HEMPEL'S SHOPPRIMER E 1527B

CURING AGENT 95280

Description: HEMPEL'S SHOPPRIMER E 1527B is a two-component epoxy polyamide shopprimer, pigmented with zincphosphate rust-inhibiting pigments. It is designed for automatic spray application.

Recommended use: As a shopprimer for protection of blast cleaned steel plate and other structural steel during the storage and building period.

Service temperatures: Maximum, dry: 140°C/284°F.

Certificates/Approvals: Approved as a welding primer by Lloyd's Register of Shipping and Det Norske Veritas.

Availability: Not included in Group Assortment. Availability subject to special agreement.

PHYSICAL CONSTANTS:

Colours/Shade nos:	Red/50890
Finish:	Flat
Volume solids, %	21
Theoretical spreading rate:	See REMARKS overleaf
Flash point:	4°C/39°F
Specific gravity:	1.1 kg/litre 9.2 lbs/US gallon
Dry to handle:	5 - 10 min. at 20°C/68°F
Fully cured:	7 days at 20°C/68°F
V.O.C.:	672 g/litre

The physical constants stated are nominal data according to the HEMPEL Group's approved formulas. They are subject to normal manufacturing tolerances and where stated, being standard deviation according to ISO 3534-1. Further reference is made to "Explanatory Notes" in the HEMPEL Book.

APPLICATION DETAILS:

Mixing ratio for 15270:	Base 1527P : Curing agent 95280 2 : 1 by volume
Application method:	Airless spray Air spray
Thinner (max.vol.):	*Viscosity of the mixed product: 13 -15 sec. 4mm DIN cup. Adjustments with thinner 08280 up to 15% (vol.) are possible. Aceton can be used for very fast drying.*
Pot life:	8 hours (20°C/68°F)
Nozzle orifice:	0,53mm/ .021"
Nozzle pressure:	75 bar/1100 psi *(Airless spray data are indicative and subject to adjustment)*
Cleaning of tools:	HEMPEL'S TOOL CLEANER 99610
Indicated film thickness, dry:	18 micron *(See REMARKS overleaf)*
Indicated film thickness, wet:	Not relevant
Recoat interval, min:	6 hours (20°C/68°F)
Recoat interval, max:	None *(See REMARKS overleaf)*

Safety: Handle with care. Before and during use, observe all safety labels on packaging and paint containers, consult HEMPEL Material Safety Data Sheets and follow all local or national safety regulations. Avoid inhalation, avoid contact with skin and eyes, and do not swallow. Take precautions against possible risks of fire or explosions as well as protection of the environment. Apply only in well ventilated areas.

Issued: November 2003

2. HEMPEL'S SHOPPRIMER E 1527B

SURFACE PREPARATION:	**New steel:** Remove oil and grease, etc. with suitable detergent. Remove salt and other contaminants by (high pressure) fresh water cleaning. Abrasive blasting to cleaning degree specified for final coating system, usually Sa 2½. Apply immediately after cleaning. All damaged shopprimer and contamination from storage and fabrication should be thoroughly cleaned prior to recoating. For repair and touch-up use primer specified for final coating system.
APPLICATION CONDITIONS:	Use only where application and curing can proceed at temperatures above 10°C/50°F. The temperature of the surface and that of the paint itself must also be above this limit. Maximum steel temperature approximately 45°C/113°F. For shopprimer application at temperatures above app. 45°C/113°F special measures must be taken (See "Thinning" under REMARKS below). Apply only on a dry and clean surface with a temperature above the dew point to avoid condensation. In confined spaces provide adequate ventilation during application and drying.
PRECEDING COAT:	None.
SUBSEQUENT COAT:	As per specification.
REMARKS:	Certificates are issued under the former quality number 1527.
Theoretical	On steel abrasive blasted to a profile, Ra = 6.3 micron/¼ mil, equivalent to Rugotest No. 3, N9a, or Keane-Tator Comparator, 2.0 mils segments, or ISO Comparator Fine (G) the indicated 18 micron film thickness corresponds to approximately 24-25 micron measured on a smooth test panel. Corresponding "theoretical" spreading rate will be approximately 8-9 m²/litre.
Air Spray:	Air spray is usually performed by having a low pressure (e.q. 10:1) piston pump pumping the shopprimer under constant re-circulation.
Manual application:	1527B is not suited for manual application. For such cases please use Hempel' Shopprimer 15280 or thinned Hempadur 1530.
Recoating interval:	No maximum recoat interval for adhesion, but dictated by gradual breakdown and damage during exposure and fabrication.
Notes:	Before recoating after exposure in contaminated environment, clean the surface thoroughly by high pressure water cleaning and allow to dry. **HEMPEL'S SHOPPRIMER E 1527B is for professional use only.**
ISSUED:	November 2003, HEMPEL (GERMANY) Ltd., Siemensstr. 6, 25421 Pinneberg (Germany)

This Product Data Sheet supersedes those previously issued. For definition and scope, see explanatory notes to applicable Product Data Sheets.

Product data are subject to change without notice and become void five years from the date of issue.

HEMPADUR® MASTIC 45880/ HEMPADUR® MASTIC 45881

High temperatures: 45881 with CURING AGENT 95881
Low to medium temperatures: 45880 with CURING AGENT 95880

Description:

HEMPADUR MASTIC 45880/45881 is a two-component polyamide adduct cured, high solids, high build epoxy paint. It forms a hard and tough coating and has good wetting properties. Low temperature curing.

Recommended use:

As a selfprimed paint system or as an intermediate or finishing coat in epoxy systems in medium to severely corrosive atmospheric environment and where a high solid content is required.
The MIO (micaceous iron oxide) pigment version may be specified where extended recoating properties for polyurethane topcoats are requested (typically travel coating).
As a topcoat where the usual outdoor cosmetic appearance of epoxy paints is acceptable.
May be used directly on cured zinc silicate (GALVOSIL products) or spray-metallized surfaces to minimize popping.

Service temperatures:

Maximum, dry: 120°C/248°F

Certificates/Approvals:

Tested for non-contamination of grain cargo at the Newcastle Occupational Health, Great Britain.
Complies with Section 175.300 of the Code of Federal Regulations in respect of carriage of dry foodstuffs (FDA) in spaces with an internal surface area larger than 1000 m²/10,750 sq.ft.
HEMPADUR MASTIC 45881 is in accordance with Aramco's specification APCS 26 and 26T.

Availability:

Part of Group Assortment. Local availability subject to confirmation.

PHYSICAL CONSTANTS:

	45880	45881
Version, mixed product:	Grey/12170*	Grey/12170*
Colours/Shade nos:	Semi-gloss	Semi-gloss
Finish:	77 ± 1	77 ± 1
Volume solids, %:	5.1 m²/litre - 150 micron	5.1 m²/litre - 150 micron
Theoretical spreading rate:	206 sq.ft./US gallon - 6 mils	206 sq.ft./US gallon - 6 mils
Flash point:	35°C/95°F	35°C/95°F
Specific gravity:	1.4 kg/litre - 11.7 lbs/US gallon	1.4 kg/litre - 11.7 lbs/US gallon
Dry to touch:	4 *(approx)* hours at 20°C/68°F	3 *(approx)* hours at 30°C/86°F
Fully cured:	7 days at 20°C/68°F	5 days at 30°C/86°F
V.O.C.:	220 g/litre - 1.8 lbs/US gallon	220 g/litre - 1.8 lbs/US gallon

**Other shades including a MIO version, colour no. 12430, according to assortment list.*

The physical constants stated are nominal data according to the HEMPEL Group's approved formulas. They are subject to normal manufacturing tolerances and where stated, being standard deviation according to ISO 3534-1. Further reference is made to "Explanatory Notes" in the HEMPEL Book.

APPLICATION DETAILS:

	45880	45881
Mixing ratio:	Base 45889 : Curing agent 95880 3 : 1 by volume	Base 45889 : Curing agent 95881 3 : 1 by volume
Application method:	Airless spray Brush *(touch up)*	Airless spray Brush *(touch up)*
Thinner (max. vol.):	Depending on purpose usually less than 5% THINNER 08450 *(See REMARKS overleaf)*	
Pot life:	1 hour (20°C/68°F) *(Airless spray)* 2 hours (20°C/68°F) *(Brush)*	1½ hour (30°C/86°F) *(Airless spray)* 2 hours (30°C/86°F) *(Brush)*
Nozzle orifice:	*(See separate APPLICATION INSTRUCTIONS)*	*(See separate APPLICATION INSTRUCTIONS)*
Nozzle pressure:	.017"-.023" *(See separate APPLICATION INSTRUCTIONS)* 250 bar/3600 psi	
	(Airless spray data are indicative and subject to adjustment)	
Cleaning of tools:	HEMPEL'S TOOL CLEANER 99610 or HEMPEL'S THINNER 08450	
Indicated film thickness, dry:	150 micron/6 mils *(see REMARKS overleaf)*	
Indicated film thickness, wet:	200 micron/8 mils	
Recoat interval, min:	According to separate APPLICATION INSTRUCTIONS	
Recoat interval, max:	According to separate APPLICATION INSTRUCTIONS	

Safety:

Handle with care. Before and during use, observe all safety labels on packaging and paint containers, consult HEMPEL Material Safety Data Sheets and follow all local or national safety regulations. Avoid inhalation, avoid contact with skin and eyes, and do not swallow. Take precautions against possible risks of fire or explosions as well as protection of the environment. Apply only in well ventilated areas.

