardous reactions	Not determined.	
10.4. Conditions to avoid 10.5. Incompatible materials		
Materials to avoid	Oxydising agents and strongly acidic materials.	
10.6. Hazardous decomposition	n products	
Hazardous decomposition products	Oxides of carbon. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.	
SECTION 11: Toxicological info	ormation	
11.1. Information on toxicologic	cal effects	
Toxicological effects	No data recorded.	
Acute toxicity - oral ATE oral (mg/kg)	1,981.47	
Acute toxicity - inhalation ATE inhalation (gases ppm)	24,479.8	
ATE inhalation (vapours mg/l)	104.91	
ATE inhalation (dusts/mists mg/l)	6.9	
General information	Prolonged and repeated contact with solvents over a long period may lead to permanent health problems.	
Inhalation	May cause respiratory system irritation. Vapours in high concentrations are narcotic. Symptoms following overexposure may include the following: Headache. Fatigue. Dizziness. Nausea, vomiting. The product contains organic solvents. Overexposure may depress the central nervous system, causing dizziness and intoxication.	
Ingestion	Liquid irritates mucous membranes and may cause abdominal pain if swallowed. May cause irritation. Symptoms following overexposure may include the following: Stomach pain. Nausea, vomiting. Diarrhoea. May cause nausea, headache, dizziness and intoxication.	
Skin contact	May be absorbed through the skin. Product has a defatting effect on skin. Repeated exposure may cause skin dryness or cracking. May cause allergic contact eczema.	
Eye contact	Irritation of eyes and mucous membranes.	
Route of exposure	Inhalation Skin absorption. Ingestion. Skin and/or eye contact.	

Toxicological information on ingredients.

CUPROUS OXIDE 29.31%			
Acute toxicity - oral			
Acute toxicity oral (LD₅₀ mg/kg)	1,340.0		
Species	Rat		
ATE oral (mg/kg)	1,340.0		
Acute toxicity - inhalation			
Acute toxicity inhalation (LC _∞ dust/mist mg/l)	3.34		
Species	Rat		
ATE inhalation (dusts/mists mg/l)	3.34		
Skin corrosion/irritation			
Extreme pH	Not irritating.		
Serious eye damage/irritatio	Serious eye damage/irritation		
Serious eye damage/irritation	Not irritating.		
Skin sensitisation			
Skin sensitisation	Epidemiological studies have shown no evidence of skin sensitisation.		
	ROSIN 21.33%		
Acute toxicity - oral			
Acute toxicity oral (LD₅₀ mg/kg)	2,800.0		
Acute toxicity oral (LD₅₀ mg/kg) Species	2,800.0 Rat		
Acute toxicity oral (LD₅o mg/kg) Species ATE oral (mg/kg)	2,800.0 Rat 2,800.0		
Acute toxicity oral (LD₅o mg/kg) Species ATE oral (mg/kg) Acute toxicity - dermal	2,800.0 Rat 2,800.0		
Acute toxicity oral (LD50 mg/kg) Species ATE oral (mg/kg) Acute toxicity - dermal Acute toxicity dermal (LD50 mg/kg)	2,800.0 Rat 2,800.0 2,001.0		
Acute toxicity oral (LD50 mg/kg) Species ATE oral (mg/kg) Acute toxicity - dermal Acute toxicity dermal (LD50 mg/kg) Species	2,800.0 Rat 2,800.0 2,001.0 Rabbit		
Acute toxicity oral (LD50 mg/kg) Species ATE oral (mg/kg) Acute toxicity - dermal Acute toxicity dermal (LD50 mg/kg) Species ATE dermal (mg/kg)	2,800.0 Rat 2,800.0 2,001.0 Rabbit 2,001.0		
Acute toxicity oral (LD50 mg/kg) Species ATE oral (mg/kg) <u>Acute toxicity - dermal</u> Acute toxicity dermal (LD50 mg/kg) Species ATE dermal (mg/kg)	2,800.0 Rat 2,800.0 2,001.0 Rabbit 2,001.0 HYDROCARBONS, C9, AROMATICS		
Acute toxicity oral (LD50 mg/kg) Species ATE oral (mg/kg) <u>Acute toxicity - dermal</u> Acute toxicity dermal (LD50 mg/kg) Species ATE dermal (mg/kg) <u>Acute toxicity - oral</u>	2,800.0 Rat 2,800.0 2,001.0 Rabbit 2,001.0 <u>HYDROCARBONS, C9, AROMATICS</u>		
Acute toxicity oral (LD50 mg/kg) Species ATE oral (mg/kg) Acute toxicity - dermal Acute toxicity dermal (LD50 mg/kg) Species ATE dermal (mg/kg) Acute toxicity - oral Acute toxicity oral (LD50 mg/kg)	2,800.0 Rat 2,800.0 2,001.0 Rabbit 2,001.0 HYDROCARBONS, C9, AROMATICS 3,492.0		
Acute toxicity oral (LD50 mg/kg) Species ATE oral (mg/kg) Acute toxicity - dermal Acute toxicity dermal (LD50 mg/kg) Species ATE dermal (mg/kg) Acute toxicity - oral Acute toxicity oral (LD50 mg/kg) Species	2,800.0 Rat 2,800.0 2,001.0 Rabbit 2,001.0 MUDROCARBONS, C9, AROMATICS A1492.0 Rat		
Acute toxicity oral (LD50 mg/kg) Species ATE oral (mg/kg) Acute toxicity - dermal Acute toxicity dermal (LD50 mg/kg) Species ATE dermal (mg/kg) Acute toxicity - oral Acute toxicity oral (LD50 mg/kg) Species Notes (oral LD50)	2,800.0 Rat 2,800.0 2,001.0 Rabbit 2,001.0 <u>HYDROCARBONS, C9, AROMATICS</u> 3,492.0 Rat Based on available data the classification criteria are not met.		

Acute toxicity - dermal		
Acute toxicity dermal (LD₅₀ mg/kg)	3,160.0	
Species	Rabbit	
Notes (dermal LD₅₀)	Based on available data the classification criteria are not met.	
ATE dermal (mg/kg)	3,160.0	
Acute toxicity - inhalation		
Acute toxicity inhalation (LC₅ vapours mg/l)	6,193.0	
Species	Rat	
Notes (inhalation LC ₅₀)	Based on available data the classification criteria are not met.	
ATE inhalation (vapours mg/l)	6,193.0	
Skin corrosion/irritation		
Animal data	Repeated exposure may cause skin dryness or cracking.	
Serious eye damage/irritation	on	
Serious eye damage/irritation	Based on available data the classification criteria are not met.	
Respiratory sensitisation		
Respiratory sensitisation	Based on available data the classification criteria are not met.	
Skin sensitisation		
Skin sensitisation	Based on available data the classification criteria are not met.	
Germ cell mutagenicity		
Genotoxicity - in vitro	Based on available data the classification criteria are not met.	
Carcinogenicity		
Carcinogenicity	Based on available data the classification criteria are not met.	
IARC carcinogenicity	None of the ingredients are listed or exempt.	
Reproductive toxicity		
Reproductive toxicity - fertility	Based on available data the classification criteria are not met.	
Reproductive toxicity - development	Based on available data the classification criteria are not met.	
Specific target organ toxicity - single exposure		
STOT - single exposure	STOT SE 3 - H335, H336 May cause respiratory irritation. May cause drowsiness or dizziness.	
Target organs	Respiratory system, lungs Central nervous system	
Specific target organ toxicity - repeated exposure		
STOT - repeated exposure	Not classified as a specific target organ toxicant after repeated exposure.	
Aspiration hazard		

Aspiration hazard	Asp. Tox. 1 - H304 May be fatal if swallowed and enters airways. Pneumonia may be the result if vomited material containing solvents reaches the lungs.		
General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.		
Inhalation	A single exposure may cause the following adverse effects: Irritation of nose, throat and airway. Difficulty in breathing. Coughing. Vapours may cause headache, fatigue, dizziness and nausea. Central nervous system depression. During application and drying, solvent vapours will be emitted. Vapours in high concentrations are narcotic.		
Ingestion	Gastrointestinal symptoms, including upset stomach. Fumes from the stomach contents may be inhaled, resulting in the same symptoms as inhalation. Aspiration hazard if swallowed. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.		
Skin contact	Repeated exposure may cause skin dryness or cracking. Discoloration of the skin.		
Eye contact	May cause temporary eye irritation.		
Route of exposure	Ingestion Inhalation Skin and/or eye contact		
Target organs	Central nervous system Respiratory system, lungs		
Zinc Oxide			
Acute toxicity - oral			
Acute toxicity oral (LD₅₀ mg/kg)	5,100.0		
Species	Rat		
ATE oral (mg/kg)	5,100.0		
Acute toxicity - dermal			
Acute toxicity dermal (LD₅ mg/kg)	5,100.0		
Species	Rat		
ATE dermal (mg/kg)	5,100.0		
Acute toxicity - inhalation			
Acute toxicity inhalation (LC₅∞ dust/mist mg/l)	5.71		
Species	Rat		
ATE inhalation (dusts/mists mg/l)	5.71		

ZINC PYRITHIONE 2.86%

Acute toxicity - oral	
ATE oral (mg/kg)	100.0
Acute toxicity - dermal	

	Acute toxicity dermal (LD ₅₀ mg/kg)	2,000.0
	Species	Rat
	Skin corrosion/irritation	
	Animal data	Not irritating.
	Respiratory sensitisation	
	Respiratory sensitisation	Not sensitising.
	Skin sensitisation	
	Skin sensitisation	Not sensitising.
	Carcinogenicity	
	Carcinogenicity	There is no evidence that the product can cause cancer.
	Specific target organ toxicity	y - repeated exposure
	STOT - repeated exposure	Not classified as a specific target organ toxicant after repeated exposure.
SECTION 12	2: Ecological information	
Ecotoxicity	There are no data on the ecotoxicity of this product. The product contains a substance which is very toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.	
Ecological ir	nformation on ingredients.	
		CUPROUS OXIDE 29.31%
	Ecotoxicity	The product contains substances which are toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.
12.1. Toxicit	<u>y</u>	
Ecological ir	formation on ingredients.	
		CUPROUS OXIDE 29.31%
	Acute aquatic toxicity	
	LE(C)₅₀	$0.001 < L(E)C50 \le 0.01$
	M factor (Acute)	100
	Chronic aquatic toxicity	
	M factor (Chronic)	100
		ROSIN 21.33%
	Acute aquatic toxicity	
	Acute toxicity - fish	LL₅₀, 96 hours: >1000 mg/l, Brachydanio rerio (Zebra Fish)
	Acute toxicity - aquatic invertebrates	EC₀, 48 hours: 911 mg/l, Daphnia magna
	Acute toxicity - aquatic plants	EC₅₀, 72 hours: >1000 mg/l,
		HYDROCARBONS, C9, AROMATICS

	Toxicity	Aquatic Chronic 2 - H411 Toxic to aquatic life with long lasting effects.	
	Acute aquatic toxicity		
	Acute toxicity - fish	LC₅₀, 96 hours: 9.2 mg/l, Oncorhynchus mykiss (Rainbow trout)	
	Acute toxicity - aquatic invertebrates	EC₅₀, 48 hours: 3.2 mg/l, Daphnia magna	
	Acute toxicity - microorganisms	EC₅₀, 48 hours: 2.9 mg/l,	
		Zinc Oxide	
	Acute aquatic toxicity		
	LE(C)50	$0.1 < L(E)C50 \le 1$	
	M factor (Acute)	1	
	Acute toxicity - fish	LC50, 96 hours: 1.1 to 2.5 ppm , Oncorhynchus mykiss (Rainbow trout)	
	Acute toxicity - aquatic invertebrates	EC₅₀, 48 hours: 1 mg/l, Daphnia magna NOEC, 48 hours: 0.4 mg/l, Daphnia magna	
	Acute toxicity - aquatic plants	EC₅₀, 72 hours: 0.17 mg/l, Selenastrum capricornutum NOEC, 72 hours: 0.017 mg/l, Selenastrum capricornutum	
	Chronic aquatic toxicity		
	NOEC	0.01 < NOEC ≤ 0.1	
	Degradability	Non-rapidly degradable	
	M factor (Chronic)	1	
		ZINC PYRITHIONE 2.86%	
	Acute aquatic toxicity		
	LE(C) ₅₀	$0.1 < L(E)C50 \le 1$	
	M factor (Acute)	1	
	Acute toxicity - fish	LC50, ~ 96 hours: 0.0026 mg/l, Pimephales promelas (Fat-head Minnow)	
	Acute toxicity - aquatic invertebrates	EC₅₀, ~ 48 hours: 0.0082 mg/l, Daphnia magna	
	Acute toxicity - aquatic plants	EC₅₀, 96 hours: 0.0012 mg/l, Marinewater algae	
	Chronic aquatic toxicity		
	M factor (Chronic)	1	
12.2. Persist	12.2. Persistence and degradability		
Persistence and degradability No data available.			
Ecological information on ingredients.			

ROSIN 21.33%

Persistence and degradability

The product is readily biodegradable.

	-				
	Biodegradation		- Degradation 71%: 28 days		
			HYDROCARBONS, C9, AROMATICS		
	Persistence and degradability		The degradability of the product is not known.		
	Biodegradation		- 78%: 28 days		
			ZINC PYRITHIONE 2.86%		
	Persistence andThe product is readily biodegradable.degradability				
12.3. Bioaco	cumulative potentia	al			
Bioaccumulative potential No data		No data	available on bioaccumulation.		
Partition coe	efficient	Not dete	rmined.		
Ecological in	nformation on ingre	edients.			
			ROSIN 21.33%		
Partition coefficient		ent	log Kow: > 6 Probably		
HYDROCARBONS, C9, AROMATICS			HYDROCARBONS, C9, AROMATICS		
Bioaccumulative potential		potential	No data available on bioaccumulation.		
	Partition coefficie	ent	Not available.		
			Zinc Oxide		
	Partition coefficie	ent	log Pow: 2.2		
			ZINC PYRITHIONE 2.86%		
	Bioaccumulative	potential	BCF: 50,		
	Partition coefficie	ent	log Pow: 0.93		
12.4. Mobility in soil					
Mobility	The product contains volatile organic compounds (VOCs) which will evaporate easily from all surfaces.				
Ecological information on ingredients.					
HYDROCARBONS, C9, AROMATICS					
	Mobility		No data available.		
12.5. Results of PBT and vPvB assessment					
Results of F assessment	Results of PBT and vPvBThis product does not contain any substances classified as PBT or vPvB.assessment				
Ecological information on ingredients.					
HYDROCARBONS, C9, AROMATICS					

Results of PBT and vPvB This substance is not classified as PBT or vPvB according to current EU criteria. **assessment**

ZINC PYRITHIONE 2.86%

Results of PBT and vPvB This substance is not classified as PBT or vPvB according to current EU criteria. assessment

12.6. Other adverse effects

Other adverse effects The product contains volatile organic compounds (VOCs) which have a photochemical ozone creation potential.

