MARINE AND INDUSTRIAL COATINGS SINCE 1908

SAFETY DATA SHEET
P101 2 PACK POLYURETHANE MARINE TOPCOAT CLEAR - HARDENER

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT NAME	P101 2 PACK POLYURETHANE MARINE TOPCOAT CLEAR - HARDENER
SUPPLIER	TEAL & MACKRILL LIMITED LOCKWOOD STREET HULL HU2 0HN +44(0)1482 320194(T) +44(0)1482 219266(F) info@teamac.co.uk
PRODUCT NO.	507/P101/1 - CLEAR HARDENER
APPLICATION	HARDENER FOR TWO COMPONENT CLEAR VARNISH
CONTACT PERSON	Technical Department - 08.30 - 16.30 hrs Mon - Thurs, 08.30 - 15.00 hrs Fri as above

2 HAZARDS IDENTIFICATION

Flammable. Harmful by inhalation. May cause sensitisation by skin contact.

CLASSIFICATION (1999/45) Xn;R20. R43. R10.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Name	EC No.	CAS-No.	Content	Classification (67/548)
ALIPHATIC POLYISOCYANATE		28182-81-2	60-100%	R43.
2-METHOXY-1-METHYLETHYL ACETATE	203-603-9	108-65-6	10-30%	R10
XYLENE	215-535-7	1330-20-7	10-30%	R10 Xn;R20/21 Xi;R38
ETHYLBENZENE	202-849-4	100-41-4	1-5%	F;R11 Xn;R20
HEXAMETHYLENE-DI-ISOCYANATE	212-485-8	822-06-0	<1%	T;R23 R42/43 Xi;R36/37/38

The Full Text for all R-Phrases are Displayed in Section 16

4 FIRST-AID MEASURES

GENERAL INFORMATION

General first aid, rest, warmth and fresh air. Do not give victim anything to drink if they are unconscious.

INHALATION

Remove victim immediately from source of exposure. In case of persistent throat irritation or coughing: Seek medical attention and bring these instructions. Provide rest, warmth and fresh air. Get medical attention if any discomfort continues. Place unconscious person on the side in the recovery position and ensure breathing

INGESTION

DO NOT induce vomiting. Get medical attention immediately. Provide fresh air, warmth and rest, preferably in comfortable upright sitting position.

SKIN CONTACT

Remove affected person from source of contamination. Remove contaminated clothing immediately and wash skin with soap and water.

EYE CONTACT

Make sure to remove any contact lenses from the eyes before rinsing. Continue to rinse for at least 15 minutes and get medical attention.

5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

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

SPECIAL FIRE FIGHTING PROCEDURES

Be aware of danger for fire to re-start. Cool containers exposed to flames with water until well after the fire is out. Do not allow runoff to sewer, waterway or ground.

UNUSUAL FIRE & EXPLOSION HAZARDS

FLAMMABLE. Solvent vapours may form explosive mixtures with air.

SPECIFIC HAZARDS

In case of fire, toxic and corrosive gases may be formed.

PROTECTIVE MEASURES IN FIRE

Self contained breathing apparatus and full protective clothing must be worn in case of fire.

6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS

Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation. Do not smoke, use open fire or other sources of ignition. Ensure suitable personal protection (including respiratory protection) during removal of spillages in a confined area.

ENVIRONMENTAL PRECAUTIONS

Do not allow to enter drains, sewers or watercourses. Remove mechanically; cover the remainderwith wet absorbent material (eg. sawdust, chemical binder based on calcium silicate hydrate, sand). After approximately one hour transfer to waste container and do not seal (evolution of CO2). Further disposal: Storage on approved landfill or special refuse dump, or by incineration.

SPILL CLEAN UP METHODS

Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Ventilate well.

7 HANDLING AND STORAGE

USAGE PRECAUTIONS

Persons with impaired lung functions should not handle this preparation. Observe occupational exposure limits and minimise the risk of inhalation of vapours and mist. Spraying is permitted only in closed systems, spray cabinets or spray boxes with adequate ventilation. Keep away from heat, sparks and open flame. Avoid spilling, skin and eye contact. Ventilate well, avoid breathing vapours. Use approved respirator if air contamination is above accepted level. Do not eat, drink or smoke when using the product. The Manual Handling Operations Regulations may apply to the handling of containers of this product. For products sold by weight refer to the guide net weight indicated on the container. Allowance will have to be made for the immediate packaging to give an approximate gross weight.

USAGE DESCRIPTION

Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container

STORAGE PRECAUTIONS

Store in closed original container at temperatures between 5°C and 25°C. Keep away from heat, sparks and open flame. Keep containers tightly closed. Keep upright. Store separated from: Oxidising material. Alkalis. Acids.