Issued: December 2001

HEMPADUR MASTIC 45880/45881

SURFACE PREPARATION:	**New steel:** When used as an intermediate or finishing coat please refer to the data sheet for the preceding GALVOSIL or HEMPADUR primer. When used as a primer please refer to the specification. **Zinc silicate painted or spray-metallized surfaces:** Remove oil and grease, etc. with suitable detergent. Remove salt and other contaminants by (high pressure) fresh water cleaning. Zinc salts (white rust) must be removed by high pressure hosing combined with rubbing with a stiff nylon brush if necessary. It is recommended to recoat spray-metallized surfaces as soon as possible to avoid possible contamination. **Concrete:** Remove slip agent and other possible contaminants by emulsion washing followed by high pressure hosing with fresh water. Remove scum layer and loose matter to a hard, rough and uniform surface, preferably by abrasive blasting, possibly by other mechanical treatment or acid etching. Seal surface with suitable sealer, eg HEMPADUR SEALER 05970 (furthermore, please see Product Data Sheet for 05970). **Repair and maintenance:** Remove oil and grease, etc. with suitable detergent. Remove salt and other contaminants by (high pressure) fresh water cleaning. Clean damaged areas thoroughly by power tool cleaning to minimum St 2 (spot-repairs) or by abrasive blasting to min. Sa 2, preferably to Sa 2½. Improved surface preparation will improve the performance of HEMPADUR MASTIC 45880/45881. As an alternative to dry cleaning, water jetting to min. WJ-3 (NACE No. 5/SSPC-SP 12), may be used. A flash-rust degree of maximum FR-2 (Hempel standard) is acceptable before application. Feather edges to sound and intact paint. Dust off residues. On pit-corroded surfaces, excessive amounts of salt residues may call for water jetting, wet abrasive blasting, alternatively dry abrasive blasting, high pressure fresh water hosing, drying, and finally, dry abrasive blasting again.
APPLICATION CONDITIONS:	Apply only on a dry and clean surface with a temperature above the dew point to avoid condensation. Use only when application and curing can proceed at temperatures above -10°C/14°F for HEMPADUR MASTIC 45880 and above approx 25°C/77°F for HEMPADUR MASTIC 45881. The temperature of the paint itself should be 15°C/59°F or above, but advantageously below approximately 30°C/86°F to secure proper application properties. Optimal spraying properties are obtained at a paint temperature of 18-22°C/64-72°F. In warmer climates, the paint should be stored in a cool place and the paint temperature should preferably be kept below 30°C/86°F. In confined spaces provide adequate ventilation during application and drying. In cases where faster drying at very low temperatures is required, HEMPADUR MASTIC 45880 may advantageously be replaced by HEMPADUR 45143. Please also see separate APPLICATION INSTRUCTIONS.
PRECEDING and SUBSEQUENT COAT:	None or according to specification.
REMARKS:	**Certificates** have been issued under the former quality number 4588.
Colours/Colour-stability:	Certain lead-free red and yellow colours may discolour when exposed to chlorine- containing atmosphere. Leaded colours may become discoloured when exposed to sulphide-containing atmosphere. Like other epoxy coatings in white/whitish colour a yellowing may take place in cases of application under unfavourable weather conditions, especially sudden drops in temperature during drying and intial cure and/or lack of ventilation.
Weathering/service temperatures:	The natural tendency of epoxy coatings to chalk in outdoor exposure and to become more sensitive to mechanical damage and chemical exposure at elevated temperatures is also reflected in this product.
Film thicknesses/ thinning:	May be specified in another film thickness than indicated depending on purpose and area of use. This will alter spreading rate and may influence drying time and recoating interval. Normal range dry is 125-200 micron/5-8 mils. May be specified in lower film thickness for which purpose additional thinning is required, please see separate APPLICATION INSTRUCTIONS. **Avoid application of excessive film thicknesses.**
Application onto zinc silicate or spray-metallized surfaces (thinning):	It is recommended to apply HEMPADUR MASTIC 45880/45881 by using a "mist-coat" procedure **provided** the paint temperature is approximately above 20°C/68°F: A thin, undiluted coat is applied (the mist coat) and after a few minutes, a second coat is applied in the full specified film thickness. If the paint temperature is below 20°C/68°F, thinning (max 15%) may be required.
Note:	**HEMPADUR MASTIC 45880/45881 is for professional use only.**
ISSUED:	December 2001 - 4588012170C0009/ 4588112170C0006 - Industry HEMPEL'S MARINE PAINTS A/S

APPLICATION INSTRUCTIONS

For product description refer to the product data sheet

HEMPADUR® MASTIC 45880/ HEMPADUR® MASTIC 45881

High temperatures: 45881 with CURING AGENT 95881
Low to medium temperatures: 45880 with CURING AGENT 95880

Scope:

These Application Instructions cover surface preparation, application equipment and application details for HEMPADUR MASTIC 45880/45881.

Surface preparation:

General: In order to obtain best performance, abrasive blast cleaning is recommended. However, HEMPADUR MASTIC 45880/45881 has "surface tolerant" properties and offers higher performance than many other coatings when applied to surfaces mechanically cleaned only (salts, oil, grease etc. shall always be removed).

Remove oil and grease with suitable detergent, salt and other contaminants by (high pressure) fresh water cleaning.

NEW STEEL:

When used as intermediate and/or finishing coat, surface preparation according to Product Data Sheet for the preceding primer coat (HEMPADUR primers). When used as a selfpriming coat, surface preparation according to specification.

When applied to GALVOSILS:

HEMPADUR MASTIC 45880/45881 can be applied when the GALVOSIL is cured. Consult APPLICATION INSTRUCTIONS for the relevant GALVOSIL. Remove oil and grease etc. with suitable detergent. Remove salt and other contaminants by high pressure fresh water cleaning. After exposure to high humidity, zinc salts, "white rust", must be removed carefully by high pressure fresh water cleaning, if necessary combined with scrubbing with stiff nylon brushes.

REPAIR AND MAINTENANCE:

Spot-repairs:

Clean damaged areas thoroughly by power tool cleaning to minimum St 2 (spot-repairs) or by abrasive blasting to minimum Sa 2, preferably Sa 2½. Improved surface preparation will improve the performance of HEMPADUR MASTIC 45880/45881. As an alternative to dry cleaning, water jetting to minimum WJ-2 (NACE No. 5/SSPC-SP12), may be used. A flash-rust degree of maximum FR-2 (Hempel standard) is acceptable before application. Feather edges to sound and intact areas. Brush off loose material. Touch up to full film thickness.

Compatibility: HEMPADUR MASTIC 45880/45881 **may** be used in connection with other generic paint systems than epoxy and polyurethanes.

It is recommended to make a test patch. In any case it is a must that the old paint system is tightly adhering and is properly prepared before the touch-up is performed.

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Full coating:

Compatibility with old system: In general full compatibility can be expected with old epoxy systems. A test patch should always be performed before fullcoating is decided. If the old epoxy is not weathered/chalked or if it is topcoated with polyurethane, it is recommended to roughen the surface before recoating. Furthermore, very thorough cleaning is a must. Any dirt, chalked surface material, oil and grease should be removed with suitable detergent followed by high pressure fresh water hosing of the entire surface.

Removal of old system: Full coating after complete mechanical removal of an old paint system is possible too. Yet, it must be considered that mechanical cleaning by disc grinding or by rotating wire brushing may produce a very smooth surface giving reason to reduced adhesive forces.

Note: Another risk is remains of a hard black rustscale being cleaned to an apparent brightness without showing any adhesive defects. Yet, the exposure to open air during cleaning may have started a further oxidation of the hard black rust making it mechanically weak and of poor adhesion to the underlying steel surface. Later, during service, the scale plus overlaying paintmaterial may flake off.

Note: On old steel surfaces having been exposed to salty water, excessive amounts of salt residues in pittings may call for high pressure water jetting, wet abrasive blasting, alternatively dry abrasive blasting, high pressure fresh water hosing, drying, and finally, dry abrasive blasting again.

Application equipment:

HEMPADUR MASTIC 45880/45881 being a high solids and a relatively high viscosity material, may require special measures to be taken at application.

Recommended airless spray equipment:

Pump ratio:	min. 45:1
Pump output:	12 litres/minute (theoretical)
Input pressure:	min. 6 bar/90 psi
Spray hoses:	max. 100 metres/300 feet, ½" internal diameter max. 30 metres/100 feet, 3/8" internal diameter max. 6 metres/20 feet, 1/4" internal diameter
Regular surfaces:	
Nozzle size:	.021" through .023"
Fan angle:	60°.
Complicated surfaces (and touch up):	
Nozzle size:	.017" through .021"
Fan angle:	40°.

After finishing the application, clean the equipment immediately with THINNER 08450 or HEMPEL'S TOOL CLEANER 99610.

Note: Increasing hose diameter may increase paint flow, thereby improving the spray fan. If longer hoses are necessary it may be necessary to raise the pump ratio to 60:1, maintaining the high output capacity of the pump.

Alternatively up to approx. 5% THINNER 08450 may be added, but thinning must be done with care as the anti-sagging properties are drastically reduced by overthinning.

Airless spray data are indicative and subject to adjustment.

Induction time:

Should the paint temperature as an exception be 15°C/59°F or below, it is an advantage to allow the two components to prereact before application. This is especially relevant in the case of substrate temperatures also being below 15°C/59°F.