Ecological information on ingredients.

HYDROCARBONS, C9, AROMATICS

Other adverse effects None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General informationWaste is classified as hazardous waste. Dispose of waste to licensed waste disposal site in
accordance with the requirements of the local Waste Disposal Authority.

Waste class When this coating, in its liquid state, as supplied, becomes a waste, it is categorised as hazardous waste, with code 08 01 11* (SOLVENT BASED LIQUID WASTE). Part-used containers, not drained and/or rigorously scraped out and containing dried residues of the supplied coating, are categorised as hazardous waste, with code 08 01 11* (SOLVENT BASED LIQUID WASTE). If mixed with other wastes, the above waste code may not be applicable. Used containers, drained and/or rigorously scraped out and containing dry residues of the supplied coating, are categorised as non-hazardous waste, with code 15 01 02 (plastic packaging) or 15 01 04 (metal packaging).

SECTION 14: Transport information

General	This product is packed in accordance with the Limited Quantity Provisions of CDGCPL2, ADR and IMDG.
14.1. UN number	
UN No. (ADR/RID)	1263
UN No. (IMDG)	1263
UN No. (ICAO)	1263
14.2. UN proper shipping name	
Proper shipping name (ADR/RID)	Contains 1,2,4-Trimethylbenzene, Class 3, PG III, (41 $^\circ$ C c.c.) and Copper (1) Oxide, MARINE POLLUTANTS
Proper shipping name (IMDG)	Contains 1,2,4-Trimethylbenzene, Class 3, PG III, (41 °C c.c.) and Copper (1) Oxide, MARINE POLLUTANTS
Proper shipping name (ICAO)	Contains 1,2,4-Trimethylbenzene, Class 3, PG III, (41 $^\circ$ C c.c.) and Copper (1) Oxide, MARINE POLLUTANTS
14.3. Transport hazard class(e	s <u>)</u>
ADR/RID class	3
IMDG class	3

ICAO class/division

Transport labels



14.4. Packing group	
ADR/RID packing group	III
IMDG packing group	Ш
ICAO packing group	Ш

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

3



14.6. Special precautions for user

EmS F-E, S-E

Tunnel restriction code (D/E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable. Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulationsThis product is approved under the Control of Pesticides Regulations 1986. Product
C/258/Series - H.S.E. No. 7218.EU legislationRegulation (EC) No 1907/2006 of the European Parliament and of the Council of 18
December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of
Chemicals (REACH) (as amended).
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16
December 2008 on classification, labelling and packaging of substances and mixtures (as
amended).

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Abbreviations and acronyms	ATE: Acute Toxicity Estimate.		
used in the salety data sheet	Road.		
	CAS: Chemical Abstracts Service.		
	DNEL: Derived No Effect Level.		
	GHS: Globally Harmonized System.		
	ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air.		
	IMDG: International Maritime Dangerous Goods.		
	LC_{50} : Lethal Concentration to 50 % of a test population.		
	LD_{50} : Lethal Dose to 50% of a test population (Median Lethal Dose).		
	PBT: Persistent, Bioaccumulative and Toxic substance.		
	PNEC: Predicted No Effect Concentration.		
	REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.		
	vPvB: Very Persistent and Very Bioaccumulative.		
	MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.		
	cATpE: Converted Acute Toxicity Point Estimate.		
	BCF: Bioconcentration Factor.		
	EC₅₀: 50% of maximal Effective Concentration.		
Classification abbreviations	Acute Tox. = Acute toxicity		
and acronyms	Aquatic Acute = Hazardous to the aquatic environment (acute)		
	Aquatic Chronic = Hazardous to the aquatic environment (chronic)		
	Asp. Tox. = Aspiration hazard		
	Carc. = Carcinogenicity		
	Eye Dam. = Serious eye damage		
	Eye Irrit. = Eye irritation		
	Flam. Liq. = Flammable liquid		
	Repr. = Reproductive toxicity		
	Resp. Sens. = Respiratory sensitisation		
	Skin Coll. = Skin collosion		
	Skin linit Skin initiation Skin Sens Skin sensitisation		
	STOT RE = Specific target organ toxicity-repeated exposure		
	STOT SE = Specific target organ toxicity-single exposure		
Training advice	It is recommended that all users of these materials should ensure that they are properly		
	trained in the operation, use and working practices associated with this class of products.		
	This may be in the form of supervised experience, manufacturers training or preferably		
	nationally accredited training courses.		
Revision comments	Issued in new format for Reach compliance in accordance with EC 1272/2008 Issued in		
	accordance with Annex II to REACH, as amended by Commission Regulation (EU) No.		
	2015/830 Revision to sections 2, 8, 11 & 12 for reclassification of solvents.		
Issued by	Technical Dept. (P.E.)		
Revision date	25/01/2019		
Revision	10.0		
Supersedes date	27/04/2015		
SDS number	10489		
SDS status	Approved.		

Hazard statements in full	H226 Flammable liquid and vapour. H301 Toxic if swallowed.		
	H302 Harmful if swallowed.		
	H304 May be fatal if swallowed and enters airways.		
	H317 May cause an allergic skin reaction.		
	H318 Causes serious eye damage.		
	H331 Toxic if inhaled.		
	H332 Harmful if inhaled.		
	H335 May cause respiratory irritation.		
	H336 May cause drowsiness or dizziness.		
	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.		
Signature	Initials		

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 Hempel's Antifouling Classic 76110



1.4 Emergency telephone number

Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830 - Europe

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name :	Hempel's Antifouling Classic 76110
Product identity :	7611050000
Product type :	antifouling paint

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

Field of application :	ships and shipyards.
Identified uses :	Consumer applications, Professional applications, Used by spraying.
	Spraying - For professional users only.

1.3 Details of the supplier of the safety data sheet

+45 45 93 38 00 (08.00 - 17.00) See section 4 First aid measures.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition :

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Mixture

0		
Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 3	
Eye Dam. 1, H318	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1	
Skin Sens. 1, H317	SKIN SENSITIZATION - Category 1	
STOT SE 3, H336	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - (Category 3
STOT RE 1, H372	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1	•••
Aquatic Acute 1, H400	AQUATIC HAZARD (ACUTE) - Category 1	
Aquatic Chronic 1, H410	AQUATIC HAZARD (LONG-TERM) - Category 1	

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word :	Danger
Hazard statements :	H226 - Flammable liquid and vapor. H318 - Causes serious eye damage. H317 - May cause an allergic skin reaction. H336 - May cause drowsiness or dizziness. H372 - Causes damage to organs through prolonged or repeated exposure. H410 - Very toxic to aquatic life with long lasting effects.
Precautionary statements :	
General :	If medical advice is needed, have product container or label at hand. Keep out of reach of children.
Prevention :	Do not breathe gas, vapor or spray. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response :	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
Storage :	Keep cool. Store locked up.
Disposal :	Dispose of contents and container in accordance with all local, regional, national and international

Dispose of contents and container in accordance with all local, regional, national and international regulations.



SECTION 2: Hazards identification

Hazardous ingredients :	white spirit rosin copper (I) oxide
Supplemental label elements :	Repeated exposure may cause skin dryness or cracking.
Special packaging requirements	
Containers to be fitted with child- resistant fastenings :	Yes, applicable.
Tactile warning of danger :	Yes, applicable.

2.3 Other hazards

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result None known. in classification :

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Туре
white spirit	REACH #: 01-2119458049-33 EC: 265-191-7 CAS: 64742-88-7 Index: 649-405-00-X	≥10 - ≤25	Flam. Liq. 3, H226 STOT SE 3, H336 STOT RE 1, H372 (central nervous system (CNS)) (inhalation) Asp. Tox. 1, H304 Aquatic Chronic 2, H411	[1] [2]
rosin	REACH #: 01-2119480418-32 EC: 232-475-7 CAS: 8050-09-7 Index: 650-015-00-7	≥10 - ≤25	Skin Sens. 1, H317 -	[1]
zinc oxide	REACH #: 01-2119463881-32 EC: 215-222-5 CAS: 1314-13-2 Index: 030-013-00-7	≥5 - ≤10	Aquatic Acute 1, H400 (M=1) - Aquatic Chronic 1, H410 (M=1)	[1]
copper (I) oxide	REACH #: 01-2119513794-36 EC: 215-270-7 CAS: 1317-39-1 Index: 029-002-00-X	≥5 - ≤10	Acute Tox. 4, H302 - Acute Tox. 4, H332 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=100)	[1]
xylene	REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9	≥1 - ≤3	Flam. Liq. 3, H226 C Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315	[1] [2]
cupric oxide	EC: 215-269-1 CAS: 1317-38-0 Index: 029-016-00-6	≤1	Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=1)	[1]
copper (metallic)	EC: 231-159-6 CAS: 7440-50-8 Index: 029-019-01-X	≤0.3	Acute Tox. 4, H302 Acute Tox. 3, H331 Eye Irrit. 2, H319 Aquatic Acute 1, H400 (M=10000) Aquatic Chronic 1, H410 (M=100) See Section 16 for the full text of the H statements declared above.	[1]

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.

Туре

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit, see section 8.

[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

[5] Substance of equivalent concern

[6] Additional disclosure due to company policy

Active substances

Product/ingredient name (% by weight)

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copper (I) oxide (9.8 \% by weight)
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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.	
	If breathing is irregular, drowsiness, loss of consciousness or cramps: Call 112 and give immediate treatment (first aid).	
Eye contact :	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. In all cases of doubt, or when symptoms persist, seek medical attention.	
Inhalation :	Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Give nothing by mouth. If unconscious, place in recovery position and seek medical advice.	
Skin contact :	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.	
Ingestion :	If swallowed, seek medical advice immediately and show this container or label. Keep person warm and at rest. Do not induce vomiting unless directed to do so by medical personnel. Lower the head so that vomit will not re-enter the mouth and throat.	
Protection of first-aiders :	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.	

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects	
Eye contact :	Causes serious eye damage.
Inhalation :	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.
Skin contact :	May cause an allergic skin reaction.
Ingestion :	Can cause central nervous system (CNS) depression.
Over-exposure signs/symptoms	
Eye contact :	Adverse symptoms may include the following: pain watering redness
Inhalation :	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Skin contact :	Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion :	Adverse symptoms may include the following: stomach pains
4.3 Indication of any immediate n	nedical 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

Extinguishing media :	Recommended: alcohol resistant foam, CO ₂ , powders, water spray.
	Not to be used: waterjet.

5.2 Special hazards arising from the substance or mixture


SECTION 5: Firefighting measures

Hazards from the substance or mixture :	Flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products :	Decomposition products may include the following materials: carbon oxides metal oxide/oxides

5.3 Advice for firefighters

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. Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard. Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses. 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

Avoid all direct contact with the spilled material. Exclude sources of ignition and be aware of explosion hazard. Ventilate the area. Avoid breathing vapor or mist. Refer to protective measures listed in sections 7 and 8. No action shall be taken involving any personal risk or without suitable training. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.2 Environmental precautions

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). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and materials for containment and cleaning up

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). Use spark-proof tools and explosion-proof equipment. Contaminated absorbent material may pose the same hazard as the spilled product.

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

7.1 Precautions for safe handling

Vapors are heavier than air and may spread along floors. Vapors may form explosive mixtures with air. Prevent the creation of flammable or explosive concentrations of vapors in air and avoid vapor concentrations higher than the occupational exposure limits. In addition, the product should be used only in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. To dissipate static electricity during transfer, ground drum and connect to receiving container with bonding strap. No sparking tools should be used.

Avoid inhalation of vapour, dust and spray mist. Avoid contact with skin and eyes. Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Appropriate personal protective equipment: see Section 8. Always keep in containers made from the same material as the original one.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a cool, well-ventilated area away from incompatible materials and ignition sources. Keep out of the reach of children. Keep away from: Oxidizing agents, strong alkalis, strong acids. No smoking. Prevent unauthorized access. Containers that are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

See separate Product Data Sheet for recommendations or industrial sector specific solutions.

Specific end use(s): Antifouling products.



8.1 Control parameters

Product/ingredient name	Exposure limit values
white spirit	EU OEL (Europe). (ACGIH) TWA: 25 ppm 8 hours. (ACGIH) TWA: 145 mg/m ³ 8 hours.
xylene	EU OEL (Europe, 2/2017). Absorbed through skin. TWA: 50 ppm 8 hours. TWA: 221 mg/m ³ 8 hours. STEL: 100 ppm 15 minutes. STEL: 442 mg/m ³ 15 minutes.

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 monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Derived effect levels

Not applicable.

Predicted effect concentrations

Not applicable.

8.2 Exposure controls

Appropriate engineering controls

Arrange sufficient ventilation by local exhaust ventilation and good general ventilation to keep the airborne concentrations of vapors or dust lowest possible and below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Individual protection measures

Gloves must be worn for all work that may result in soiling. Apron/coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. Safety eyewear should be used when there is a likelihood of exposure.



Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.
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, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. The quality of the chemical-resistant protective gloves must be chosen as a function of the specific workplace concentrations and quantity of hazardous substances.
Since the actual work situation is unknown. Supplier of gloves should be contacted in order to find the appropriate type. Below listed glove(s) should be regarded as generic advice:
Recommended: Silver Shield / Barrier / 4H gloves, polyvinyl alcohol (PVA), Viton®, nitrile rubber Short term exposure: neoprene rubber, butyl rubber, natural rubber (latex), polyvinyl chloride (PVC)
Personal protective equipment for the body should be selected based on the task being performed and the risks involved handling this product. Wear suitable protective clothing. Always wear protective clothing when spraying.