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 od Danderous Substances: DSEAR. Up to 50 litres of liquids with a flashpoint below 32C 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.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

P101 2 PACK POLYURETHANE MARINE TOPCOAT CLEAR - HARDENER

Name	Std	TWA - 8 hrs		STEL - 15 min		Notes
2-METHOXY-1-METHYLETHYL ACETATE	WEL	50 ppm(Sk)	274 mg/m3(Sk)	100 ppm(Sk)	548 mg/m3(Sk)	
ALIPHATIC POLYISOCYANATE	WEL	0.02 ppm Sen		0.07 ppm Sen		
ETHYLBENZENE	WEL	100 ppm(Sk)	441 mg/m3(Sk)	125 ppm(Sk)	552 mg/m3(Sk)	
HEXAMETHYLENE-DI-ISOCYANATE	WEL		0.02 mg/m3(Sen)		0.07 mg/m3(Sen)	
XYLENE	WEL	50 ppm(Sk)	220 mg/m3(Sk)	100 ppm(Sk)	441 mg/m3(Sk)	

WEL = Workplace Exposure Limit.

INGREDIENT COMMENTS

WEL = Workplace Exposure Limits

PROTECTIVE EQUIPMENT

ENGINEERING MEASURES

Provide adequate ventilation. Observe occupational exposure limits and minimize the risk of inhalation of spray. Must not be handled in confined space without sufficient ventilation. Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. Explosion-proof general and local exhaust ventilation.

RESPIRATORY EQUIPMENT

In case of inadequate ventilation or risk of inhalation of vapours, use suitable respiratory equipment with combination filter (type A2/P3). At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used. 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).

HAND PROTECTION

Use suitable protective gloves if risk of skin contact. The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material. Barrier cream applied before work may make it easier to clean the skin after exposure, but does not prevent absorption through the skin.

EYE PROTECTION

Wear goggles/face shield. Wear splash-proof eye goggles to prevent any possibility of eye contact.

OTHER PROTECTION

Wear appropriate clothing to prevent reasonably probable skin contact.

HYGIENE MEASURES

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals.

PERSONAL PROTECTION

Unprotected persons should be kept away from treated areas.

9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Liquid		
COLOUR	Yellowish		
ODOUR	Characteristic of solvents		
SOLUBILITY	Insoluble in water Hardens in contact with water.		
BOILING POINT (°C)	145 760 mm Hg	RELATIVE DENSITY	1.06 - 1.08 @ 20 C
VAPOUR PRESSURE	Xylene ca. 7-9 @ 20 C, Hexamethylene-1,6-diisocyanate 0.014 @ 25 C, Resin <0.001@ 20 C (Vapour pressure balance/OECD No. 104 mbar	VISCOSITY	ca. 225 mPa.s @ 23 C DIN EN ISO 3219/A.3 - ca. 59 s 4mm flow cup to DIN 53211
FLASH POINT (°C)	38 approx. CC (Closed cup).	AUTO IGNITION TEMPERATURE (°C)	460 C DIN 51794

FLAMMABILITY LIMIT - LOWER(%)	Xylene = 1% - 1-methoxypropylacetate-2= 1.5%	FLAMMABILITY LIMIT - UPPER(%)	Xylene=8%, 1-methoxypropylacetate-2=10. 8%

10 STABILITY AND REACTIVITY

STABILITY

Stable under normal temperature conditions and recommended use.

CONDITIONS TO AVOID

Exothermic reaction with amines and alcohols; reacts slowly with water forming CO2, in closed containers risk of bursting owing to increase of pressure.

MATERIALS TO AVOID

Strong alkalis. Strong acids. Strong oxidising substances.

HAZARDOUS DECOMPOSITION PRODUCTS

None under normal conditions.

11 TOXICOLOGICAL INFORMATION

TOXIC DOSE 1 - LD 50 >5000 mg/kg (oral rat)