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In case of a paint temperature at 15°C/59°F, an induction time of 15 minutes is recommended. In case of a paint temperature at 10°C/50°F, an induction time of 25 minutes is recommended. In order to obtain proper application properties, the paint temperature should preferably never be below 10°C/50°F.

Application:

Film-build/continuity: With this paintmaterial applied in one/few coat(s) it is of special importance that a continuous, pinhole-free paint film is obtained at application of each coat. An application technique which will ensure good film formation on **all** surfaces must be adopted. It is very important to use nozzles of the correct size, not too big, and to have a proper, uniform distance of the spray gun to the surface, 30-50 cm should be aimed at. Furthermore, great care must be taken to cover edges, openings, rear sides of stiffeners etc. Thus, on these areas application of a stripecoat will therefore be good painting practice. To obtain good and steady atomizing, the viscosity of the paint must be suitable and the spray equipment must be sufficient in output pressure and capacity. At high working temperatures, use of extra thinner may be necessary to avoid dust-spray.

The paint layer must be applied homogeneously and as close to the specification as possible. Avoid exaggerated film thickness due to the risk of sagging, cracks and solvent retention. The paint consumption must be controlled.

The finished coating must appear as a homogeneous film with a smooth surface and irregularities such as dust, dry spray, abrasives, should be remedied.

On **poorly prepared surfaces** it is always recommended to apply the first coat by brush. Extra thinning will facilitate the penetration of the paint material, but will also require an extra layer to be applied.

Wet/dry film thickness:

Please note that the thixotropic nature of HEMPADUR MASTIC 45880/45881 may give a rather "wavy" surface of the paint just after application. This smoothens at drying, but can make it necessary to let the wet film readings be of a higher value than indicated. In many cases the wet film thickness, reading should be 25-50 micron/1-2 mils higher than calculated. As the wavy surface becomes more smooth during drying these extra wet film thickness readings will not cause a higher paint consumption than otherwise stipulated.

Film thickness/thinning:

HEMPADUR MASTIC 45880/45881 is normally specified in 125-200 micron/5-8 mils. Depending on ambient conditions, usually maximum 5% thinning with THINNER 08450 is relevant, however, increasing at high temperatures to ensure proper film formation and avoid dust spray. May be specified down to 75 micron/3 mils. To obtain optimum film formation in film thicknesses lower than 125 micron/5 mils dry film thickness additional thinning with 5-10% THINNER 08450 is recommended.

Pot life:

When measured under standard conditions the pot life is 1 hour at 20°C/68°F for HEMPADUR MASTIC 45880 respectively 1½ hours at 30°C/86°F for HEMPADUR MASTIC 45881. However, for a 20 litres/5 US gallons mix, and used under warm climate conditions, the heat developed by the chemical reaction between BASE and CURING AGENT may make the corresponding practical pot life shorter.
Therefore: At high temperatures, use the paint immediately after mixing irrespective of equipment.

Attached:

Tables of "physical data versus temperature"

HEMPADUR MASTIC 45880/45881

Physical data versus temperature:

Drying time and recoating interval vary with film thickness, temperature and later exposure conditions:

HEMPADUR MASTIC 45880 in a dry film thickness of **100-150 micron/4-6 mils:**

Surface temperature:	-10°C/14°F	-5°C/23°F	0°C/32°F	10°C/50°F	20°C/68°F	30°C/86°F
Drying time (approx) Curing time (approx)	6 days 5 months	3 days 2½months	24 hours 1 month	10 hours 14 days	4 hours 7 days	3 hours 5 days
MINIMUM recoating interval related to later conditions of exposure:						
Interval for recoating with HEMPADUR and HEMPATHANE qualities						
Atmospheric, medium Atmospheric, severe	8 days 12 days	4 days 6 days	30 hours 42 hours	12 hours 18 hours	5 hours 7 hours	4 hours 5 hours
Interval for recoating with HEMPATEX qualities						
Atmospheric, medium or severe	8 days	4 days	30 hours	12 hours	5 hours	4 hours
Interval for recoating with HEMUCRYL topcoats						
Atmospheric, medium Atmospheric, severe	N/R N/R	N/R N/R	N/R N/R	12 hours 18 hours	5 hours 7 hours	4 hours 5 hours

Notes:
- Avoid sudden drops in (substrate) temperatures during drying/initial curing. It is especially important that the substrate temperature does not drop significantly before application of the acrylic or polyurethane finish and that proper ventilation is maintained.
- If faster handling or recoating at lower temperatures is required, HEMPADUR 45143 may be used.
- In case of low temperatures, it is recommended that HEMPADUR MASTIC 45880 has been given a proper induction time before application. Under such conditions, consider paint temperature equal to substrate temperature and follow the rules given on page 2.

HEMPADUR MASTIC 45880 in a dry film thickness of **200 micron/8 mils:**

Surface temperature:	-10°C/14°F	-5°C/23°F	0°C/32°F	10°C/50°F	20°C/68°F	30°C/86°F
Drying time (approx) Curing time (approx)	12 days 5 months	6 days 2½ months	36 hours 1 month	15 hours 14 days	6 hours 7 days	4½ hours 5 days
MINIMUM recoating interval related to later conditions of exposure:						
Interval for recoating with HEMPADUR and HEMPATHANE qualities						
Atmospheric, medium Atmospheric, severe	10 days 14 days	5 days 7 days	42 hours 60 hours	18 hours 25 hours	7 hours 10 hours	5 hours 8 hours
Interval for recoating with HEMPATEX qualities						
Atmospheric, medium or severe	10 days	5 days	42 hours	18 hours	7 hours	5 hours
MINIMUM interval for recoating with HEMUCRYL topcoats						
Atmospheric, medium Atmospheric, severe	N/R N/R	N/R N/R	N/R N/R	18 hours 25 hours	7 hours 10 hours	5 hours 8 hours

Notes:
- Avoid sudden drops in (substrate) temperatures during drying/initial curing. It is especially important that the substrate temperature does not drop significantly before application of the acrylic or polyurethane finish and that proper ventilation is maintained.
- If faster handling or recoating at lower temperatures is required, HEMPADUR 45143 may be used.
- In case of low temperatures, it is recommended that HEMPADUR MASTIC 45880 has been given a proper induction time before application. Under such conditions, consider paint temperature equal to substrate temperature and follow the rules given on page 2/3.

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HEMPADUR MASTIC 45880 (independent on dry film thicknesses):

Surface temperature:	-10°C/14°F	-5°C/23°F	0°C/32°F	10°C/50°F	20°C/68°F	30°C/86°F
MAXIMUM recoating interval related to later conditions of exposure:						
Interval for recoating with HEMPADUR qualities						
Atmospheric, medium Atmospheric, severe	None None	None None	None None	None None	None None	None None
Interval for recoating with HEMPATHANE topcoats						
Atmospheric, medium* Atmospheric, severe*	4 months 4 weeks	3 months 21 days	2 months 14 days	4 weeks 6 days	21 days 3 days	14 days 2 days
Interval for recoating with HEMPATEX qualities						
Atmospheric, medium and severe	20 days	10 days	72 hours	30 hours	12 hours	9 hours
Interval for recoating with HEMUCRYL topcoats						
Atmospheric, medium Atmospheric, severe	N/R N/R	N/R N/R	N/R N/R	6 days 3 day	3 days 1½ days	2 days 1 day

HEMPADUR MASTIC 45881 in a dry film thickness of **100-150 micron/4-6 mils:**

Surface temperature:	20°C/68°F	30°C/86°F	40°C/104°F
Drying time (approx) Curing time (approx)	4 hours 7 days	3 hours 5 days	2 hours 3 days
MINIMUM recoating interval related to later conditions of exposure:			
Interval for recoating with HEMPADUR, HEMPATHANE, HEMPATEX and HEMUCRYL qualities			
Atmospheric, medium Atmospheric, severe	5 hours 7 hours	4 hours 5 hours	3 hours 4 hours

* 1) Avoid sudden drops in (substrate) temperatures during drying/initial curing.
2) If faster handling is required at lower temperatures, HEMPADUR 45143 may be used.

HEMPADUR MASTIC 45881 in a dry film thickness of **200 micron/8 mils:**

Surface temperature:	20°C/68°F	30°C/86°F	40°C/104°F
Drying time (approx) Curing time (approx)	6 hours 7 days	5 hours 5 days	4 hours 3 days
MINIMUM recoating interval related to later conditions of exposure:			
Interval for recoating with HEMPADUR, HEMPATHANE, HEMPATEX and HEMUCRYL qualities			
Atmospheric, medium Atmospheric, severe	7 hours 10 hours	5 hours 8 hours	4 hours 6 hours

HEMPADUR MASTIC 45881 (independent on dry film thickness):

Surface temperature:	20°C/68°F	30°C/86°F	40°C/104°F
MAXIMUM recoating interval related to later conditions of exposure:			
Interval for recoating with HEMPADUR qualities			
Atmospheric, medium Atmospheric, severe	None None	None None	None None
Interval for recoating with HEMPATHANE topcoats			
Atmospheric, medium* Atmospheric, severe*	21 days 3 days	14 days 2 days	7 days 1 day
Interval for recoating with HEMPATEX qualities			
Atmospheric	12 hours	9 hours	6 hours
Interval for recoating with HEMUCRYL topcoats			
Atmospheric, medium Atmospheric, severe	3 days 1½ days	2 days 1 day	1 day 12 hours

HEMPADUR MASTIC 45880/45881

Specific Notes for overcoating with HEMPATHANE TOPCOATS:

°i) Depending on actual local conditions, extended maximum recoating intervals may apply. Please contact HEMPEL for further advice.