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. If working areas have insufficient ventilation: When the product is applied by means that will not generate an aerosol such as, brush or roller wear half or totally covering mask equipped with gas filter of type A, when grinding use particle filter of type P. When the product is applied by spraying and for continuous
	or prolonged work always wear an air-fed respirator e.g. hood with supply of fresh or compressed air or a full face, powered air purifying filter. Be sure to use an approved/certified respirator or equivalent.

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

Physical state :	Liquid.
Color :	red
Odor :	Solvent-like
pH :	Testing not relevant or not possible due to nature of the product.
Melting point/freezing point :	Testing not relevant or not possible due to nature of the product.
Boiling point/boiling range :	Testing not relevant or not possible due to nature of the product.
Flash point :	Closed cup: 37°C (98.6°F)
Evaporation rate :	Testing not relevant or not possible due to nature of the product.
Flammability :	Highly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Lower and upper explosive (flammable) limits :	0.6 - 6.7 vol %
Vapor pressure :	Testing not relevant or not possible due to nature of the product.
Vapor density :	Testing not relevant or not possible due to nature of the product.
Specific gravity :	1.485 g/cm³
Solubility(ies) :	Very slightly soluble in the following materials: cold water and hot water.
Partition coefficient (LogKow) :	Testing not relevant or not possible due to nature of the product.
Auto-ignition temperature :	Lowest known value: >220°C (>428°F) (white spirit).
Decomposition temperature :	Testing not relevant or not possible due to nature of the product.
Viscosity :	Aspiration hazard (H304) Not classified. Testing not relevant due to nature of the product.
Explosive properties :	Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
Oxidizing properties :	Testing not relevant or not possible due to nature of the product.
9.2 Other information	

Solvent(s) % by weight :Weighted average: 24 %Water % by weight :Weighted average: 0 %VOC content :363.8 g/lTOC Content :Weighted average: 311 g

 TOC Content :
 Weighted average: 311 g/l

 Solvent Gas :
 Weighted average: 0.066 m³/l

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



SECTION 10: Stability and reactivity

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

10.4 Conditions to avoid

Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 Incompatible materials

Highly reactive or incompatible with the following materials: oxidizing materials and acids. Reactive or incompatible with the following materials: reducing materials, organic materials, alkalis and moisture.

10.6 Hazardous decomposition products

When exposed to high temperatures (i.e. in case of fire) harmful decomposition products may be formed:

Decomposition products may include the following materials: carbon oxides metal oxide/oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Exposure to component solvent vapor concentrations 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. Solvents may cause some of the above effects by absorption through the skin. Symptoms and signs include headaches, 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 non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and reversible damage. Accidental swallowing may cause stomach pain. Chemical lung inflammation may occur if the product is taken into the lungs via vomiting.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
7611050000	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
rosin	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	2800 mg/kg	-
zinc oxide	LC50 Inhalation Dusts and mists	Rat	>5.7 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
copper (I) oxide	LC50 Inhalation Dusts and mists	Rat	3.34 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	1340 mg/kg	-
xylene	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	6350 ppm	4 hours
	LD50 Dermal	Rabbit	>4200 mg/kg	-
	LD50 Oral	Rat	3523 mg/kg	-
copper (metallic)	LC50 Inhalation Dusts and mists	Rat	1.5 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	TDLo Oral	Human	0.01 mg/kg	-

Acute toxicity estimates

Product/ingredient name	Oral mg/kg	Dermal mg/kg	Inhalation (gases) ppm	Inhalation (vapors) mg/l	Inhalation (dusts and mists) mg/l
Hempel's Antifouling Classic 76110			212594.4		36
rosin copper (I) oxide	2800 1340 3523	1100	5000		3.34
copper (metallic)	500	1100	5000		0.5

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure
zinc oxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams
copper (I) oxide	Eyes - Irritant	Rabbit	-	-
xylene	Eyes - Severe irritant	Rabbit	-	24 hours 5 milligrams
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams

Mutagenic effects

No known significant effects or critical hazards.



SECTION 11: Toxicological information

Carcinogenicity

No known significant effects or critical hazards.

Reproductive toxicity

No known significant effects or critical hazards.

Teratogenic effects

No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
white spirit	Category 3	Not applicable.	Narcotic effects

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
white spirit	Category 1	Inhalation	central nervous system (CNS)

Aspiration hazard

Product/ingredient name	Result
white spirit	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential chronic health effects

Sensitization :Contains rosin. May produce an allergic reaction.Other information :No additional known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Do not allow to enter drains or watercourses. Very toxic to aquatic life with long lasting effects.

Product/ingredient name	Result	Species	Exposure
white spirit	Acute EC50 4.6 - 10 mg/l	Algae	72 hours
rosin	Acute EC50 >1000 mg/l	Algae	72 hours
	Acute EC50 911 mg/l	Daphnia	48 hours
	Acute LC50 >1000 mg/l	Fish	96 hours
zinc oxide	Acute EC50 0.17 mg/l	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Acute EC50 1 mg/l	Daphnia - Pseudokirchneriella subcapitata - Exponential growth phase	48 hours
	Acute LC50 24600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
copper (I) oxide	EC50 65 mg/l	Algae	72 hours
	Acute EC50 0.51 mg/l	Daphnia - Daphnia Magna	48 hours
	Acute LC50 0.0081 mg/l	Fish - Pimephales promelas	96 hours
copper (metallic)	Acute EC50 1100 µg/l Fresh water	Aquatic plants - Lemna minor	4 days
	Acute EC50 2.1 µg/l Fresh water	Daphnia - Daphnia longispina - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute IC50 13 μg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Acute IC50 5.4 mg/l Marine water	Aquatic plants - Plantae - Exponential growth phase	72 hours
	Acute LC50 0.072 µg/l Marine water	Crustaceans - Amphipoda - Adult	48 hours
	Acute LC50 7.56 µg/l Marine water	Fish - Periophthalmus waltoni - Adult	96 hours
	Chronic NOEC 2.5 µg/l Marine water	Algae - Nitzschia closterium - Exponential growth phase	72 hours
	Chronic NOEC 7 mg/l Fresh water	Aquatic plants - Ceratophyllum demersum	3 days
	Chronic NOEC 0.02 mg/l Fresh water	Crustaceans - Cambarus bartonii - Mature	21 days
	Chronic NOEC 2 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 0.8 µg/l Fresh water	Fish - Oreochromis niloticus - Juvenile (Fledgling, Hatchling, Weanling)	6 weeks

12.2 Persistence and degradability



SECTION 12: Ecological information

Product/ingredient name	Test	Result	Dose	Inoculum
rosin xylene	-	64 % - Not readily - 28 days >60 % - Readily - 28 days	-	-
Product/ingredient name	Aquatic half-life	Photolysis	Biodeg	radability
rosin zinc oxide xylene	-	- - -	Not readily Not readily Readily	

12.3 Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
white spirit	3 - 7.3	-	high
rosin	1.9 - 7.7	56.3	Iow
zinc oxide	2.2	60960	high
xylene	3.12	8.1 - 25.9	Iow

12.4 Mobility in soil

Soil/water partition coefficient	No known data avaliable in our databa		
(Koc) :			
Mobility :	No known data avaliable in our database.		

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

The generation of waste should be avoided or minimized wherever possible. Residues of the product is listed as hazardous waste. Dispose of according to all state and local applicable regulations. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Spillage, remains, discarded clothes and similar should be discarded in a fireproof container.

European waste catalogue no. (EWC) is given below.

European waste catalogue (EWC) : 08 01 11*

Packaging

The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

Transport may take place according to national regulation or ADR for transport by road, RID for transport by train, IMDG for transport by sea, IATA for transport by air.

	14.1 UN no.	14.2 Proper shipping name	14.3 Transport hazard class(es)	14.4 PG*	14.5 Env*	Additional information
ADR/RID Class	UN1263	PAINT		111	Yes.	The environmentally hazardous substance mark is not required when transported in sizes of ≤ 5 L or ≤ 5 kg. <u>Tunnel code</u> (E) <u>Remarks</u> H-14
IMDG Class	UN1263	PAINT. (white spirit)		111	Yes.	The marine pollutant mark is not required when transported in sizes of \leq 5 L or \leq 5 kg. <u>Emergency schedules</u> F-E, S-E

Safety Data Sheet Hempel's Antifouling Classic 76110



SECTION 14: Transport information

IATA UN1263 PAINT Class

3

III Yes. The environmentally hazardous substance mark may appear if required by other transportation regulations.

PG* : Packing group Env.* : Environmental hazards

14.6 Special precautions for user

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable.

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 authorization - Substances of very high concern

Annex XIV

None of the components are listed.

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

Seveso category

This product is controlled under the Seveso III Directive.

Seveso category	
P5c: Flammable liquids 2 and 3 not falling under P5a or P5b E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1	

Biocidal Products Regulations

Restrictions on use. :	See Section 1: Relevant identified uses of the substance or mixture and uses advised against
Directions for use and dose rate :	Spray or Roller application or brushing Consumer use: Rolling, Brushing Dose: See separate Product Data Sheet, Application instructions or label.
Additional information :	(Product Type: 21 - Antifouling products) Liquid. Wear suitable protective clothing, gloves and eye/face protection. In case of contact with eyes, rinse immediately with plenty of water. If swallowed, seek medical advice immediately and show this container or label. This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheet.

International regulations

IMO Anti-fouling System Convention Compliant (AFS/CONF/26)

This product does not contain organotin compounds acting as biocides and complies with the International Convention on the Control of Harmful Anti-fouling Systems on Ships as adopted by IMO October 2001 (IMO document AFS/CONF/26)

Product type :	antifouling paint
Manufacturer :	Hempel A/S
Product name and/or code :	Hempel's Antifouling Classic 76110
	7611050000
Colour :	red
Note: This name is shown on the procession (AFS/CONF/26).	roduct container. All products in HEMPEL's containers carrying this name comply with the IMO
Active ingredient(s) :	copper (I) oxide 1317-39-1

15.2 Chemical Safety Assessment

This product contains substances for which Chemical Safety Assessments are still required.

Safety Data Sheet Hempel's Antifouling Classic 76110



SECTION 16: Other information

Abbreviations and acronyms :	ATE = Acute Toxicity CLP = Classification, EUH statement = CL RRN = REACH Regi DNEL = Derived No PNEC = Predicted No	Estimate Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] P-specific Hazard statement stration Number Effect Level o Effect Concentration
Full text of abbreviated H statements :	H226 H302 H304 H312 H315 H317 H318 H319 H331 H332 H336 H372 (inhalation) H372 H400 H410 H411	Flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. Harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Causes serious eye damage. Causes serious eye damage. Causes serious eye irritation. Toxic if inhaled. Harmful if inhaled. May cause drowsiness or dizziness. Causes damage to organs through prolonged or repeated exposure if inhaled. Causes damage to organs through prolonged or repeated exposure if inhaled. Causes damage to organs through prolonged or repeated exposure. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. Toxic to aquatic life with long lasting effects.
Full text of classifications [CLP/GHS] :	Acute Tox. 3, H331 Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H312 Acute Tox. 4, H312 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Aquatic Chronic 2, H411 Asp. Tox. 1, H304 Eye Jam. 1, H318 Eye Irrit. 2, H319 Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1, H317 STOT RE 1, H372 (inhalation) STOT RE 1, H372 STOT SE 3, H336	ACUTE TOXICITY (inhalation) - Category 3 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (dermal) - Category 4 AQUATIC HAZARD (ACUTE) - Category 1 AQUATIC HAZARD (LONG-TERM) - Category 1 AQUATIC HAZARD (LONG-TERM) - Category 2 ASPIRATION HAZARD (LONG-TERM) - Category 2 ASPIRATION HAZARD - Category 1 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 FLAMMABLE LIQUIDS - Category 3 SKIN CORROSION/IRRITATION - Category 2 SKIN SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (inhalation) - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
FLAMMABLE LIQUIDS - Category 3	On basis of test data
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1	Calculation method
AQUATIC HAZARD (ACUTE) - Category 1	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 1	Calculation method

Notice to reader

Indicates information that has changed from previously issued version.

The information contained in this safety data sheet is based on the present state of knowledge and EU and national legislation. It provides guidance on health, safety and environmental aspects for handling the product in a safe way and should not be construed as any guarantee of the technical preformance or suitability for particular applications.

It is always the duty of the user/employer to ascertain that the work is planned and carried out in accordance with the national regulations.



SeaForce 30

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier	
Product name	: SeaForce 30
Product code	: 1538
Product description	: Paint.
Product type	: Liquid.
Other means of	: Not available.
identification	

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

Use in coatings - Professional use

1.3 Details of the supplier of the safety data sheet

Jotun Paints (Europe) Ltd. Stather Road Flixborough, Scunthorpe North Lincolnshire DN15 8RR England

Tel: +44 17 24 40 00 00 Fax: +44 17 24 40 01 00 SDSJotun@jotun.com

1.4 Emergency telephone number

Contact NHS Direct; phone 0845 4647 or 111. Open 24/7.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 3, H226 Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Repr. 2, H361d (Unborn child) STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended. See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms



SECTION 2: Hazards identification

Signal word	÷	Danger.
Hazard statements	÷	H226 - Flammable liquid and vapour.
		H318 - Causes serious eve damage
		H315 - Causes skin irritation.
		H317 - May cause an allergic skin reaction.
		H361d - Suspected of damaging the unborn child.
		H335 - May cause respiratory irritation.
Processionery statements		H410 - Very loxic to aquatic life with long lasting effects.
<u>Precautionary statements</u>		Natawiasha
General	÷	
Prevention	÷	P201 - Obtain special instructions before use.
		P280 - Wear protective gloves. Wear eve or face protection. Wear protective
		clothing.
		P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition
		sources. No smoking.
		P271 - Ose only outdoors of in a weil-ventilated area. P273 - Avoid release to the environment
Response		P391 - Collect spillage
Response	1	P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for
		breathing.
		P333 + P313 - If skin irritation or rash occurs: Get medical attention.
		P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
		Immediately call a POISON CENTER or physician.
Storage	÷	P403 - Store in a well-ventilated place.
	-	P235 - Keep cool.
Disposal	:	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazardous ingredients	:	dicopper oxide
		xylene
		colophony
		fatty acids C14-18 and C16-18-unsate maleated
Supplemental label		Not applicable
elements	-	
Additional information	:	Antifouling. Active substances: dicopper oxide (CAS 1317-39-1) 28.8% w/w, zineb
		(CAS 12122-67-7) 7.0% w/w. Read Technical Data Sheet and Safety Data Sheet before use. Do not reuse empty containers. For professional use only.
Additional information	:	HSE No. 8237 DO NOT BREATHE SPRAY MIST. WEAR SUITABLE PROTECTIVE
		CLOTHING (COVERALLS OF A CONTRASTING COLOUR TO THE PRODUCT
		BEING APPLIED, UNDERNEATH A DISPOSABLE COVERALL WITH HOOD),
		SUITABLE GLOVES AND IMPERVIOUS FOOTWEAR THAT PROTECTS THE LOWER LEG, WEAR SUITABLE RESPIRATORY FOULIPMENT (such as air-fed
		respiratory protective equipment with combined protective helmet and visor) when
		spraying. WEAR SUITABLE RESPIRATORY EQUIPMENT (such as FFP3 or an
		equivalent standard) when working in the vicinity of the spray plume. DISPOSE OF
		PROTECTIVE GLOVES after use.
in compliance	÷	INIC Antifouling System Convention compliant (AFS/CONF/26).
Annex XVII - Restrictions	÷	Not applicable.
on the manufacture,		
use of certain dangerous		
substances, mixtures and		
articles		
Special packaging requirem	en	<u>ts</u>

SECTION 2: Hazards identification

Containers to be fitted with child-resistant	1	Not applicable.
fastenings		
Tactile warning of danger	:	Not applicable.