°ii) The MIO version, colour no. 12430, may provide extended recoating properties if HEMPADUR MASTIC 45880/45881 in shade 12430 is applied **in a film thickness that allows a MIO structure to develop.** This is typically achieved in a dry film thickness range of 50-100 micron/2-4 mils for which reason further thinning is relevant. Reference is made to page 3.

Prior to application of HEMPATHANEs it is mandatory to clean the surface thoroughly to ensure that any contamination in the rough MIO surface structure is removed.

To determine whether the quality of the surface cleaning is adequate, a test patch may be relevant. However, such a test is not the final proof of long-term durability, but if the result is doubtful, repeated cleaning will be relevant. A more safe solution could be to refresh the surface with a new thin (diluted) coat of HEMPADUR MASTIC 45880/45881.

The MIO concept is typically for use as a "travel coat" on industrial objects.

The dark shade of the MIO pigment should be taken into account when selecting subsequent shades.

For typical marine coatings, prolonged overcoating intervals can be obtained by using HEMPADUR 45080 as a preceding coat.

General notes on prolonged recoating intervals:

Besides the notes stated under the tables for minimum recoating intervals, the following applies:

A completely clean surface is mandatory to ensure intercoat adhesion, especially in thecase of long recoating intervals. Any dirt, oil and grease have to be removed with eg suitable detergent followed by high pressure fresh water cleaning. Salts to be removed by fresh water hosing.

Any degraded surface layer, as a result of a long exposure period, must be removed as well. Water jetting may be relevant to remove any degraded surface layer and may also replace the above-mentioned cleaning methods when properly executed. Consult HEMPEL for specific advice if in doubt.

To determine whether the quality of the surface cleaning is adequate, a test patch may be relevant, however, this test patch should not be a final proof of the durability of the coating systems.

Safety:

Handle with care. Before and during use, observe all safety labels on packaging and paint containers, consult HEMPEL Material Safety Data Sheets and follow all local or national safety regulations. Avoid inhalation, avoid contact with skin and eyes, and do not swallow. Take precautions against possible risks of fire or explosions as well as protection of the environment. Apply only in well ventilated areas.

Issued:

June 2001 - 45880121700C0009/ 45881121700C0006
HEMPEL'S MARINE PAINTS A/S

HEMPATHANE® TOPCOAT 55210

BASE 55219 with CURING AGENT 95370

Description:

HEMPATHANE TOPCOAT 55210 is a two-component, semi-gloss acrylic polyurethane coating with good gloss and colour retention.

Recommended use:

As a finishing coat for protection of structural steel in severely corrosive atmospheric environment, where light-fastness and gloss retention are required.
Minimum temperature for curing is -10°C/14°F.

Service temperatures:

Maximum, dry: 120°C/248°F (see REMARKS overleaf).

Certificates/Approvals:

Approved as a low flame spread material by German and Italian authorities according to IMO resolution MSC 61 (67).
Has a German EC-type Examination Certificate.

Availability:

Part of Group Assortment. Local availability subject to confirmation.

PHYSICAL CONSTANTS:

Colours/Shade nos:	White/10000*	Blue/30840*
Finish:	Semi-gloss	Semi-gloss
Volume solids, %:	52 ± 1	51 ± 1
Theoretical spreading rate:	10.4 m²/litre - 50 micron 417 sq.ft./US gallon - 2 mils	10.2 m²/litre - 50 micron 409 sq.ft./US gallon - 2 mils
Flash point:	33°C/92°F	33°C/92°F
Specific gravity:	1.2 kg/litre - 10.0 lbs/US gallon	1.1 kg/litre - 9.2 lbs/US gallon
Surface dry:	2½ (approx.) hrs at 20°C/68°F *(ISO 1517)*	2½ (approx.) hrs at 20°C/68°F *(ISO 1517)*
Dry to touch:	8 (approx.) hours at 20°C/68°F	8 (approx.) hours at 20°C/68°F
Fully cured:	7 days at 20°C/68°F	7 days at 20°C/68°F
V.O.C.:	440 g/litre - 3.7 lbs/US gallon	450 g/litre - 3.7 lbs/US gallon

**Other shades according to assortment list.*

The physical constants stated are nominal data according to the HEMPEL Group's approved formulas. They are subject to normal manufacturing tolerances and where stated, being standard deviation according to ISO 3534-1. Further reference is made to "Explanatory Notes" in the HEMPEL Book.

APPLICATION DETAILS:

Mixing ratio for 55210:	Base 55219 : Curing agent 95370 7 : 1 by volume	
Application method:	Airless spray	Brush
Thinner (max. vol.):	See REMARKS overleaf	08080 (5%)
Pot life:	4 hours (20°C/68°F)	
Nozzle orifice:	.017"-.019"	
Nozzle pressure:	150 bar/2200 psi *(Airless spray data are indicative and subject to adjustment)*	
Cleaning of tools:	THINNER 08080 or 08510	
Indicated film thickness, dry:	50 micron/2 mils *(See REMARKS overleaf)*	
Indicated film thickness, wet:	100 micron/4 mils	
Recoat interval, min:	See REMARKS overleaf	
Recoat interval, max:	See REMARKS overleaf	

Safety:

Handle with care. Before and during use, observe all safety labels on packaging and paint containers, consult HEMPEL Material Safety Data Sheets and follow all local or national safety regulations. Avoid inhalation, avoid contact with skin and eyes, and do not swallow. Take precautions against possible risks of fire or explosions as well as protection of the environment. Apply only in well ventilated areas.

Issued: April 2002

HEMPATHANE TOPCOAT 55210

APPLICATION AND CURING CONDITIONS:
The surface must be completely clean and dry at the time of application, and its temperature must be above the dew point to avoid condensation. Minimum temperature for curing is -10°C/14°F. At the freezing point and below, be aware of the risk of ice on the surface which will hinder the adhesion. High humidity and/or condensation during application and the following 16 hours (20°C/68°F) may adversely affect the film formation.
In confined spaces provide adequate ventilation during application and drying.

PRECEDING COAT:
HEMPADUR 45141/45143, HEMPADUR HI-BUILD 45200/45201, HEMPADUR MASTIC 45880 or according to specification.

SUBSEQUENT COAT:
None.

REMARKS:
Certificate has been issued under the former quality number 5521.

Colours:
Certain lead-free red and yellow colours may discolour when exposed to chlorine- containing atmosphere.
Leaded colours may become discoloured when exposed to sulphide-containing atmosphere.
To obtain full opacity, an extra coat may be necessary, especially for certain lead-free colours in eg red, orange, yellow and green.

Service temperatures:
At service temperatures above 100°C/212°F, slight discoloration may be expected.

Film thicknesses:
May be specified in another film thickness than indicated depending on purpose and area of use. This will alter spreading rate and may influence drying time and recoating interval. Normal range is 40-60 micron/1.6-2.4 mils.

Thinning:
The type and amount of thinner depend on application conditions, application method, temperature, ventilation, and substrate. THINNER 08080 is recommended in general. THINNER 08510 may be used alternatively depending on local conditions.
Airless spray: 5-15% thinning is recommended. Under extreme conditions up to more than 20% may be necessary to obtain satisfactory film formation.
The best result is obtained by applying a mist coat of HEMPATHANE ENAMEL 55210 at first, and then 2-15 minutes later apply to full film thickness giving a uniform film formation. Do not exaggerate the film thickness.

Electrostatic spray:
10% thinning with specified thinner is recommended. Please contact HEMPEL for further advice.

Recoating and drying/curing time:

Physical data versus temperatures:						
Surface temperature		-10°C/14°F	0°C/32°F	10°C/50°F	20°C/68°F	30°C/86°F
Dry to touch, approx.		3 days	36 hours	16 hours	8 hours	6 hours
Resist condensing humidity/ light showers after*:		(7 days)	3 days	32 hours	16 hours	12 hours
Fully cured, 70% RH		(2 months)	32 days	14 days	7 days	5 days
Recoating interval, recoating 55210 with 55210	Min	6 days	3 days	32 hours	16 hours	12 hours
	Max	None	None	None	None	None

*Faster drying and curing may be obtained by using an "accelerator" - consult HEMPEL for further advice.

A completely clean surface is mandatory to ensure intercoat adhesion, especially at long recoating intervals. Any dirt,oil, and grease has to be removed, e.g. with suitable detergent. Salts to be removed by fresh water hosing. To check an adequate quality of the surface cleaning a test patch is recommended before actual recoating.

Notes:
CURING AGENT 95370 is sensitive to moisture. Store in a dry place and keep the can tightly closed until use. Open curing agent cans with caution as overpressure might exist. Even small traces of water in the mixed paint will reduce the pot-life and result in film defects.
HEMPATHANE TOPCOAT 55210 is for professional use only.