2.3 Other hazards

Other hazards which do : None known. not result in classification

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture				
Product/ingredient name	Identifiers	Weight %	Regulation (EC) No. 1272/2008 [CLP]	Туре
dicopper oxide	REACH #: 01-2119513794-36 EC: 215-270-7 CAS: 1317-39-1 Index: 029-002-00-X	≥25 - ≤50	Acute Tox. 4, H302 Acute Tox. 4, H332 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=100)	[1]
xylene	REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9	≥10 - ≤25	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304	[1] [2]
colophony	REACH #: 01-2119480418-32 EC: 232-475-7 CAS: 8050-09-7 Index: 650-015-00-7	≤10	Skin Sens. 1, H317	[1] [2]
zinc oxide	REACH #: 01-2119463881-32 EC: 215-222-5 CAS: 1314-13-2 Index: 030-013-00-7	≤10	Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[1]
zineb	EC: 235-180-1 CAS: 12122-67-7 Index: 006-078-00-2	≤10	Flam. Sol. 1, H228 Skin Sens. 1, H317 Repr. 2, H361d (Unborn child) STOT SE 3, H335 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[1]
ethylbenzene	REACH #: 01-2119489370-35 EC: 202-849-4 CAS: 100-41-4 Index: 601-023-00-4	≤5	Flam. Liq. 2, H225 Acute Tox. 4, H332 STOT RE 2, H373 (hearing organs)	[1] [2]
1-methoxy-2-propanol	REACH #: 01-2119457435-35 EC: 203-539-1 CAS: 107-98-2 Index: 603-064-00-3	≤3	Flam. Liq. 3, H226 STOT SE 3, H336	[1] [2]
hydrocarbons, C9, aromatics, (<0. 1% Benzene)	REACH #: 01-2119455851-35 EC: 918-668-5 CAS: 64742-95-6	≤3	Flam. Liq. 3, H226 STOT SE 3, H335 STOT SE 3, H336 Asp. Tox. 1, H304	[1] [2]
Date of issue/Date of revision	: 26.03.2019 Date of previous issue	: 08.11	1.2018 Version : 2	3/17

SECTION 3: Composition/information on ingredients Aquatic Chronic 2, H411 [1] fatty acids, C14-18 and REACH #: ≤0.3 Skin Irrit. 2, H315 C16-18-unsatd., maleated 01-2119976378-19 Skin Sens. 1, H317 See Section 16 for the full text of the H statements declared above.

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, vPvBs or Substances of equivalent concern, 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

[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

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. If unconscious, place in recovery position and seek medical advice.
Eye contact	:	Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.
Inhalation	:	Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
Skin contact	:	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Do NOT use solvents or thinners.
Ingestion	:	If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do NOT induce vomiting.
Protection of first-aiders	:	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the CLP Regulation (EC) No 1272/2008 and is classified for toxicological properties accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit 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 and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness.

Solvents may cause some of the above effects by absorption through the skin. Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Ingestion may cause nausea, diarrhea and vomiting.

This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eve contact.

Contains colophony, zineb, fatty acids, C14-18 and C16-18-unsatd., maleated. May produce an allergic reaction.

SECTION 4: First aid measures				
4.3 Indication of any imm	ediate medical attention and special treatment needed			
Notes to physician	: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.			
Specific treatments	: No specific treatment.			

See toxicological information (Section 11)

5.1 Extinguishing media	
Suitable extinguishing media	: Recommended: alcohol-resistant foam, CO ₂ , powders, water spray.
Unsuitable extinguishing media	: Do not use water jet.

Hazards from the substance or mixture	:	Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard.
Hazardous combustion products	:	Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.
5.3 Advice for firefighters		
Special protective actions for fire-fighters	:	Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses.
Special protective equipment for fire-fighters	:	Appropriate breathing apparatus may be required.

SECTION 6: Accidental release measures

6.1 Personal precautions, pro	te	ctive equipment and emergency procedures
For non-emergency personnel	:	Exclude sources of ignition and ventilate the area. Avoid breathing vapour or mist. Refer to protective measures listed in sections 7 and 8.
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 the information in "For non-emergency personnel".
6.2 Environmental precautions	:	Do not allow to enter drains or watercourses. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.
6.3 Methods and material for containment and cleaning up	:	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). Preferably clean with a detergent. Avoid using solvents.
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

Prevent the creation of flammable or explosive concentrations of vapours in air and avoid vapour concentrations higher than the occupational exposure limits.

In addition, the product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard.

Mixture may charge electrostatically: always use earthing leads when transferring from one container to another. Operators should wear antistatic footwear and clothing and floors should be of the conducting type.

Keep away from heat, sparks and flame. No sparking tools should be used.

Avoid contact with skin and eyes. Avoid the inhalation of dust, particulates, spray or mist arising from the application of this mixture. Avoid inhalation of dust from sanding.

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.

Put on appropriate personal protective equipment (see Section 8). Never use pressure to empty. Container is not a pressure vessel.

Always keep in containers made from the same material as the original one.

Comply with the health and safety at work laws.

Do not allow to enter drains or watercourses.

Information on fire and explosion protection

Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air.

When operators, whether spraying or not, have to work inside the spray booth, ventilation is unlikely to be sufficient to control particulates and solvent vapour in all cases. In such circumstances they should wear a compressed air-fed respirator during the spraying process and until such time as the particulates and solvent vapour concentration has fallen below the exposure limits.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations.

Notes on joint storage

Keep away from: oxidising agents, strong alkalis, strong acids.

Additional information on storage conditions

Observe label precautions. Store in a dry, cool and well-ventilated area. Keep away from heat and direct sunlight. Keep away from sources of ignition. No smoking. Prevent unauthorised access. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific : Not available. solutions

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

Product/ingredien	t name	Exposure limit values			
xylene		EH40/2005 WELs (United Kingdom (UK), 8/2018). Absorbed through skin. STEL: 441 mg/m ³ 15 minutes. STEL: 100 ppm 15 minutes. TWA: 220 mg/m ³ 8 hours. TWA: 50 ppm 8 hours.			
colonhony					
союрнопу		sensitiser. STEL: 0.15 mg/m ³ 15 minutes. Form: Fume TWA: 0.05 mg/m ³ 8 hours. Form: Fume			
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SECTION 8: Exposure controls/personal protection					
ethylbenzene	EH40/2005 WELs (United Kingdom (UK), 8/2018). Absorbed through skin. STEL: 552 mg/m ³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 100 ppm 8 hours.				
1-methoxy-2-propanol	TWA: 441 mg/m ³ 8 hours. EH40/2005 WELs (United Kingdom (UK), 8/2018). Absorbed				
hydrocarbons, C9, aromatics, (<0.1% Benzene)	 through skin. STEL: 560 mg/m³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 375 mg/m³ 8 hours. TWA: 100 ppm 8 hours. EH40-WEL (United Kingdom (UK), 12/2011). Absorbed through skin. TWA: 200 mg/m³ 8 hours. Form: All forms TWA: 40 ppm 8 hours. Form: All forms 				
Recommended monitoring procedures : If this product or atmosphere or b of the ventilation protective equip the following: E the assessment limit values and atmospheres - 0 of exposure to o (Workplace atm for the measure documents for r	ontains ingredients with exposure limits, personal, workplace biological monitoring may be required to determine the effectiveness in or other control measures and/or the necessity to use respiratory ment. Reference should be made to monitoring standards, such as turopean Standard EN 689 (Workplace atmospheres - Guidance for t of exposure by inhalation to chemical agents for comparison with measurement strategy) European Standard EN 14042 (Workplace Guide for the application and use of procedures for the assessment chemical and biological agents) European Standard EN 482 nospheres - General requirements for the performance of procedures ment of chemical agents) Reference to national guidance methods for the determination of hazardous substances will also be				

required.

DNELs/DMELs

Product/ingredient na	me Exposure	Value	Population	Effects
xylene	Short term	289 mg/m ³	Workers	Systemic
	Innalation	200 m m/m 3	\\/orl/org	
	Short term	289 mg/m ^e	vvorkers	Local
		180 mg/kg	Workore	Systemic
	Long term Derman	bw/day	VV UIKEIS	Systemic
	Long term	77 mg/m ³	Workers	Systemic
	Inhalation	//g/	Wontoro	oyotonno
	Long term Dermal	108 ma/ka	Consumers	Svstemic
	Ũ	bw/day		,
	Long term	14.8 mg/m ³	Consumers	Systemic
	Inhalation			
	Long term Oral	1.6 mg/kg	Consumers	Systemic
		bw/day		
colophony	Long term Dermal	25 mg/kg	Workers	Systemic
		bw/day		Quality
	Long term	176 mg/m ³	Workers	Systemic
		15 mg/kg	Consumara	Sustamia
	Long term Dermai	15 mg/kg bw/day	Consumers	Systemic
	Long term	52 mg/m^3	Consumers	Systemic
	Inhalation	52 mg/m	Consumers	Oysternie
	Long term Oral	15 ma/ka	Consumers	Systemic
		bw/day		-)
zinc oxide	Long term Dermal	83 mg/kg	Workers	Systemic
		bw/day		
	Long term	5 mg/m³	Workers	Systemic
	Inhalation			
	Long term Dermal	83 mg/kg	Consumers	Systemic
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I I				
		bw/day		
	Long term	2.5 mg/m ³	Consumers	Systemic
	Inhalation			
	Long term Oral	0.83 mg/	Consumers	Systemic
	Ŭ	kg bw/dav		,
ethylbenzene	Short term	293 mg/m ³	Workers	Local
	Inhalation			
	Long term Dermal	180 ma/ka	Workers	Systemic
	Long torm Dorma	bw/day		Cyclonno
	Long term	77 mg/m^3	Workers	Systemic
		r r mg/m	WOIKEIS	Systemic
	Long torm	15 mg/m^3	Concumera	Svetomia
		15 mg/m	Consumers	Systemic
		1.6 mm///m	Canadimaara	Custamia
	Long term Oral	1.6 mg/kg	Consumers	Systemic
A month and O month and I		bw/day		Land
1-methoxy-2-propanol	Short term	553.5 mg/	vvorkers	Local
	Inhalation	m³		
	Long term Dermal	50.6 mg/	Workers	Systemic
		kg bw/day		
	Long term	369 mg/m³	Workers	Systemic
	Inhalation			
	Long term Dermal	18.1 mg/	Consumers	Systemic
		kg bw/day		
	Long term	43.9 mg/m ³	Consumers	Systemic
	Inhalation			
	Long term Oral	3.3 mg/kg	Consumers	Systemic
		bw/day		
hydrocarbons, C9, aromatics, (<0.1%	Long term Dermal	25 mg/kg	Workers	Systemic
Benzene)	U U	bw/day		,
/	Long term	150 mg/m ³	Workers	Systemic
	Inhalation			e jetenne
	Long term Dermal	11 ma/ka	Consumers	Systemic
	Long torm Dorma	bw/day	Concarnero	Cyclonno
	l ong term	32 mg/m^3	Consumers	Systemic
	Inhalation	02 mg/m	Consumers	Cysternic
	Long term Oral	11 mg/kg	Consumers	Systemic
		hw/dov	Consumers	Systemic
		uw/day		

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
dicopper oxide	Fresh water	7.8 µg/l	-
	Marine	5.2 µg/l	-
	Sewage Treatment	230 µg/l	-
	Fresh water sediment	87 ma/ka dwt	-
	Marine water sediment	676 ma/ka dwt	-
	Soil	65 ma/ka dwt	-
xvlene	Fresh water	0.327 mg/l	-
,	Marine	0.327 mg/l	-
	Sewage Treatment	6.58 mg/l	-
	Fresh water sediment	12.46 mg/kg dwt	-
	Marine water sediment	12.46 mg/kg dwt	-
	Soil	2.31 mg/kg dwt	-
colophony	Fresh water	0.0054 mg/l	-
	Marine	0.00054 mg/l	-
	Sewage Treatment Plant	1000 mg/l	-
	Fresh water sediment	0.02 ma/ka dwt	-
	Marine water sediment	0.002 mg/kg dwt	-
	Soil	0.0015 ma/ka dwt	-
zinc oxide	Fresh water	20.6 µg/l	-
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	Marine	6.1 µg/l	-
	Sewage Treatment	52 µg/l	-
	Plant		
	Fresh water sediment	117.8 mg/kg dwt	-
	Marine water sediment	56.5 mg/kg dwt	-
	Soil	35.6 mg/kg dwt	-
ethylbenzene	Fresh water	0.1 mg/l	-
	Marine	0.01 mg/l	-
	Sewage Treatment	9.6 mg/l	-
	Plant	_	
	Fresh water sediment	13.7 mg/kg dwt	-
	Soil	2.68 mg/kg dwt	-
	Secondary Poisoning	20 mg/kg	-
1-methoxy-2-propanol	Fresh water	10 mg/l	-
	Marine	1 mg/l	-
	Sewage Treatment	100 mg/l	-
	Plant		
	Fresh water sediment	52.3 mg/kg dwt	-
	Marine water sediment	5.2 mg/kg dwt	-
	Soil	5.49 mg/kg dwt	-
		1	