ISSUED:
April 2002 - 55210100000C0009
HEMPEL'S MARINE PAINTS A/S

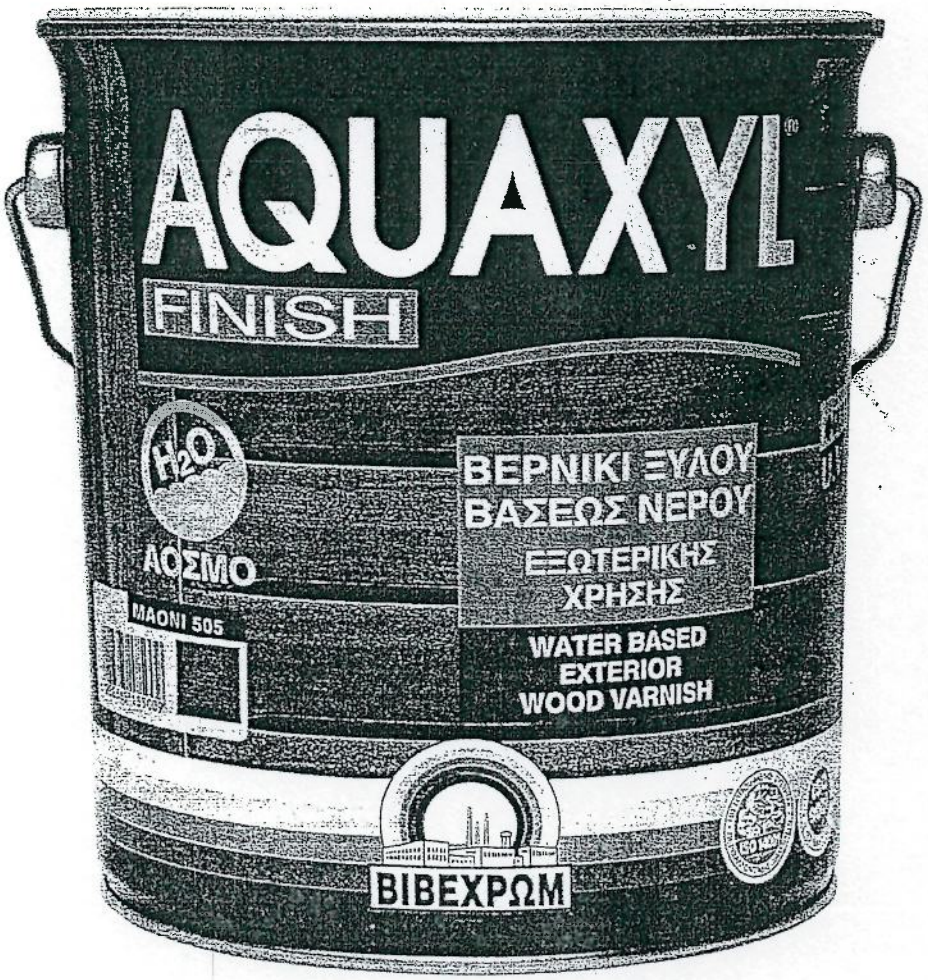
Ξύλο

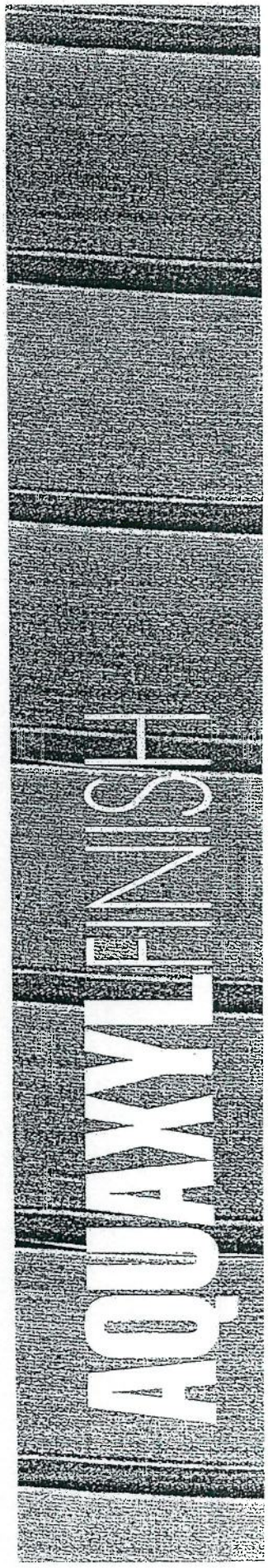
AQUAXYL FINISH

Βερνίκι Ξύλου Νερού Εξωτερικής Χρήσης

Περιγραφή

Το AQUAXYL FINISH είναι έγχρωμο υδατοδιαλυτό διακοσμητικό και προστατευτικό βερνίκι ξύλου εξωτερικής χρήσης. Δημιουργεί ένα όμορφο σατινέ φινίρισμα που δίνει χρώμα, προστατεύει αποτελεσματικά και τονίζει τη φυσική ομορφιά του ξύλου. Εφαρμόζεται σε πόρτες, παράθυρα, κουφώματα, ξυλεπενδύσεις και κάθε ξύλινη επιφάνεια. Βάφεται εύκολα, έχει μεγάλη ελαστικότητα και δεν ξεφλουδίζει, φουσκώνει ή σπάζει. Περιέχει φίλτρα UV για αποτελεσματική προστασία από την υπεριώδη ηλιακή ακτινοβολία και ειδικά πρόσθετα για την επιφανειακή μούχλα. Είναι υδατοαπωθητικό ενώ επιτρέπει στο ξύλο να αναπνέει.





AQUAXYL FINISH

ΧΑΡΑΚΤΗΡΙΣΤΙΚΑ ΠΡΟΪΟΝΤΟΣ

AQUAXYL FINISH

- **Εξαιρετική αντοχή στις καιρικές συνθήκες και στην ηλιακή ακτινοβολία**
- **Επιτρέπει στο ξύλο να αναπνέει**
- **Μεγάλη προστασία από την επιφανειακή μούχλα**
- **Μεγάλη απόδοση και εύκολο δούλεμα**
- **Εξαιρετικό άπλωμα και τελικό φινίρισμα**
- **Μεγάλη ελαστικότητα και ακολουθεί τις διαστασιακές μεταβολές του ξύλου**
- **Αποχρώσεις:** Άχρωμο σε σατινέ. Διατίθεται σε 12 αποχρώσεις του χρωματολογίου σε σατινέ. Επιπλέον χρωματίζεται μέσω του συστήματος ΧΡΩΜΟΣΥΝΘΕΣΕΙΣ της ΒΙΒΕΧΡΩΜ σε 63 αποχρώσεις σε σατινέ.

ΤΕΧΝΙΚΑ ΧΑΡΑΚΤΗΡΙΣΤΙΚΑ

AQUAXYL FINISH

Απόδοση	9-12m²/L
Πτητικές οργανικές ενώσεις (VOCs)	80 g/L
Στερεά κατ' όγκο	36% v/v± 2 *ανάλογα την απόχρωση*
Στερεά κατά βάρος	37% w/w ± 2 *ανάλογα την απόχρωση*
Ιξώδες (DIN4)	100± 20 sec
Ειδικό βάρος	1,04 Kg/L ± 0,01
Στιλπνότητα	20-30 μονάδες στις 60°
Πάχος φιλμ ανά στρώση	**υγρού :** 80-110μm **στεγνού:** 16-21μm
Στέγνωμα αφής	2 ώρες
Επαναβαφή	Μετά 6 ώρες *Οι χρόνοι αυτοί επιμηκύνονται σε κρύες ή υγρές συνθήκες*
Διαλυτής	Νερό
Απώλεια εφαρμογής	5 - 10% κατ' όγκο

ΟΔΗΓΙΕΣ ΕΦΑΡΜΟΓΗΣ

Προετοιμασία επιφάνειας

Οι επιφάνειες πρέπει να είναι καθαρές και στεγνές χωρίς σκόνες, λάδια και ρητίνες.

ΕΠΙΦΑΝΕΙΕΣ

Σε καινούργια ή γυμνά ξύλα

Για προστασία από τους μύκητες και το σαράκι εφαρμόστε ένα χέρι συντηρητικό ξύλου AQUAXYL BASE της ΒΙΒΕΧΡΩΜ. Μετά από 6 ώρες στοκάρετε τις ατέλειες του ξύλου με AQUAXYL ΣΤΟΚΟΣ της ΒΙΒΕΧΡΩΜ, λειάνετε τις επιφάνειες με κατάλληλο γυαλόχαρτο και εφαρμόστε δύο χέρια AQUAXYL FINISH. Η τελική απόχρωση εξαρτάται από το φυσικό χρώμα και την απορροφητικότητα του ξύλου και τον αριθμό χεριών AQUAXYL FINISH που εφαρμόστηκαν. **Το άχρωμο συνιστάται μόνο για την επαναβαφή επιφανειών βαμμένων με αποχρώσεις.**

Ξαναβαμμένες επιφάνειες με βερνίκια

Αφαιρέστε τα βερνίκια σε κακή κατάσταση, τρίψτε και εφαρμόστε ένα έως δύο χέρια AQUAXYL FINISH.

Εργαλεία Εφαρμογής

Πινέλο. Καθαρίζετε τα εργαλεία αμέσως μετά την χρησιμοποίηση τους με νερό και απορρυπαντικό διάλυμα.

Θερμοκρασία εφαρμογής

Ιδανικές θερμοκρασίες εφαρμογής για το AQUAXYL FINISH είναι μεταξύ 10°C και 25°C. Θερμοκρασίες υψηλότερες των 30°C δημιουργούν πρόβλημα στο άπλωμα γιατί το χρώμα στεγνώνει πολύ γρήγορα και σε αυτή την περίπτωση σχετικά μεγάλες επιφάνειες πρέπει να βάφονται τμηματικά με γρήγορες κινήσεις.