8.2 Exposure controls	
Appropriate engineering 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 solvent vapours below the OEL, suitable respiratory protection must be worn.
Individual protection meas	<u>iures</u>
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. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection	: Use safety eyewear designed to protect against splash of liquids.
Skin protection	
Gloves	 There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals. The breakthrough time must be greater than the end use time of the product. The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed. Gloves should be replaced regularly and if there is any sign of damage to the glove material. Always ensure that gloves are free from defects and that they are stored and used correctly. The performance or effectiveness of the glove may be reduced by physical/chemical damage and poor maintenance. Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.
	Wear suitable gloves tested to EN374. Recommended, gloves(breakthrough time) > 8 hours: fluor rubber, polyvinyl alcohol (PVA), nitrile rubber, 4H, Teflon May be used, gloves(breakthrough time) 4 - 8 hours: neoprene Not recommended, gloves(breakthrough time) < 1 hour: butyl rubber, PVC
	For right choice of glove materials, with focus on chemical resistance and time of penetration, seek advice by the supplier of chemical resistant gloves.
	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.
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Body protection	 Personnel should wear antistatic clothing made of natural fibres or of high- temperature-resistant synthetic fibres.
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	: If workers are exposed to concentrations above the exposure limit, they must use a respirator according to EN 140. Use respiratory mask with charcoal and dust filter when spraying this product, according to EN 14387(as filter combination A2-P2). In confined spaces, use compressed-air or fresh-air respiratory equipment. When use of roller or brush, consider use of charcoalfilter.
Environmental exposure controls	: Do not allow to enter drains or watercourses.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance		
Physical state	4	Liquid.
Colour	1	Various colours.
Odour	:	Characteristic.
Odour threshold	:	Not applicable.
рН	:	Not applicable.
Melting point/freezing point	:	Not applicable.
Initial boiling point and boiling range	:	Lowest known value: 120.17°C (248.3°F) (1-methoxy-2-propanol). Weighted average: 136.72°C (278.1°F)
Flash point	:	Closed cup: 25°C
Evaporation rate	:	Highest known value: 0.84 (ethylbenzene) Weighted average: 0.79compared with butyl acetate
Flammability (solid, gas)	1	Not applicable.
Upper/lower flammability or explosive limits	:	0.8 - 13.74%
Vapour pressure	:	Highest known value: 1.2 kPa (9.3 mm Hg) (at 20°C) (ethylbenzene). Weighted average: 0.99 kPa (7.43 mm Hg) (at 20°C)
Vapour density	:	Highest known value: 3.7 (Air = 1) (xylene). Weighted average: 3.64 (Air = 1)
Density	:	1.62 to 1.67 g/cm ³
Solubility(ies)	:	Insoluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/ water	1	Not available.
Auto-ignition temperature	:	Lowest known value: 270°C (518°F) (1-methoxy-2-propanol).
Decomposition temperature	:	Not available.
Viscosity	1	Kinematic (40°C): >0.205 cm²/s (>20.5 mm²/s)
Explosive properties	:	Not available.
Oxidising properties	1	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	1	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	:	Stable under recommended storage and handling conditions (see Section 7).
10.3 Possibility of hazardous reactions	1	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	:	When exposed to high temperatures may produce hazardous decomposition products.
10.5 Incompatible materials	1	Keep away from the following materials to prevent strong exothermic reactions: oxidising agents, strong alkalis, strong acids.
10.6 Hazardous decomposition products	1	Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the CLP Regulation (EC) No 1272/2008 and is classified for toxicological properties accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit 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 and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness.

Solvents may cause some of the above effects by absorption through the skin. Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Ingestion may cause nausea, diarrhea and vomiting.

This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Contains colophony, zineb, fatty acids, C14-18 and C16-18-unsatd., maleated. May produce an allergic reaction. Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
dicopper oxide	LC50 Inhalation Dusts and mists	Rat	3.34 mg/l	4 hours
	LD50 Oral	Rat	470 mg/kg	-
xylene	LC50 Inhalation Vapour	Rat	20 mg/l	4 hours
	LD50 Oral	Rat	4300 mg/kg	-
	TDLo Dermal	Rabbit	4300 mg/kg	-
zineb	LD50 Oral	Rat	1850 mg/kg	-
ethylbenzene	LC50 Inhalation Gas.	Rabbit	4000 ppm	4 hours
	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
1-methoxy-2-propanol	LD50 Dermal	Rabbit	13 g/kg	-
	LD50 Oral	Rat	6600 mg/kg	-

Conclusion/Summary : Not available.

Acute toxicity estimates

Route	ATE value
Oral	1634.1 mg/kg
Dermal	7360.7 mg/kg
Inhalation (vapours)	55.21 mg/l
Inhalation (dusts and mists)	11.61 mg/l

Irritation/Corrosion

SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
zinc oxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
1-methoxy-2-propanol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
Conclusion/Summary	: Not available.	·			
<u>Sensitisation</u>					
Conclusion/Summary	• Not available				

Conclusion/Summary	: Not available.
<u>Mutagenicity</u>	
Conclusion/Summary	: Not available.
Carcinogenicity	
Conclusion/Summary	: Not available.
Reproductive toxicity	
Conclusion/Summary	: Not available.
<u>Teratogenicity</u>	
Conclusion/Summary	: Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
xylene	Category 3	Not applicable.	Respiratory tract irritation
zineb	Category 3	Not applicable.	Respiratory tract irritation
1-methoxy-2-propanol	Category 3	Not applicable.	Narcotic effects
hydrocarbons, C9, aromatics, (<0.1% Benzene)	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ethylbenzene	Category 2	Not determined	hearing organs

Aspiration hazard

Product/ingredient name	Result
xylene	ASPIRATION HAZARD - Category 1
ethylbenzene	ASPIRATION HAZARD - Category 1
hydrocarbons, C9, aromatics, (<0.1% Benzene)	ASPIRATION HAZARD - Category 1

Other information

: Not available.

SECTION 12: Ecological information

12.1 Toxicity

There are no data available on the mixture itself. Do not allow to enter drains or watercourses.

The mixture has been assessed following the summation method of the CLP Regulation (EC) No 1272/2008 and is classified for eco-toxicological properties accordingly. See Sections 2 and 3 for details.

SeaForce 30

SECTION 12: Ecological information

Product/ingredient name	Result	Species	Exposure
dicopper oxide	Acute LC50 0.075 mg/l Fresh water	Fish - Danio rerio	96 hours
zinc oxide	Acute LC50 1.1 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
zineb	Acute EC50 0.38 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute LC50 970 to 1800 μg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 0.225 mg/l	Fish	96 hours
	Chronic NOEC 0.05 mg/l Fresh water	Algae - Chlorella vulgaris	96 hours
ethylbenzene	Acute EC50 7.2 mg/l	Algae	48 hours
-	Acute EC50 2.93 mg/l	Daphnia	48 hours
	Acute LC50 4.2 mg/l	Fish	96 hours
hydrocarbons, C9,	Acute EC50 <10 mg/l	Daphnia	48 hours
aromatics, (<0.1% Benzene)			
	Acute IC50 <10 mg/l	Algae	72 hours
	Acute LC50 <10 mg/l	Fish	96 hours
Conclusion/Summary	: Water polluting material. May be han quantities. This material is very toxic	nful to the environment if released to aquatic life with long lasting effe	in large

12.2 Persistence and degradability

Conclusion/Summary	: Not available.		
Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
dicopper oxide xylene zinc oxide ethylbenzene hydrocarbons, C9, aromatics, (<0.1% Benzene)		- - - -	Not readily Readily Not readily Readily Not readily

12.3 Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
xylene	3.12	8.1 to 25.9	low
colophony	1.9 to 7.7	-	high
zinc oxide	-	60960	high
zineb	1.3	-	-
ethylbenzene	3.6	-	low
1-methoxy-2-propanol	<1	-	low
hydrocarbons, C9, aromatics, (<0.1% Benzene)	-	10 to 2500	high

12.4 Mobility in soil	
Soil/water partition coefficient (Koc)	: Not available.
Mobility	: Not available.

12.5	Results	of PBT	and	vPvB	asses	sment

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 Disposal of the with the require and any region recyclable pro- disposed of un all authorities	In of waste should be avoided or minimised wherever possible. is product, solutions and any by-products should at all times comply rements of environmental protection and waste disposal legislation nal local authority requirements. Dispose of surplus and non- oducts via a licensed waste disposal contractor. Waste should not be intreated to the sewer unless fully compliant with the requirements of with jurisdiction.		
Hazardous waste	: The classifica	tion of the product may meet the criteria for a hazardous waste.		
Disposal considerations	: Do not allow t Dispose of ac If this product longer apply a For further inf	o enter drains or watercourses. cording to all federal, state and local applicable regulations. is mixed with other wastes, the original waste product code may no and the appropriate code should be assigned. ormation, contact your local waste authority.		
European waste catalogue (EWC)	: 08 01 11* Wa substances	08 01 11* Waste paint and varnish containing organic solvents or other dangerous substances		
Packaging				
Methods of disposal	: The generation packaging showing when recycling the second seco	n of waste should be avoided or minimised wherever possible. Waste ould be recycled. Incineration or landfill should only be considered g is not feasible.		
Disposal considerations	: Using informathe relevant w Empty contain Dispose of co national legal	tion provided in this safety data sheet, advice should be obtained from vaste authority on the classification of empty containers. hers must be scrapped or reconditioned. ntainers contaminated by the product in accordance with local or provisions.		
Type of packaging		European waste catalogue (EWC)		
CEPE Paint Guidelines	15 01 10*	packaging containing residues of or contaminated by hazardous substances		
Special precautions	: This material taken when h Empty contain residues may container. Do thoroughly int soil, waterway	and its container must be disposed of in a safe way. Care should be andling emptied containers that have not been cleaned or rinsed out. hers or liners may retain some product residues. Vapour from product create a highly flammable or explosive atmosphere inside the o not cut, weld or grind used containers unless they have been cleaned ernally. Avoid dispersal of spilt material and runoff and contact with <i>y</i> s, drains and sewers.		

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	ΙΑΤΑ
14.1 UN number	1263	1263	1263	1263
14.2 UN proper shipping name	Paint	Paint	Paint. Marine pollutant (dicopper oxide, zinc oxide)	Paint
14.3 Transport hazard class(es)				3
14.4 Packing group				
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SECTION 14: Transport information

	•			
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.
Additional information	Tunnel restriction code: (D/E) Hazard identification number: 30 Special provisions: 640E	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. <u>Emergency</u> <u>schedules (EmS)</u> F-E, <u>S-E</u>	The environmentally hazardous substance mark may appear if required by other transportation regulations.

14.6 Special precautions for	÷	Transport within user's premises: always transport in closed containers that are
user		upright and secure. Ensure that persons transporting the product know what to do in
		the event of an accident or spillage.

14.7 Transport in bulk	1	Not applicable.
according to Annex II of		
Marpol and the IBC Code		

SECTION 15: Regulatory information

15.1 Safety, health and envir	onmental regulations/legislat	ion specific for the substance or	mixture
EU Regulation (EC) No. 190	<u>7/2006 (REACH)</u>		
Annex XIV - List of substa	nces subject to authorisation		
<u>Annex XIV</u>			
None of the components a	re listed.		
Substances of very high	<u>concern</u>		
None of the components a	re 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			
VOC	: The provisions of Directive product label and/or technic	2004/42/EC on VOC apply to this p cal data sheet for further information	product. Refer to the n.
VOC for Ready-for-Use Mixture	: Not applicable.		
Europe inventory	: At least one component is r	not listed.	
Industrial emissions (integrated pollution prevention and control) - Air	: Listed		
Ozone depleting substanc	<u>ces (1005/2009/EU)</u>		
Not listed.			
Prior Informed Consent (P	<u>PIC) (649/2012/EU)</u>		
Ingredient name		Annex	Status
Zineb		Annex I - Part 1	Listed
Seveso Directive		1	I

SECTION 15: Regulatory information

This product may add to the calculation for determining whether a site is within the scope of the Seveso Directive on major accident hazards.

National regulations

Industrial use

: The information contained in this safety data sheet does not constitute the user's own assessment of workplace risks, as required by other health and safety legislation. The provisions of the national health and safety at work regulations apply to the use of this product at work.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

15.2 Chemical safety	: Not applicable.
assessment	

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] DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level EUH statement = CLP-specific Hazard statement PBT = Persistent, Bioaccumulative and Toxic PNEC = Predicted No Effect Concentration RRN = REACH Registration Number vPvB = Very Persistent and Very Bioaccumulative
Key literature references and sources for data	 This product does not contain organotin compounds acting as biocides and complies with the International Convention on the Control of Harmful Anti-fouling Systems on Ships as adopted by IMO in October 2001 (IMO document AFS/ CONF/26).

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification			
Flam. Liq. 3, H226	On basis of test data			
Acute Tox. 4, H302	Calculation method			
Skin Irrit. 2, H315	Calculation method			
Eye Dam. 1, H318	Calculation method			
Skin Sens. 1, H317	Calculation method			
Repr. 2, H361d (Unborn child)	Calculation method			
STOT SE 3, H335	Calculation method			
Aquatic Acute 1, H400	Calculation method			
Aquatic Chronic 1, H410	Calculation method			

Full text of abbreviated H statements

SeaForce 30	
SECTION 16: Other	information
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H228	Flammable solid.
H302	Harmful if swallowed.
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.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
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.

Toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

H411

1.0		
	Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
	Acute Tox. 4, H312	ACUTE TOXICITY (dermal) - Category 4
	Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4
	Aquatic Acute 1, H400	ACUTE AQUATIC HAZARD - Category 1
	Aquatic Chronic 1, H410	LONG-TERM AQUATIC HAZARD - Category 1
	Aquatic Chronic 2, H411	LONG-TERM AQUATIC HAZARD - Category 2
	Asp. Tox. 1, H304	ASPIRATION HAZARD - Category 1
	Eye Dam. 1, H318	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
	Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
	Flam. Liq. 2, H225	FLAMMABLE LIQUIDS - Category 2
	Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 3
	Flam. Sol. 1, H228	FLAMMABLE SOLIDS - Category 1
	Repr. 2, H361d	REPRODUCTIVE TOXICITY (Unborn child) - Category 2
	Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
	Skin Sens. 1, H317	SKIN SENSITISATION - Category 1
	STOT RE 2, H373	SPECIFIC TARGET ORGAN TOXICITY - REPEATED
		EXPOSURE - Category 2
	STOT SE 3. H335	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE
	,	(Respiratory tract irritation) - Category 3
	STOT SE 3. H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE
		(Narcotic effects) - Category 3
	Date of printing : 26.03.2019	
	Date of issue/ Date of : 26.03.2019	
	revision	

Date of previous issue Version

Notice to reader

The information in this document is given to the best of Jotun's knowledge, based on laboratory testing and practical experience. Jotun's products are considered as semi-finished goods and as such, products are often used under conditions beyond Jotun's control. Jotun cannot guarantee anything but the quality of the product itself. Minor product variations may be implemented in order to comply with local requirements. Jotun reserves the right to change the given data without further notice.

: 08.11.2018

: 2

Users should always consult Jotun for specific guidance on the general suitability of this product for their needs and specific application practices.

If there is any inconsistency between different language issues of this document, the English (United Kingdom) version will prevail.

Date of issue/Date of revision : 26.03.2	019 Date of previou	<mark>s issue :</mark> 08.11.20	18 Version : 2
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17/17



SeaForce 30

Product description

This is a one component acrylic, hydrolysing antifouling coating based on ion exchange technology. It provides good fouling protection. This is achieved through self polishing characteristics reducing hull deterioration. To be used as finish coat in immersed environments only. Suitable on approved primers and tie coats on aluminium and carbon steel substrates. It can be applied at sub zero surface temperatures.

Typical use

Marine:

Recommended for underwater hull in newbuilding and drydocking. Designed for vessels trading at a wide range of speed and activity. The product can be used for long service periods up to 60 months as a part of a complete coating system.

Protective:

Can be used for offshore constructions and outside hull for static installations in deep sea.

Typical trade

Suited for vessels operating in global service, including fresh water exposure during newbuilding outfitting. Recommended for deep sea trade.

Approvals and certificates

Compliant with IMO Antifouling System Convention AFS/CONF/26.

Additional certificates and approvals may be available on request.

Colours

dark red, light red, black, blue

Product data

Property Test/Standard		Description		
Solids by volume	ISO 3233	58 ± 2 %		
Flash point	ISO 3679 Method 1	25 °C		
Density	calculated	1.6 kg/l		
VOC-US/Hong Kong	US EPA method 24 (tested) (CARB(SCM)2007, SCAOMD rule 1113, Hong Kong)	384 g/l		
VOC-EU	IED (2010/75/EU) (theoretical)	399 g/l		
VOC-China	GB/T 23985-2009 (tested)	396 g/l		
VOC-Korea	Korea Clean Air Conservation Act (tested) (Max. thinning ratio included)	421 g/l		

The provided data is typical for factory produced products, subject to slight variation depending on colour.

Date of issue: 27 November 2020

This Technical Data Sheet supersedes those previously issued.

The Technical Data Sheet (TDS) is recommended to be read in conjunction with the Safety Data Sheet (SDS) and the Application Guide (AG) for this product. For your nearest local Jotun office, please visit our website at www.jotun.com



Film thickness per coat

Typical recommended specification range

Dry film thickness	75	-	175	μm
Wet film thickness	130	-	300	μm
Theoretical spreading rate	7.7	-	3.3	m²/l

Max total DFT for multiple coats in the antifouling system: 500 μm

Surface preparation

To secure lasting adhesion to the subsequent product all surfaces shall be clean, dry and free from any contamination.

Surface preparation summary table

	Surface preparation			
Substrate	Minimum	Recommended		
Coated surfaces	New tie coat or new antifouling: Remove any contamination that could interfere with the intercoat adhesion. Exceeding maximum recoat intervals will require cleaning/abrading and/or application of additional coats, depending on condition. Aged antifouling with leached layer: Removal by thorough fresh water washing at minimum nozzle pressure 200 bar.	New tie coat or new antifouling: Remove any contamination that could interfere with the intercoat adhesion. Exceeding maximum recoat intervals will require cleaning/abrading and/or application of additional coats, depending on condition. Aged antifouling with leached layer: Removal by thorough fresh water washing at minimum nozzle pressure 340 bar.		

Application

Application methods

The product can be applied by

Spray:	Use airless spray.
Brush:	May be used. Care must be taken to achieve the specified dry film thickness.
Roller:	May be used. Care must be taken to achieve the specified dry film thickness.

Date of issue: 27 November 2020

This Technical Data Sheet supersedes those previously issued.



Product mixing

Single pack

Thinner/Cleaning solvent

Thinner: Jo

Jotun Thinner No. 7

Guiding data for airless spray

Nozzle tip (inch/1000):	21-31
Pressure at nozzle (minimum):	150 bar/2100 psi

Drying and Curing time

Substrate temperature	-10 °C	0 °C	5 °C	10 °C	23 °C	40 °C	
Surface (touch) dry	5 h	2 h	1 h	45 min	30 min	30 min	
Dry to over coat, minimum	48 h	36 h	12 h	9 h	7 h	6 h	
Dried/cured for immersion	48 h	36 h	12 h	12 h	10 h	8 h	

For maximum overcoating intervals, refer to the Application Guide (AG) for this product.

When three or more antifouling coats are applied in rapid succession it is recommended to double the time for immersion.

Drying and curing times are determined under controlled temperatures and relative humidity below 85 %, and at average of the DFT range for the product.

Surface (touch) dry: The state of drying when slight pressure with a finger does not leave an imprint or reveal tackiness.

Dry to over coat, minimum: The recommended shortest time before the next coat can be applied.

Dried/cured for immersion: Minimum time before the coating can be permanently immersed in sea water.

Recommended type of primer

Anticorrosive primer system suitable for purpose. Recommended tie coat for the subsequent antifouling coat is: Safeguard Universal ES or

Safeguard Plus

Packaging (typical)

Volume (litres) Size of containers (litres)

Date of issue: 27 November 2020

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Technical Data Sheet SeaForce 30



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The volume stated is for factory made colours. Note that local variants in pack size and filled volumes can vary due to local regulations.

Storage

The product must be stored in accordance with national regulations. Keep the containers in a dry, cool, well ventilated space and away from sources of heat and ignition. Containers must be kept tightly closed. Handle with care.

Shelf life at 23 °C

SeaForce 30

18 month(s)

For other colours than red, the shelf life is 6 months.

In some markets commercial shelf life can be dictated shorter by local legislation. The above is minimum shelf life, thereafter the paint quality is subject to re-inspection.

Caution

This product is for professional use only. The applicators and operators shall be trained, experienced and have the capability and equipment to mix/stir and apply the coatings correctly and according to Jotun's technical documentation. Applicators and operators shall use appropriate personal protection equipment when using this product. This guideline is given based on the current knowledge of the product. Any suggested deviation to suit the site conditions shall be forwarded to the responsible Jotun representative for approval before commencing the work.

Health and safety

Please observe the precautionary notices displayed on the container. Use under well ventilated conditions. Do not inhale spray mist. Avoid skin contact. Spillage on the skin should immediately be removed with suitable cleanser, soap and water. Eyes should be well flushed with water and medical attention sought immediately.

Colour variation

When applicable, products primarily meant for use as primers or antifoulings may have slight colour variations from batch to batch. Such products may fade and chalk when exposed to sunlight and weathering.

Colour and gloss retention on topcoats/finish coats may vary depending on type of colour, exposure environment such as temperature, UV intensity etc., and application quality. Contact your local Jotun office for further information.

Disclaimer

Date of issue: 27 November 2020

This Technical Data Sheet supersedes those previously issued.

The Technical Data Sheet (TDS) is recommended to be read in conjunction with the Safety Data Sheet (SDS) and the Application Guide (AG) for this product. For your nearest local Jotun office, please visit our website at www.jotun.com

Technical Data Sheet SeaForce 30



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Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830. - United Kingdom (UK)

SAFETY DATA SHEET

Boatguard 100 Red

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

: Boatguard 100 Red

Product name Product code

: YBP001

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

Identified u	ses
Consumer application of coatings Professional application of coatings and inks	
Uses advised against	Reason
All Other Uses	

1.3 Details of the supplier of the safety data sheet

International Paint Ltd. Stoneygate Lane Felling Gateshead Tyne and Wear NE10 0JY UK Tel: +44 (0)191 469 6111	Fax: +44 (0)191 438 3711
e-mail address of person responsible for this SDS	: sdsfellinguk@akzonobel.com

National contact

1.4 Emergency telephone number

National advisory body	<u>//Poison Centre (For use only by lice</u>	ensed medical professionals.)
Telephone number	: +44 (0)344 892 0111 (UK)	+353 (0)1 809 2566 (Eire)
<u>Supplier</u>		
Telephone number	: +44 (0)191 469 6111 (24H)	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 3, H226 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements



SECTION 2: Hazards identification

Hazard pictograms	:		Ĩ		2	
Signal word	:	Danger				
Hazard statements	:	Flammable liquid a Causes serious ey May cause an aller May cause respirat Very toxic to aquat	nd vapour. e damage. gic skin reac tory irritation. ic life with lor	tion. ng lasting effec	sts.	
Precautionary statements						
General	:	Read label before have product conta	use. Keep ou ainer or label	ut of reach of c at hand.	children. If medic	al advice is needed,
Prevention	:	Wear protective glo surfaces, sparks, o outdoors or in a we	oves. Wear e open flames a ell-ventilated a	eye or face pro and other ignitionarea. Avoid re	otection. Keep av on sources. No s lease to the envi	vay from heat, hot moking. Use only ronment.
Response	:	IF INHALED: Rem ON SKIN (or hair): water or shower. I reuse. IF IN EYES	nove person t Take off imr F ON SKIN: S: Immediate	o fresh air and nediately all co Take off conta ly call a POISC	I keep comfortab ontaminated cloth aminated clothing ON CENTER or p	le for breathing. IF ning. Rinse skin with and wash it before hysician.
Storage	:	Keep cool.				
Disposal	:	Dispose of content and international re	s and contair egulations.	er in accordar	nce with all local,	regional, national
Hazardous ingredients	:	dicopper oxide Solvent naphtha (p rosin xylene Fatty acids, C18-ur Fatty acids, tall-oil,	etroleum), lig nsatd., trimer compds. with	jht arom. s, compds. wit h oleylamine	th oleylamine	
elements	•	Wear appropriate r	respirator who	en ventilation i	s inadequate.	
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	:	Not applicable.				
Biocidal products regulation						
Authorisation number (UK)		: HSE No. 10376				
Authorisation number (Malta)		: MCCAA 2017-0)5-24-B05			
Authorisation number (Ireland)		: PCS No. 99037				
Warnings for vulnerable groups		: Children shall be	e kept away ι	intil treated sui	rfaces are dry.	
Product Specific Information		: FIRST AID Do n Do NOT induce Wash with plent skin. If skin irrita cautiously with v easy to do. Cont respiration. If bro position comfort if you feel unwel	ot breathe du vomiting. Ge y of soap and tion or rash o vater for seve tinue rinsing. eathing is diff able for breat I. Contamina	Ist/fume/gas/m t immediate m d water. Do not occurs: Get me ral minutes. R IF INHALED: I ficult, remove v thing. Give not ted work clothi	nist/vapours/spra edical advice/atte t use solvents or edical attention. If emove contact le ff not breathing, g victim to fresh air thing by mouth. G ing should not be	y. IF SWALLOWED: ention. IF ON SKIN: thinners to clean the F IN EYES: Rinse enses, if present and give artificial and keep at rest in a Set medical attention allowed out of the
Date of issue/Date of revision		: 30/08/2018	0/40			AkzoNobel

XInternational

AkzoNobel

SECTION 2: Hazards identification

workplace. Keep unnecessary and unprotected personnel from entering. Store in a well-ventilated place. Keep container tightly closed. Do not reuse container. Collect spillage. Application, maintenance and repair activities shall be conducted within a contained area, on an impermeable hard standing with bunding or on soil covered with an impermeable material to prevent losses and minimize emissions to the environment, and that any losses or waste containing a biocide shall be collected for reuse or disposal.

2.3 Other hazards

Other hazards which do : None known. not result in classification

SECTION 3: Composition/information on ingredients

: Mixture				
Identifiers	% by weight	<u>Classification</u> Regulation (EC) No. 1272/2008 [CLP]	Nota (s)	Туре
EC: 215-270-7 CAS: 1317-39-1 Index: 029-002-00-X	≥10 - ≤25	Acute Tox. 4, H302 Acute Tox. 4, H332 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=10)	-	[1]
REACH #: 01-2119455851-35 EC: 265-199-0 CAS: 64742-95-6 Index: 649-356-00-4	≥10 - <20	Flam. Liq. 3, H226 STOT SE 3, H335 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Chronic 2, H411 EUH066	Ρ	[1] [2]
REACH #: 01-2119480418-32 EC: 232-475-7 CAS: 8050-09-7 Index: 650-015-00-7	≥10 - ≤25	Skin Sens. 1, H317 Aquatic Chronic 4, H413	-	[1] [2]
REACH #: 01-2119463881-32 EC: 215-222-5 CAS: 1314-13-2 Index: 030-013-00-7	≤10	Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=1)	-	[1]
REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9	<8	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304	С	[1] [2]
REACH #: 01-2119489370-35 EC: 202-849-4 CAS: 100-41-4	<2	Flam. Liq. 2, H225 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 (hearing organs) Asp. Tox. 1, H304 See Section 16 for the full text of the H statements declared	-	[1] [2]
	Identifiers EC: 215-270-7 CAS: 1317-39-1 Index: 029-002-00-X REACH #: 01-2119455851-35 EC: 265-199-0 CAS: 64742-95-6 Index: 649-356-00-4 REACH #: 01-2119480418-32 EC: 232-475-7 CAS: 8050-09-7 Index: 650-015-00-7 REACH #: 01-2119463881-32 EC: 215-222-5 CAS: 1314-13-2 Index: 030-013-00-7 REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9 REACH #: 01-2119489370-35 EC: 202-849-4 CAS: 100-41-4	Identifiers% by weightEC: 215-270-7 CAS: 1317-39-1 Index: 029-002-00-X $\geq 10 - \leq 25$ REACH #: 01-2119455851-35 EC: 265-199-0 CAS: 64742-95-6 Index: 649-356-00-4 $\geq 10 - \leq 20$ REACH #: 01-2119480418-32 EC: 232-475-7 CAS: 8050-09-7 Index: 650-015-00-7 $\geq 10 - \leq 25$ REACH #: 01-2119463881-32 EC: 215-222-5 CAS: 1314-13-2 Index: 030-013-00-7 $\geq 10 - \leq 25$ REACH #: 01-2119463881-32 EC: 215-222-5 CAS: 1314-13-2 Index: 030-013-00-7 ≤ 10 REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9 < 8 REACH #: 01-2119489370-35 EC: 202-849-4 CAS: 100-41-4 < 2	Identifiers % by weight Classification Regulation (EC) No. 1272/2008 [CLP] EC: 215-270-7 CAS: 1317-39-1 Index: 029-002-00-X ≥10 - ≤25 Acute Tox. 4, H302 Acute Tox. 4, H302 Acute Tox. 4, H302 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=10) REACH #: 01-2119455851-35 EC: 265-199-0 CAS: 64742-95-6 Index: 649-356-00-4 ≥10 - <20	Identifiers % by weight Classification Regulation (EC) No. 1272/2008 [CLP] Nota (s) EC: 215-270-7 CAS: 1317-39-1 Index: 029-002-00-X ≥10 - ≤25 Acute Tox. 4, H302 Acute Tox. 4, H332 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=10) - REACH #: 01-211945851-35 EC: 265-199-0 CAS: 64742-95-6 Index: 649-356-00-4 ≥10 - <20

SECTION 3: Composition/information on ingredients

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.

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Туре

[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

[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

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. If unconscious, place in recovery position and seek medical advice.
Eye contact	 Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek immediate medical attention.
Inhalation	: Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Seek medical attention.
Skin contact	 Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Seek medical attention if irritation persists. Do NOT use solvents or thinners.
Ingestion	: If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do NOT induce vomiting.
Protection of first-aiders	: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects	
Eye contact :	Causes serious eye damage.
Inhalation :	May cause respiratory irritation.
Skin contact :	May cause an allergic skin reaction.
Ingestion :	Irritating to mouth, throat and stomach.
Over-exposure signs/sympton	<u>ns</u>
Eye contact	Adverse symptoms may include the following: pain watering redness
Inhalation	Adverse symptoms may include the following: respiratory tract irritation coughing headache drowsiness/fatigue dizziness/vertigo muscle weakness unconsciousness
Skin contact	Adverse symptoms may include the following: pain or irritation redness blistering may occur

30/08/2018

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AkzoNobel

X.International.

SECTION 4:	First aid	measures
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Ingestion	: Adverse symptoms may include the following: stomach pains
4.3 Indication of any imm	ediate 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: Firefig	phting measures

5.1 Extinguishing media		
Suitable extinguishing media	:	Use dry chemical, CO ₂ , water spray (fog) or foam.
Unsuitable extinguishing media	:	Do not use water jet.
5.2 Special hazards arising	from	the substance or mixture
Hazards from the substance or mixture	:	Flammable liquid and vapour. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous thermal decomposition products	:	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides metal oxide/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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
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, pro	te	ctive 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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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 the information in "For non-emergency personnel".
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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and material for containment and cleaning up



SECTION 6: Accidental release measures

Small spill	: Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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. Use spark-proof tools and explosion-proof equipment. Approach the 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. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product.
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). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
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 a segregated and approved area. 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. Store locked up. Eliminate all ignition sources. Vapours are heavier than air and may spread along floors. Separate from oxidizing materials. 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	: Not available.
solutions	


SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

XInternational.

8.1 Control parameters

Occupational exposure limits

Product/ingredient r	name	Exposure limit values
Solvent naphtha (petroleum), lig	ht arom.	European Hydrocarbon Solvent Suppliers (CEFIC-HSPA) methodology (Europe). TWA: 100 mg/m³ 8 hours.
rosin		EH40/2005 WELs (United Kingdom (UK), 12/2011). Inhalation sensitiser. STEL: 0.15 mg/m ³ 15 minutes. Form: Fume TWA: 0.05 mg/m ³ 8 hours. Form: Fume
xylene		EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin. STEL: 441 mg/m ³ 15 minutes. STEL: 100 ppm 15 minutes. TWA: 220 mg/m ³ 8 hours. TWA: 50 ppm 8 hours.
ethylbenzene		EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin. STEL: 552 mg/m ³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 441 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.
Recommended monitoring : procedures	If this product c atmosphere or of the ventilation protective equip the following: E the assessmen limit values and atmospheres - of exposure to of (Workplace atm for the measure documents for r required.	ontains ingredients with exposure limits, personal, workplace biological monitoring may be required to determine the effectiveness in or other control measures and/or the necessity to use respiratory oment. Reference should be made to monitoring standards, such as European Standard EN 689 (Workplace atmospheres - Guidance for t of exposure by inhalation to chemical agents for comparison with measurement strategy) European Standard EN 14042 (Workplace Guide for the application and use of procedures for the assessment chemical and biological agents) European Standard EN 482 nospheres - General requirements for the performance of procedures ement of chemical agents) Reference to national guidance methods for the determination of hazardous substances will also be
DNELs/DMELs No DNELs/DMELs available.	·	
PNECs No PNECs available		
8.2 Exposure controls		
Appropriate engineering : controls	Use only with a ventilation or o contaminants b controls also n explosive limits	adequate ventilation. Use process enclosures, local exhaust ther engineering controls to keep worker exposure to airborne below any recommended or statutory limits. The engineering eed to keep gas, vapour or dust concentrations below any lower s. Use explosion-proof ventilation equipment.
Individual protection measures	<u>8</u>	

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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 Contaminated work clothing should not be allowed out of the workplace. 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, gases or dusts. Use eye protection according to EN 166, designed to protect against liquid splashes. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
Skin protection	
Hand protection	: Use chemical resistant gloves classified under Standard EN 374: Protective gloves against chemicals and micro-organisms. Recommended: Viton® or Nitrile gloves. 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. 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. 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. Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.
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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.
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 according to EN529. 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

<u>Appearance</u>	
Physical state	: Liquid.
Colour	: Red.
Odour	: Solvent.
Odour threshold	: Not available.
рН	: Not applicable.
Melting point/freezing point	: Not available.
Date of issue/Date of revision	: 30/08/2018



K.International.

X.International.

SECTION 9: Physical and chemical properties

		the second se
Initial boiling point and boiling range	:	Lowest known value: 140 to 200°C (284 to 392°F)(Solvent naphtha (petroleum), light arom.).
Flash point	:	Closed cup: 42°C
Evaporation rate	:	Not available.
Flammability (solid, gas)	:	Not available.
Upper/lower flammability or explosive limits	:	Greatest known range: Lower: 1.4% Upper: 7.6% (Solvent naphtha (petroleum), light arom.)
Vapour pressure	:	Not available.
Vapour density	:	Not available.
Relative density	:	1.5
Solubility(ies)	:	Insoluble in the following materials: cold water.
Partition coefficient: n-octanol/ water	:	Not available.
Auto-ignition temperature	:	Not available.
Decomposition temperature	:	Not available.
Viscosity	:	Kinematic (room temperature): 200 mm ² /s
Explosive properties	:	Not available.
Oxidising properties	:	Not available.

9.2 Other information

No additional information.

SECTION 10: Stabilit	y	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	:	Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
10.5 Incompatible materials	:	Reactive or incompatible with the following materials: oxidizing 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
dicopper oxide	LC50 Inhalation Dusts and	Rat	3.34 mg/l	4 hours
	mists			
	LD50 Oral	Rat	1340 mg/kg	-
Solvent naphtha	LD50 Oral	Rat	8400 mg/kg	-
(petroleum), light arom.				
rosin	LD50 Oral	Rat	7600 mg/kg	-
xylene	LC50 Inhalation Gas.	Rat	5000 ppm	4 hours
	LD50 Oral	Rat	4300 mg/kg	-
ethylbenzene	LC50 Inhalation Gas.	Rabbit	4000 ppm	4 hours
	LD50 Dermal	Rabbit	17800 mg/kg	-
e of issue/Date of revision	: 30/08/2018			AkzaNabal



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SECTION 11: Toxicological information

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	LD50 Oral	Rat	3500 mg/kg	-
Conclusion/Summary	: Not available.			

Acute toxicity estimates

Route	ATE value
Oral	6536.6 mg/kg
Dermal	16074.4 mg/kg
Inhalation (gases)	73065.2 ppm
Inhalation (vapours)	643 mg/l
Inhalation (dusts and mists)	16.29 mg/l

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Solvent naphtha (petroleum),	Eyes - Mild irritant	Rabbit	-	24 hours 100	-
light arom.				microliters	
zinc oxide	Eyes - Mild irritant	Rabbit	-	24 hours 500	-
				milligrams	
	Skin - Mild irritant	Rabbit	-	24 hours 500	-
				milligrams	
xylene	Eyes - Mild irritant	Rabbit	-	87 milligrams	-
	Eyes - Severe irritant	Rabbit	-	24 hours 5	-
				milligrams	
	Skin - Mild irritant	Rat	-	8 hours 60	-
		B 11 11		microliters	
	Skin - Moderate irritant	Rabbit	-	24 hours 500	-
	Ohin Madagata initant	Datati		milligrams	
	Skin - Moderate Irritant	Rabbit	-	100 Percent	-
etnyibenzene	Eyes - Severe Irritant	Raddit	-	500 milligrama	-
	Skip Mild irritant	Dabbit		nilligrams	
	Skin - Milu Initant	Rabbit	-	24 HOUIS 15	-
				minigrams	
Conclusion/Summary	: Not available.				
Sensitisation					
Conclusion/Summary	: Not available.				
Mutagenicity					
Conclusion/Summary	: Not available.				
Carcinogenicity					
Conclusion/Summary	: Not available.				
Reproductive toxicity					
Conclusion/Summary	: Not available.				

Teratogenicity

Conclusion/Summary : Not available.

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Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Solvent naphtha (petroleum), light arom.	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
xylene	Category 3	Not applicable.	Respiratory tract irritation
ethylbenzene	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ethylbenzene	Category 2	Not determined	hearing organs

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SECTION 11: Toxicological information

Aspiration hazard

Product/ingredient name	Result
Solvent naphtha (petroleum), light arom.	ASPIRATION HAZARD - Category 1
xylene	ASPIRATION HAZARD - Category 1
ethylbenzene	ASPIRATION HAZARD - Category 1

Information on likely routes : Not available. of exposure

Potential acute health effects

Eye contact	: Causes serious eye damage.
Inhalation	: May cause respiratory irritation.
Skin contact	: May cause an allergic skin reaction.
Ingestion	: Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: Adverse symptoms may include the following: pain watering redness
Inhalation	: Adverse symptoms may include the following: respiratory tract irritation coughing headache drowsiness/fatigue dizziness/vertigo muscle weakness unconsciousness
Skin contact	: Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion	 Adverse symptoms may include the following: stomach pains

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure	<u> </u>	
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 eff	<u>cts</u>	
Not available.		
Conclusion/Summary	: Not available.	
General	: Once sensitized, a severe allergic reaction may occur when subsequently exposito very low levels.	sed
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.	
ate of issue/Date of revision	: 30/08/2018	
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SECTION 11: Toxicological information

Other information

: Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
dicopper oxide	Acute EC50 0.042 mg/l Fresh water	Daphnia - Daphnia similis	48 hours
	Acute IC50 0.71 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential	96 hours
	Acute LC50 0.075 mg/l Fresh water	Fish - Danio rerio	96 hours
	Chronic IC10 0.009 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	96 hours
Solvent naphtha (petroleum), light arom.	Acute EC50 6.14 mg/m ³	Daphnia	48 hours
	Acute LC50 9.22 mg/m ³	Fish - Mykiss	96 hours
zinc oxide	Acute EC50 0.042 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Acute EC50 1 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute IC50 0.17 mg/l	Algae - Selenastrum capricornutum	72 hours
	Acute LC50 1.1 mg/l	Fish - Oncorhynchus Mykiss	96 hours
	Chronic NOEC 0.017 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
xylene	Acute LC50 8500 µg/l Marine water	Crustaceans - Palaemonetes	48 hours
	Acute LC50 13400 µg/l Fresh water	Fish - Pimephales promelas	96 hours
ethylbenzene	Acute EC50 3.6 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute LC50 18.4 to 25.4 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 5.1 to 5.7 mg/l Marine water	Fish - Menidia menidia	96 hours

Conclusion/Summary

: Not available.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
zinc oxide	-	-	Not readily
ethylbenzene	-	-	Readily

12.3 Bioaccumulative potential

Version : 4.01

Product/ingredient name	LogPow	BCF	Potential
rosin	1.9 to 7.7	-	high
zinc oxide	-	60960	high
xylene	3.12	8.1 to 25.9	low
ethylbenzene	3.6	15	low

12.4 Mobility in soil	
Soil/water partition coefficient (K _{oc})	: Not available.
Mobility	: Not available.
Date of issue/Date of revision	: 30/08/2018

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SECTION 12: Ecological information

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

<u>Product</u>	
Methods of disposal	

The generation of waste should be avoided or minimised 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. Hazardous waste

: The classification of the product may meet the criteria for a hazardous waste.

X.International.