Προδιαγραφές οικοδομικών επιχρισμάτων νερού
ASTM D5324. Εφαρμόζονται οι παραπάνω γενικές προδιαγραφές επιχρισμάτων νερού.

Ευκαμψία
DIN 53152. Δεν παρουσιάζει κανένα ίχνος σκασίματος σε κάμψη cylindrical Mandrel 2mm (μετά από 1 εβδομάδα ξήρανσης).

Πρόσφυση
ISO 2409. Ξύλο - βερνίκια διαλύτου. Δεν παρουσιάζει καμία αποκόλληση μετά τη χάραξη.

Σκληρότητα
DIN 53157. Χρόνος απόσβεσης αιωρήσεων εκκρεμούς: > 25 sec (μετά από 1 εβδομάδα ξήρανσης).

Αντοχή σε στοίβαξη
ASTM D4946 : >4

Σύστημα βαφής
Μία επίστρωση συντηρητικό AQUAXYL BASE
Δύο επιστρώσεις βερνίκι AQUAXYL FINISH (απόχρωση)

Τεχνητή παλαίωση
ASTM G53
TT-E-489G (3.5.14). Μεταβολή: στιλπνότητας <30%, στις 1000h (δεν παρουσιάζει καμία επιφανειακή αλλοίωση εκτός της χυαλάδας).

ΠΛΗΡΟΦΟΡΙΕΣ ΓΙΑ ΤΗΝ ΕΠΙΣΗΜΑΝΣΗ ΤΟΥ ΠΡΟΪΟΝΤΟΣ

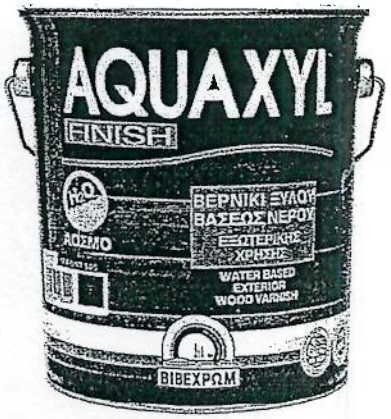
- Το προϊόν δεν έχει καμία επισήμανση
- Για περισσότερες πληροφορίες ζητήστε το Δελτίο Δεδομένων Ασφαλείας του προϊόντος.

ΑΠΟΘΗΚΕΥΣΗ

- Διατηρήστε τα δοχεία ερμητικά κλεισμένα.
- Μην αποθηκεύετε το προϊόν σε θερμοκρασίες μικρότερες των 5°C και μεγαλύτερες των 40°C

ΣΥΣΚΕΥΑΣΙΑ :

- **Άχρωμο Σατινέ:** 0,75L , 2,5L και 5L.
- **Αποχρώσεις Σατινέ:** 0,75L και 2,5L.
- **Βάση:** 0,75L και 2,5L.



Teak Oil
Product Information Sheet

Description

Bartoline Teak Oil is suitable for replacing the natural sheen that wood can lose after long periods drying in the sun. This is a popular wood treatment to replace natural oils removed by weathering. Bartoline Teak Oil can be used internally or externally on unpolished wood surfaces and is especially suited for use on wooden garden furniture. Bartoline Teak Oil contains a solvent carrier to aid penetration of the oil into hardwoods such as Oak and Teak.

Preparation

Ensure that the surface to be treated is thoroughly clean and dry. Apply Teak Oil liberally by either brushing or using a cloth. Remove excess Teak oil with a dry clean cloth after saturation. Drying time is approximately 14 hours however this will vary depending upon thickness of coating applied and local climatic conditions.

Health & Safety

See MSDS for full information.

Caution – Do not leave soiled application cloths where they may constitute a fire hazard, as they may be liable to spontaneous combustion. Ideally soiled cloths should be immediately burnt; if this is not possible they should be washed in soapy water and hung outside to dry.

Technical Data

Physical State:	**Liquid**
Colour	**Brown**
Flash Point Deg C	**41**
Non volatile content	**24 – 26%**
Viscosity @ 20 Deg C (B2 Flow Cup)	**32 - 37 Seconds**
Auto ignition Temperature Deg C	**450 solvent fraction**
Specific gravity at 20 deg C	**0.820 ± 0.01**
Voc Content	**700g/l**

Packing Specification

Product / Pack Size	**Quantity Per Carton**	**Cartons / Drums Per Pallet.**
250 ml PET Bottles	12	174
500 ml PET Bottles	6	144
500ml PET Trigger Spray	6	124
1 Litre PET Flasks	6	81
2 Litre PET Bottles	8	44
5 Litre Poly Bottles	4	40
20 Litre Drums	0	42
205 Litre Drums	0	4

Customs Tariff Code

3210 0090

Shipping Classification

Correct Shipping Name:	Paint (White Spirit)
Classification:	Class 3
UN Number:	UN 1263
Packing Group:	III
Flash Point:	41 Degrees Celsius

Additional Information: Marine Pollutant

Revision Date 05/08/2014
Revision 16
Supersedes date 26/06/2014

SAFETY DATA SHEET
BARTOLINE TEAK OIL

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name	BARTOLINE TEAK OIL
REACH Registration number	MIXTURE

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

Identified uses	INTENDED AS A COATING FOR TIMBER SUBSTRATES

1.3. Details of the supplier of the safety data sheet

Supplier	Bartoline limited Barmston Close Beverley East Yorkshire HU17 0LW 01482 678710 fax 01482 872606 HSE MANAGER www.bartoline.co.uk

1.4. Emergency telephone number

01482 678727 0800-1700 Monday to Friday National Poisons Information Service (Medical Professionals) 0844 892 0111. NHS Direct (General Public & Workers) 0845 4647

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical and Chemical Hazards	Flam. Liq. 3 - H226
Human health	EUH066;Skin Sens. 1 - H317;STOT SE 3 - H336;STOT RE 1 - H372;Asp. Tox. 1 - H304
Environment	Aquatic Chronic 2 - H411

Classification (1999/45/EEC) Xn;R48/20, R65. R43. N;R51/53. R10, R66, R67.

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

Environment

The product contains a substance which is hazardous to aquatic organisms and which may cause long term adverse effects in the aquatic environment. See section 12 as well.

Physical and Chemical Hazards

Vapours are heavier than air and may travel along the floor and in the bottom of containers.

2.2. Label elements

Contains Dipentene

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)

Label In Accordance With (EC) No. 1272/2008

Signal Word Danger

Hazard Statements

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H317	May cause an allergic skin reaction.

H336	May cause drowsiness or dizziness.
H372	Causes damage to organs Central nervous system through prolonged or repeated exposure if inhaled.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements

P102	Keep out of reach of children.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P260	Do not breathe vapour/spray.
	Wear nitrile/PVC proctective gloves.
	P264 Wash hand thoroughly after use.
P333+313	If skin irritation or rash occurs: Get medical advice/attention.
	IF SWALLOWED: Immediately call a doctor/|NHS direct.
	Do NOT induce vomiting.
	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
	Call a doctro/NHS direct if you feel unwell.
	P303+352 IF ON SKIN: Wash with plenty of soap and water.
P403+233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
	P501 Dispose of contents/container to hazardous waste collection point.

Supplementary Precautionary Statements

P233	Keep container tightly closed.

Supplemental label information

EUH066	Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Dipentene		1-5%
CAS-No.: 138-86-3	EC No.: 205-341-0	Registration Number: NOT AVAILABLE

Classification (EC 1272/2008)	Classification (67/548/EEC)
Flam. Liq. 3 - H226	Xn;R65.
Skin Irrit. 2 - H315	Xi;R38.
Skin Sens. 1 - H317	N;R50/53.
Asp. Tox. 1 - H304	R10,R43.
Aquatic Acute 1 - H400	
Aquatic Chronic 1 - H410	

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)		60-100%
CAS-No.:	EC No.: 919-446-0	Registration Number: 01-2119458049-33-XXXX

Classification (EC 1272/2008)	Classification (67/548/EEC)
Flam. Liq. 3 - H226	Xn;R65,R48/20.
EUH066	N;R51/53.
STOT SE 3 - H336	R10,R66,R67.
STOT RE 1 - H372	
Asp. Tox. 1 - H304	
Aquatic Chronic 2 - H411	

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

REACH Registration number MIXTURE

Ingredient notes

Non-classified vPvB substance.

Composition Comments

A complex and variable combination of paraffinic and aromatic hydrocarbons having a carbon number range predominantly of C9 to C12 and boiling in the range of approximately 135 to 220 degrees C. The aromatic content is between 2% and 25%.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information

Move the exposed person to fresh air at once. Get medical attention if any discomfort continues. CAUTION! First aid personnel must be aware of own risk during rescue!

Inhalation

Move the exposed person to fresh air at once. Get medical attention. Provide rest, warmth and fresh air. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen.

Ingestion

DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Drink plenty of water. Get medical attention immediately! Provide rest, warmth and fresh air.

Skin contact

Remove contaminated clothing. Wash the skin immediately with soap and water. Get medical attention promptly if symptoms occur after washing.

Eye contact

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

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

Inhalation.

In high concentrations, vapours are anaesthetic and may cause headache, fatigue, dizziness and central nervous system effects.

Ingestion

Fumes from the stomach contents may be inhaled resulting in the same symptoms as inhalation. May cause stomach pain or vomiting.

Skin contact

Prolonged contact may cause redness, irritation and dry skin.

Eye contact

Irritating and may cause redness and pain.

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

The most severe risk is through injestion, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious inhalation pulmonary lesions (medical survey during 48 hours).

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media

Fire can be extinguished using: Foam. Dry chemicals, sand, dolomite etc.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldeydes and soot. These may be highly dangerous if inhaled in confined spaces or at high concentrations.

Unusual Fire & Explosion Hazards

FLAMMABLE. Vapours are heavier than air and may spread near ground to sources of ignition. Solvent vapours may form explosive mixtures with air.

Specific hazards

Vapours are heavier than air and may travel along the floor and in the bottom of containers. Vapours may be ignited by a spark, a hot surface or an ember.

5.3. Advice for firefighters

Special Fire Fighting Procedures

Avoid breathing fire vapours. Cool containers exposed to flames with water until well after the fire is out. Keep run-off water out of sewers and water sources. Dike for water control.

Protective equipment for fire-fighters

Wear self-contained breathing apparatus and protective suit. In case of a large fire or in confined or poorly ventilated spaces, wear full fire retardant protective clothing and self contained breathing apparatus with a full face-piece operated in positive pressure mode.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

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

6.2. Environmental precautions

Do not discharge into drains, water courses or onto the ground. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Wear necessary protective equipment. Absorb in vermiculite, dry sand or earth and place into containers. Do not contaminate water sources or sewer. Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in the immediate area). Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewers, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Water Spill: Stop leak if you can do so without risk. Eliminate sources of ignition. Warn or evacuate occupants in surrounding and downwind areas if required, dur to the toxcity or flammability of the material. If the flashpoint exceeds the ambient air temperature by 10 degrees C or more, use containment booms and remove from the surface by skimming or with suitable absorbents. If the falshpoint does not exceed the ambient air temperature by at least 10 degrees C, use booms as a barrier to protect shorelines and allow material to evaporate. Seek the advice of a specialist before using dispersants.

6.4. Reference to other sections

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid spilling, skin and eye contact. Ventilate well, avoid breathing vapours. Use approved respirator if air contamination is above accepted level. Keep away from heat, sparks and open flame. Contaminated rags and cloths must be put in fireproof containers for disposal. Always remove grease with soap and water or skin cleaning agent, never use organic solvents. Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Do not eat, drink or smoke when using the product. Avoid inhalation of vapours.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry, cool and well-ventilated place. Keep in original container.

Storage Class

Flammable liquid storage.

7.3. Specific end use(s)

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

Usage Description

Keep containers closed when not in use. Open containers slowly in order to release any pressure build up that may occur. When using trasnfer required amount to a non-plastic container such as glass or metal. Apply "common sense" measures when handling this product. Apply by brush Avoid all contact with skin and eyes.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Name	STD	TWA - 8 Hrs		STEL - 15 Min		Notes
Dipentene	WEL	100 ppm	No std.	150 ppm	No std.	
Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)	WEL		350 mg/m3			

WEL = Workplace Exposure Limit.

Ingredient Comments

CEFIC-HSPA recommended Workplace Exposure Limit (WEL) 350 mg/m3

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)

Ingredient Comments

The Workplace Exposure Limited quoted is an advisory level from the CEFIC-HSPA The figures quoted below are taken from the registration document.

DNEL

Industry	Dermal	Long Term	Systemic Effects	44 mg/kg/day
Industry	Inhalation.	Long Term	Systemic Effects	330 mg/m3
Consumer	Dermal	Long Term	Systemic Effects	26 mg/kg/day
Consumer	Inhalation.	Long Term	Systemic Effects	71 mg/m3
Consumer	Oral	Long Term	Systemic Effects	26 mg/kg/day

8.2. Exposure controls

Protective equipment

Engineering measures

Provide adequate general and local exhaust ventilation.

Respiratory equipment

No specific recommendation made, but respiratory protection must be used if the general level exceeds the recommended occupational exposure limit.

Hand protection

Use protective gloves.

Eye protection

Wear approved safety goggles.

Other Protection

Wear appropriate clothing to prevent any possibility of liquid contact and repeated or prolonged vapour contact.

Hygiene measures

DO NOT SMOKE IN WORK AREA! Wash hands at the end of each work shift and before eating, smoking and using the toilet. Promptly remove any clothing that becomes contaminated. Wash promptly with soap & water if skin becomes contaminated. Use appropriate skin cream to prevent drying of skin. When using do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Liquid
Colour	Water-white.
Odour	Aromatic hydrocarbons.
Solubility	Immiscible with water
Initial boiling point and boiling range	150 - 200 solvent fraction
Melting point (°C)	
Not applicable.	
Relative density	0.820 15 deg C
Vapour density (air=1)	
Not available.	
Vapour pressure	< 5 kPa 20 solvent fraction
Evaporation rate	65 solvent fraction (EtEt=1)
	DIN 53170
pH-Value, Conc. Solution	
Not available.	
Viscosity	32-37 s s 40
Solubility Value (G/100G H2O@20°C)	
Not available.	
Odour Threshold, Lower	
Not available.	
Flash point	>= 38Deg C solvent fraction CC (Closed cup).
	ISO 2719

Auto Ignition Temperature (°C)	>230 solvent fraction ASTM E 659-78
Flammability Limit - Lower(%)	0.7
Flammability Limit - Upper(%)	7

Explosive properties

May form explosive mixtures with air. The material can accumulate static charge and can therefore cause electrical ignition.

Oxidising properties

Does not meet the criteria for oxidising.

Comments Information declared as "Not available, Not relevant or Not applicable" is not considered justified for enabling proper control measures to be taken.

9.2. Other information

Surface Tension 0.0245 N/m @ 25 dgress C EN14370

Volatility Description	Volatile
Volatile Organic Compound (VOC)	795g/l g/litre

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stable under normal temperature conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerisation

Will not polymerise.

10.4. Conditions to avoid

Avoid contact with acids and oxidising substances.

10.5. Incompatible materials

Materials To Avoid

Acids, oxidising.

10.6. Hazardous decomposition products

Fire creates: Toxic gases/vapours/fumes of: Carbon monoxide (CO). Carbon dioxide (CO_2).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Toxicological information

THE DATA QUOTED IS FOR THE MAIN SOLVENT FRACTION

Other Health Effects

Harmful: if swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious pulmonary lesions)medical survey for 48 hours min).

Acute toxicity:

Acute Toxicity (Oral LD50)

> 15000 mg/kg Rat

OECD 401

Acute Toxicity (Dermal LD50)

> 3400 mg/kg Rat

24 hour

Acute Toxicity (Inhalation LC50)

> 13100 Rat 4 hours

data expressed as (vapour) in mg/m3 OECD 403

Respiratory or skin sensitisation:

Sensitising.

Germ cell mutagenicity:

Genotoxicity - In Vitro

Not applicable.

Negative.

Carcinogenicity:

Carcinogenicity

Not applicable.

This product is not classified carcinogenic.

Reproductive Toxicity:

Reproductive Toxicity - Fertility

No information available.

Results of guideline developmental toxicity studies on the substance and OECD developmental toxicity screening studies showed no evidence of developmental toxicity in rats.

Specific target organ toxicity - repeated exposure:

Target Organs

Central nervous system Respiratory system, lungs

Aspiration hazard:

Viscosity

Kinematic viscosity <= 20.5 mm2/s.

The fluid can enter the lungs and cause damage (chemical pneumonitis, potentially fatal).

Inhalation

Vapours inhaled in strong concentrations have a narcotic effect on the central nervous system. Irritation of the respiratory tract due to excessive fume. Causes headache, drowsiness or other effects to the central nervous system, loss of consciousness.

Ingestion

Symptoms: Nausea, vomiting, abdominal pain. Harmful: If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious inhalation pulmonary lesions (medical survey during 48 hours).

Skin contact

Prolonged or repeated contact may dry skin and cause irritation. Frequent or prolonged skin contact destroys the lipacid cutaneous layer and may cause dermatitis.

Eye contact

Burning feeling and temporary redness.

Target Organs

Skin Eyes Respiratory system, lungs

Toxicological information on ingredients.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)

Acute toxicity:

Acute Toxicity (Oral LD50)

> 15000 mg/kg Rat

REACH dossier information OECD 401

Acute Toxicity (Dermal LD50)

> 3400 mg/kg Rat

REACH dossier information 24 hour

Acute Toxicity (Inhalation LC50)

> 13100 mg/l (vapours) Rat 4 hours

OECD 403

Acute toxicity:

Acute Toxicity (Oral LD50)

> 2000 mg/kg Rat

OECD 401

Acute Toxicity (Dermal LD50)

> 2000 mg/kg Rabbit

OECD 404. Moderate irritation (RIFM) Full strength 24 hr under occlusion (rabbit).

Based on available data from the substance manufacturer, the classification criteria are not met.

Skin Corrosion/Irritation:

Skin Irrit 2 - no data available

Serious eye damage/irritation:

Irritant efects (RIFM) Full strength to conjunctival sac (rabbit) (TDS)

Respiratory or skin sensitisation:

Skin Sens.1 - No data available.

Germ cell mutagenicity:

Genotoxicity - In Vitro

Ames Test

Negative.

This substance has no evidence of mutagenic properties.

Genotoxicity - In Vivo

Ames Test

Negative.

This substance has no evidence of mutagenic properties.

Carcinogenicity:

Carcinogenicity

Not applicable.

Based on available data from the substance manufacturer, the classification criteria are not met.

Reproductive Toxicity:

Reproductive Toxicity - Fertility

Not applicable.