European waste catalogue (EWC)

Code number	Waste designation
EWC 08 01 11*	waste paint and varnish containing organic solvents or other hazardous substances
Packaging	
Methods of disposal	: Ensure waste is collected and contained. Store separately. Dispose of containers contaminated by the product in accordance with local or national legal provisions. This material and its container must be disposed of as hazardous waste. Dispose of via a licensed waste disposal contractor.
Special precautions	: 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. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number	UN1263	UN1263	UN1263
14.2 UN proper shipping name	PAINT	PAINT. Marine pollutant (dicopper oxide, Solvent naphtha (petroleum), light arom.)	PAINT
14.3 Transport hazard class(es)			3
14.4 Packing group	111	111	111
14.5 Environmental hazards	Yes.	Yes.	No.

Date of issue/Date of revision 30/08/2018 Version : 4.01

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SECTION 14: Transport information

Additional information	The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg. Special provisions 640 (E) Tunnel code (D/E)	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.	The environmentally hazardous substance mark may appear if required by other transportation regulations.
IMDG Code Segrega group	ation : Not applicable.		

14.6 Special precautions for : Transport within user's premises: always transport in closed containers that are user upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk	: Not available.
according to Annex II of	
Marpol and the IBC Code	

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 Annex XIV Substances of very high concern None of the components are listed. Annex XVII - Restrictions : Not applicable. on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles **Other EU regulations Europe inventory** : Not determined. Special packaging requirements Containers to be fitted : Not applicable. with child-resistant fastenings **Tactile warning of danger** : Not applicable. Ozone depleting substances (1005/2009/EU) Not listed. Prior Informed Consent (PIC) (649/2012/EU) Not listed. **Biocidal products regulation** Product type : PT21 Antifouling products Liquid. Paint. Type (Antifouling) : Antifouling Type - Organotin-free ablative Active substances Date of issue/Date of revision 30/08/2018 : AkzoNobel Version : 4.01 14/16

SECTION 15: Regulatory information

Ingredient name		
dicopper oxide		
Directions for use, frequer	ncy of	application and dose rate
Theoretical Coverage: Airles	s Spra	y 5 m2/l @ 100 micron dft
Theoretical Coverage: Brush	n, Rolle	er 10 m2/l @ 50 micron dft
Restrictions on use	:	For professional and amateur use.
Application methods:	:	Application Method: Airless Spray, Brush, Roller.
Recommended Cleaner.	:	Use Thinner No. 3 for cleaning of paint application equipment.
ΙΜΟ	:	Compliant with the International Convention on the Control of Harmful Antifouling Systems on Ships, 2001.
National regulations		
Biocidal products regulation	<u>on</u>	
Product type	: PT	21 Antifouling products Liquid. Paint.
References	: Co (E	onforms to Regulation (EC) No. 1907/2006 (REACH), Annex II and Regulation C) No. 1272/2008 (CLP)
15.2 Chemical safety assessment	: N	o Chemical Safety Assessment has been carried out.
ECTION 16: Other in	nfori	nation

XInternational.

PBT = Persistent, Bioaccumulative and Toxic

: ATE = Acute Toxicity Estimate

Indicates information that has changed from previously issued version.

1272/2008]

PNEC = Predicted No Effect Concentration

RRN = REACH Registration Number

DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level

vPvB = Very Persistent and Very Bioaccumulative

EUH statement = CLP-specific Hazard statement

CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No.

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classificat	ion	Justification
Flam. Liq. 3, H226 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335 Aquatic Acute 1, H400 Aquatic Chronic 1, H410		On basis of test data Calculation method Calculation method Calculation method Calculation method Calculation method
Full text of abbreviated H : statements	H225 H226 H302 H304 H312 H315 H317 H318 H319 H332 H335 H336 H373 (hearing organs)	Highly flammable liquid and vapour. Flammable liquid and vapour. Harmful if swallowed. May be fatal if swallowed and enters airways. Harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Causes serious eye irritation. Harmful if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness. May cause damage to organs through prolonged or repeated exposure. (hearing organs)
Date of issue/Date of revision	: 30/08/2018	AkzoNobel

Abbreviations and

acronyms

X.International.

SECTION 16: Other information

	H400 H410 H411 H413	Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. Toxic to aquatic life with long lasting effects. May cause long lasting harmful effects to aquatic life.
Full text of classifications : [CLP/GHS]	Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H312 Aquatic Tox. 4, H332 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Aquatic Chronic 2, H411 Aquatic Chronic 4, H413 Asp. Tox. 1, H304 EUH066 Eye Dam. 1, H318 Eye Irrit. 2, H319 Flam. Liq. 2, H225 Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1, H317 STOT RE 2, H373 (hearing organs) STOT SE 3, H335 STOT SE 3, H336	ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 ACUTE AQUATIC HAZARD - Category 1 LONG-TERM AQUATIC HAZARD - Category 1 LONG-TERM AQUATIC HAZARD - Category 2 LONG-TERM AQUATIC HAZARD - Category 4 ASPIRATION HAZARD - Category 1 Repeated exposure may cause skin dryness or cracking. SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 FLAMMABLE LIQUIDS - Category 2 FLAMMABLE LIQUIDS - Category 3 SKIN CORROSION/IRRITATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (hearing organs) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
Date of printing :	30/08/2018	
Date of issue/ Date of : revision	30/08/2018	
Date of previous issue :	04/07/2018	
Version :	4.01	

Notice to reader

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.

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- 3. FOR ALL STRUCTURAL DETAILS REFER TO DRAWING SERIES 161093-301 - 309
- 4. FOR ELECTRICAL INSTALLATION INFORMATION REFER TO TB&A DRAWINGS;
- E-61-00-101 E-62-00-101
- E-63-00-101
- E-67-00-101 E-68-00-101
- E-69-00-101
- 5. FOR MECHANICAL INSTALLATION INFORMATION REFER TO TB&A DRAWINGS; M-52-00-101
- M-53-00-101
- M-56-00-101 M-57-00-101

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SITE LOCATION PLAN

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SCALE	1:1000



SCALE 1:5000

500m

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c	Offices in : Aberdee	n, Dundee, Glasgow, In	verness, Lerwick, Sout	hampton and	d Thurso	
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- 1. FOR ALL ARCHITECTURAL DETAILS REFER TO DRAWING SERIES
- 161093-100 118
- 2. FOR ALL EXTERNAL CIVILS WORKS DETAILS REFER TO DRAWING SERIES 161093-200 - 209
- 3. FOR ALL STRUCTURAL DETAILS REFER TO DRAWING SERIES 161093-301 - 309

4. FOR ELECTRICAL INSTALLATION INFORMATION REFER TO TB&A

- DRAWINGS;
- E-61-00-101 E-62-00-101
- E-63-00-101
- E-67-00-101 E-68-00-101
- E-69-00-101
- 5. FOR MECHANICAL INSTALLATION INFORMATION REFER TO TB&A DRAWINGS; M-52-00-101
- M-53-00-101
- M-56-00-101 M-57-00-101

 2 No. accessible parking bays on a concrete surface laid to fall to the surrounding free draining hardstanding area

В

-	50.09.20		Стм	
D	23.09.20	Warrant Issue.	EMD	:
С	21.09.20	Revised Tender Issue.	CFM	
в	19.08.20	Tender Issue.	SGE	
А	28.07.20	Layout updated for issue to TB&A.	RAH	
-	20.02.20	Issued for Client Review.	RAH	
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PROJECT : Stornoway Port Authority Marine Engineering Workshop, Goat Island

Workshop General Arrangement

TITLE :

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		MANHOLE S	CHEDULE and CO	ORE
REFERENCE	COVER LEVEL (m)	INVERT LEVEL (m)	TYPE (See Notes)	
SMH1	7.100	6.100	TYPE B	
SMH2	7.000	5.840	TYPE B	
SMH3	7.100	5.284	TYPE B	
SMH4	7.034	6.035	TYPE B	
SMH5	7.050	6.025	TYPE B	
SMH6	7.200	5.915	TYPE B	
SMH7	7.200	5.154 5.104	TYPE B	
SMH8	7.023	6.000	TYPE B	
SMH9	7.023	5.970	TYPE B (1500¢)	
SMH10	6.950	5.880 5.680	SAMPLE CHAMBER	
SMH11	7.023	5.933 5.465	TYPE B	
SMH11a	7.023	5.430	INTERCEPTOR	
SMH12	7.023	5.034	TYPE B	













- 1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
- 2. CONCRETE SLAB TO PAV2 AIR ENTRAINED CONCRETE, EXPOSURE CLASS TO B.S. 8500.
- 3. THE JOINT LOCATIONS SHOWN MAY BE MODIFIED TO SUIT CONSTRUCTION METHODS. SUBMIT PROPOSALS FOR APPROVAL OF ANY CHANGES BEFORE COMMENCING WORKS.
- 4. CONCRETE TO HAVE TROWELLED FINISH FOR WEARING SURFACE SMOO AND FREE FROM BLEMISHES.
- 5. SLOT DRAINS, ACCESS AND OUTLET BOXES TO BE INSTALLED AS PER MANUFACTURER'S SPECIFICATION.
- 6. THE FOLLOWING GATIC DRAWINGS ARE TO BE REFERENCED;
 - WC3362(150mm ULTRASLOT)
 - WC3363 (225mm ULTRASLOT) WC3498 (HD OUTLET BOX)
 - WC4120 (HD ACCESS BOX)
 - 7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE WHEN ORDERING

А	14/07/2020	Tender Issue.			CFM
-	19/02/2020	Issued for Client I	Review.		KF
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THE SLOT DRAIN PRODUCTS THAT THE MOST CURRENT INSTALLATION DRAWINGS ARE PROVIDED BY THE MANUFACTURER.



- 1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
- 2. REFER TO DRAWING 161093-204 FOR DRAINAGE LAYOUT.
- INTERCEPTOR SELECTED IN ACCORDANCE WITH POLLUTION PREVENTION GUIDELINES PPG3 AS A CLASS 1 FULL RETENTION INTERCEPTOR.
- 4. INTERCEPTOR TO BE A KLARGESTER NSFA020 FULL RETENTION INTERCEPTOR.
- INTERCEPTOR TO BE FITTED WITH AN OIL LEVEL ALARM AS PER BS EN 858-1 WITH THE ALARM PANEL MOUNTED WITHIN THE WORKSHOP BUILDING.
- INTERCEPTOR AND SETTLEMENT TANKS TO BE VENTED TO A LOCATION AS SHOWN ON DRAWING 161093-204. VENT TO BE 110mm dia. x 5mm THK. STEEL ROUND PIPE EXTENDING 2.4m ABOVE GROUND LEVEL WITH APPROPRIATE WEATHER PROTECTION.
- 7. VENT PIPES SHALL BE LAID AT A GRADIENT NO FLATTER THAN 1:300 BACK TOWARDS THE INTERCEPTOR/SETTLEMENT TANK.
- 8. TANKS TO BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER GUIDELINES.

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Arch Image Arch Image Architects Structural Engineers Architects Principal Designers Geotechnical Services Environmental Services Environmental Services Environmental Services Correct : Stornoway Port Authority Marine Engineering Workshop, Goat Island TITLE : Drainage Construction Details Sheet 3 DRAWN : DATE : Marine Engineering Workshop, Goat Island Sheet 3 DRAWN : DATE : Marine Shown Tarl : Creckel : Inter: Correct : Rewing Status: Bashown Tender DRAWING No: Rev: A		THIS DRA	WING IS COPYRIGHT . [DO NOT SCALE FROM THIS DR.	AWING.		
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$\begin{array}{c c} \mbox{TITLE}: & & \\ \mbox{Drainage Construction Details} & \\ \mbox{Sheet 3} & \\ \mbox{Drawn}: & & \\ \mbox{Drawn}: & & \\ \mbox{KF} & & \\ \mbox{Df}(22020) & \mbox{CHECKED}: & \\ \mbox{Mof}(22020) & \mbox{TCY} & \mbox{Feb 20'} & \\ \mbox{Feb 20'} & \\ \mbox{SCALE}: (A1) & & \\ \mbox{As Shown} & \mbox{Tender} & \\ \mbox{MING STATUS}: & \\ \mbox{Tender} & \\ \mbox{MING No}: & \\ \mbox{Te1093 - 208} & \mbox{REV}: & \\ \mbox{A} & \\ \mbox{A} & \\ \mbox{MING No}: & \\ \mbox{REV}: & \\ \mbox{A} & \\ \mbox{A} & \\ \mbox{Absorbed} & \\ \m$	PROJECT : Stornoway Port Authority Marine Engineering Workshop, Goat Island						
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Drawings





SITE LOCATION PLAN

SCALE 1:1000



SCALE	1:1000



SCALE 1:5000

500m

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Offices in : Aberdeen, Dundee, Glasgow, Inverness, Lerwick, Southampton and Thurso						
PROJECT : STORNOWAY PORT AUTHORITY, MARINE ENGINEERING WORKSHOP, GOAT ISLAND TITLE : LOCATION AND SITE PLAN						
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- 1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- 2. ALL LEVELS ARE TO CHART DATUM.
- 3. REFER TO DRAWING 161093 403 FOR DRAINAGE GA.
- 4. STONE REVETMENT ANGLE IS APPROXIMATE SOME ALTERATION OF THE REVETMENT STONE MAY BE REQUIRED LOCALLY TO FIT PIPE.
- 5. DUCTILE IRON OUTFALL PIPE TO BS EN 598 AND WRAPPED IN "Maflow Wrap 50 / 40 SET" ANTI-CORROSION BITUMINOUS RUBBER COMPOUND.
- 6. ALL BOLTS TO BE GRADE 8.8 TO BS 4933 AND TO BE GALVANISED.

С	10.05.21	UPDATED FOR MARINE LICENCE APPLICATION	KF	KF
В	20.04.21	CONSTRUCTION ISSUE	JA	KF
А	23.03.21	OUTLET LOCATION AND DETAILS UPDATED	JA	KF
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Tel : 01224 631122 - Fax : 01224 632233.

DATE :

AS SHOWN

STORNOWAY PORT AUTHORITY

MARINE ENGINEERING WORKSHOP

SURFACE WATER OUTFALL DETAILS

19.03.21

161093 - 409

PROJECT :

TITLE :

DRAWN :

SCALE : (A1)

DRAWING No:

JA

Civil Engineers Structural Engineers Architects Principal Designers Geotechnical Services

DATE :

REV :

CONSTRUCTION

19.03.21

С

Environmental Services

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