Based on available data from the substance manufacturer, the classification criteria are not met.

Specific target organ toxicity - single exposure:

STOT - Single exposure

Data lacking.

Specific target organ toxicity - repeated exposure:

STOT - Repeated exposure

Data lacking.

Aspiration hazard:

Aspiration hazard - category 1 Data lacking.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic organisms, may cuase long-term adverse effects in the aquatic environment.

Ecological information on ingredients.

Dipentene (CAS: 138-86-3)

Ecotoxicity

The product contains a substance which is toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

12.1. Toxicity

Acute Fish Toxicity

THE DATA QUOTED BELOW IS RELATED TO THE MAIN SOLVENT FRACTION.

Acute Toxicity - Fish

LC50 96 hours ~ 30 mg/l Onchorhynchus mykiss (Rainbow trout)

OECD 203

EC 50, 48 Hrs, Daphnia, mg/l 10-22

Acute Toxicity - Aquatic Invertebrates

EC50 48 hours ~ 22 mg/l Daphnia magna

OECD 202

IC 50, 72 Hrs, Algae, mg/l 4.1

Chronic Toxicity - Fish Early life Stage

NOEC 28 days ~ 0.13 mg/l Onchorhynchus mykiss (Rainbow trout)

Chronic Toxicity - Aquatic Invertebrates

NOEC 21 days ~ 0.28 mg/l Daphnia magna

OCDE 211

Acute Toxicity - Terrestrial

Not available.

Ecological information on ingredients.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)

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

Acute Toxicity - Fish

LC50 96 hours ~ 10-30 mg/l Onchorhynchus mykiss (Rainbow trout)

REACH dossier information OECD 203

Acute Toxicity - Aquatic Invertebrates

EC50 48 hours ~ 10-22 mg/l Daphnia magna

OECD 202

Acute Toxicity - Aquatic Plants

EC50 72 hours ~ 4.1 mg/l Selenastrum capricornutum

REACH dossier information OECD 201

72 hours ~ 4.6-10 mg/l Selenastrum capricornutum

REACH dossier information OECD 201

Chronic Toxicity - Fish Early life Stage

LOEC 21 days ~ 0.13 mg/l Onchorhynchus mykiss (Rainbow trout)

REACH dossier information QSAR Petrox

Chronic Toxicity - Aquatic Invertebrates

LOEC 21 days ~ 0.28 mg/l Daphnia magna

OCDE 211

Dipentene (CAS: 138-86-3)

LC 50, 96 Hrs, Fish mg/l

33

EC 50, 48 Hrs, Daphnia, mg/l

10-100 (WAF) 24/48 hour

IC 50, 72 Hrs, Algae, mg/l

>100 (WAF) 72 hour Eb/ErC50

Acute Toxicity - Aquatic Plants

Not available.

12.2. Persistence and degradability

Degradability

Readily biodegradable

Biodegradation

Degradation (75%) ~ 28 days

OECD 301F

The substance is readily biodegradable.

Ecological information on ingredients.

Hydrocarbons, C9-C12, n-alkanes, isoalkanes, cyclics, aromatics (2-25%)

Degradability

Readily Biodegradable OECD 301F 80% after 28 days

Dipentene (CAS: 138-86-3)

Phototransformation

Half-life: ~ 1 hours

(Note: Dipentene / terpinolene, in common with other terpenes, represents a major sink for the undesirable tropospheric ozone, removing the smog-forming catalyst nitrogen oxides and consuming ozone at an increased rate at night. While the material is photoreactive, the benefits of removing ozone and nitrogen oxides outweigh the negative reaction with hydroxyl radical.)

Degradation (100%) ~ 28 days

OECD 301E - Readily biodegradable , modified screening test. OECD 302C - Inherent biodegradability modified MITI test (no 2).

12.3. Bioaccumulative potential

Bioaccumulative potential

Measured experimental data on hydrocarbons UVCB substances are not meaningful, since each component of the constituents is likely to behave differently.

Ecological information on ingredients.

Dipentene (CAS: 138-86-3)

Bioaccumulative potential

Will not bio-accumulate.

12.4. Mobility in soil

Mobility:

Substance is a UVCB. Standard tests for this endpoint are not appropriate.

12.5. Results of PBT and vPvB assessment

Not Classified as PBT/vPvB by current EU criteria.

Ecological information on ingredients.

Dipentene (CAS: 138-86-3)

Not Classified as PBT/vPvB by current EU criteria.

12.6. Other adverse effects

Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

General information

Waste is classified as hazardous waste. Disposal to licensed waste disposal site in accordance with the local Waste Disposal Authority. Waste is suitable for incineration. Rags and the like, moistened with flammable liquids, must be discarded into designated fireproof bucket. Where possible packaging should be collected for reuse or recycling.

13.1. Waste treatment methods

Empty containers must not be burned because of explosion hazard. Recover and reclaim or recycle, if practical. Liquid components can be disposed of by incineration. Waste material is classified as hazardous waste and should be disposed of by incineration or collected by a registered waste disposal company, operating within the scope of the Hazardous waste Regulations 2005 in the UK or local equivalent regulations in other countries.

Waste Class

When this product, in its liquid state, as supplied becomes waste it should be disposed of as hazardous waste using the waste code 08 01 11 waste paint and varnish containing organic solvents or other dangerous substances. Empty used containers should be disposed of as waste code 15 01 10 packaging containing residues of or contaminated by dangerous substances. When used the removed sludge should be disposed of using waste code 08 01 13 sludges from paint and varnish remover containing organic solvents or other dangerous substances. Any absorbents used for clearing up spills should be disposed of using waste code 15 02 02 absorbents contaminated by dangerous substances.

SECTION 14: TRANSPORT INFORMATION

General	LIMITED QUANITY SIZE IS 5 LITRES

14.1. UN number

UN No. (ADR/RID/ADN)	1263
UN No. (IMDG)	1263
UN No. (ICAO)	1263

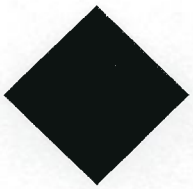
14.2. UN proper shipping name

Proper Shipping Name	PAINT (White Spirit)

14.3. Transport hazard class(es)

ADR/RID/ADN Class	3
ADR/RID/ADN Class	Class 3: Flammable liquids.
ADR Label No.	3
IMDG Class	3
ICAO Class/Division	3

Transport Labels



14.4. Packing group

ADR/RID/ADN Packing group	III
IMDG Packing group	III
ICAO Packing group	III

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant

14.6. Special precautions for user

EMS	F-E, S-E
Emergency Action Code	3Y
Hazard No. (ADR)	30

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

SECTION 15: REGULATORY INFORMATION

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

Statutory Instruments

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (S.I 2009 No. 716).

Approved Code Of Practice

Classification and Labelling of Substances and Preparations Dangerous for Supply.

Guidance Notes

Workplace Exposure Limits EH40. Introduction to Local Exhaust Ventilation HS(G)37. CHIP for everyone HSG(108).

National Regulations

Users of this product are reminded of their duties under the current Control of Substances Hazardous to Health Regulations and a suitable and sufficient assessment of all the risk should be undertaken before using this product. The guidelines given in the HSE publication COSHH ESSENTIALS - Easy Steps To Control Chemicals gives sound advice for deciding safe working control measures.

15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

General information

Linseed oil is frequently bottled for general DIY applications. Although the oil itself is not classified as hazardous, every attention must be drawn to the danger of spontaeous combustion and a high profile warning is essential. The following warning is recommended: DANGER OF SPONTANEOUS COMBUSTION. AFTER USE, ANY CLOTHS OR RAGS SHOULD BE WASHED IN WARM SOAPY WATER TO REMOVE THE OIL. EVEN AFTER WASHING THE RAGS MUST NEVER BE CRUMPLED INTO A BALL BUT SPREAD OUT AND DISPOSED OF. USE SYNTHETIC FIBRE CLOTHS WHERE POSSIBLE AS NATURAL FIBRES, ESPECIALLY COTTON, INCREASE THE CHANCES OF SPONTANEOUS COMBUSTION. BRUSHES AND ROLLERS SHOULD BE CLEANED WITH WHITE SPIRIT AND THEN WASHED IN WARM SOAPY WATER.

Revision Date	05/08/2014
Revision	16
Supersedes date	26/06/2014

Risk Phrases In Full

R10	Flammable.
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R65	Harmful: may cause lung damage if swallowed.
R38	Irritating to skin.
R43	May cause sensitisation by skin contact.
R66	Repeated exposure may cause skin dryness or cracking.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R67	Vapours may cause drowsiness and dizziness.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Hazard Statements In Full

H372	Causes damage to organs <<Organs>> through prolonged or repeated exposure if inhaled.
H315	Causes skin irritation.
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H317	May cause an allergic skin reaction.
H336	May cause drowsiness or dizziness.
EUH066	Repeated exposure may cause skin dryness or cracking.
H411	Toxic to aquatic life with long lasting effects.
H410	Very toxic to aquatic life with long lasting effects.
H400	Very toxic to aquatic life.

Disclaimer

The information contained in this data sheet is provided in accordance with the requirements of the Regulation (EC) No 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP) The product should not be used for purposes other than those shown in Section 1.2. As the specific conditions of use are outside the suppliers control, the user is responsible for ensuring that the requirements of relevant legislation are complied with. The information contained in this safety data sheet is based on the present knowledge and the current EC and Uk Legislation. It provides guidance on health, safety and environmental aspects of the product and should not be taken as a product specification.