TOXICOLOGICAL INFORMATION

Skin and mucous membrane compatibilty, rabbit: Skin - 4 hours exposure - very slight irritant. Eyes - very slight irritant. No pulmonary sensitisation observed in animal tests. No pulmonary sensitisation potential was observed in the guinea pig model after either intradermal or inhalative induction with polyisocyanate based on hexamethylene diisocyanate. Skin sensitisation according to Buehler (epicutaneous test). In the guinea pig the product did not show a sensitising effect. Skin sensitivity according to Magnusson/Kligmann (maximising test). In the guinea pig the product has a sensitising effect. Salmonella/microsome test (Ames test). No indication of mutagenic effects. No indication of mutagenic effects. Subacute inhalation toxicity, rat. Test concentration - 4, 3; 14, 7 and 98, 8 mg aerosol/m3 - exposure time - 3 weeks (6 hours a day, 5 days a week) OECD No. 413; 1985 ----- 4, 3mg/m3 was tolerated without damage (NOEL), 14, 7 mg/m3 causedincreased lung weight, 89, 8 mg/m3 inflamatory changes in the repiratory tract. Evidence of damage to organs other than the organs of respiration was not found. Subchronic inhalation toxicity, rat: Test concentration - 0, 5; 3, 3; and 26, 4 mg aerosol/m3. exposure time - 13 weeks (6 hours a day, 5 days a week) OECD No. 413; 1987. ---------- 3, 3 mg/m3 was tolerated without damage (NOEL), 26, 4 mg/m3 caused increased lung weight, indications of inflamatory changes in the respiratory tract. All the changes were unspecific and areattributed to the primary irritation potential of the product. Evidence of damage to organs other than the organs of respiration was not found. Aromatic hydrocarbons, such as xylene, irritate the skin and mucous membranes and are narcotic if inhaledin high concentrations.

GENERAL INFORMATION

Preparation contains small volumes of isocyanate which may cause allergic reaction and irritation of respiratory system.

INHALATION

Vapour from this chemical can be hazardous when inhaled. Vapour may irritate respiratory system or lungs.

INGESTION

Liquid irritates mucous membranes and may cause abdominal pain if swallowed.

SKIN CONTACT

Acts as a defatting agent on skin. May cause cracking of skin, and eczema. Prolonged or repeated exposure may cause severe irritation.

EYE CONTACT

May cause temporary eye irritation.

HEALTH WARNINGS

This product has low toxicity. Only large volumes may have adverse impact on human health.

MEDICAL CONSIDERATIONS

Skin disorders and allergies. Avoid vomiting and normal rinse of stomach because of risk of aspiration.

SPECIFIC EFFECTS

Over exposure, especially during spraying without the necessary precautions, entails risk of concentration- dependant irritating effects on eyes, nose, throat and respiratory tract. Delayed appearance of the complaints and development of hypersensitivity (difficulty breathing, coughing, asthma) are possible. Hypersensitive persons may suffer from these effects even at low isocyanate concentrations below UK Workplace Exposure Limits (WEL). Prolonged contact with skin may have tanning and irritating effects.

12 ECOLOGICAL INFORMATION

ECOTOXICITY

The product contains a substance which may cause long term adverse effects in the aquatic environment. Dangerous for the environment: Toxic to soil organisms. Do not allow to escape into waters, wastewater or soil. The resin reacts with water at the interface forming CO2 and a solid insoluble product with high melting point (polyurea). This reaction is accelerated by surfactants (eg. detergents) or by water soluble solvents.

LC 50, 96 Hrs, FISH mg/l	LC(0) =8.8. LC(100)=25.0
EC 50, 48 Hrs, DAPHNIA, mg/l	100-1000

MOBILITY

Mobile.

BIOACCUMULATION

The product contains potentially bioaccumulating substances.

DEGRADABILITY

The product is not expected to be biodegradable.

13 DISPOSAL CONSIDERATIONS

GENERAL INFORMATION

Do not allow to enter drains, sewers or watercourses. When handling waste, consideration should be made to the safety precautions applying to handling of the product. May be incinerated in a suitable facility provided local regulations are observed.

DISPOSAL METHODS

Empty containers may be disposed of after neutralising any product remaining on the walls of the container with a mixture of isopropanol, ammonia and water. Afterwards remove warning labels.

WASTE CLASS

Neutralised empty packages, are categorised as non-hazardous waste, with code 15 01 02(plastic packaging) or 15 01 04 (metal packaging) If mixed with other wastes, the above waste code may not be applicable.

14 TRANSPORT INFORMATION

GENERAL — This product is packed in accordance with the Limited Quantity Provisions of CDGCPL2, ADR and IMDG.

UK ROAD CLASS	3		
PROPER SHIPPING NAME	Resin solution		
UN NO. ROAD	1866	UK ROAD PACK GR.	III
ADR CLASS NO.	1866	ADR CLASS	Class 3: Flammable liquids.
ADR PACK GROUP	III	TUNNEL RESTRICTION CODE	(D/E)
HAZARD No. (ADR)	31C	UN NO. SEA	1866
IMDG CLASS	3	IMDG PACK GR.	III
EMS	F-E, S-E	MARINE POLLUTANT	No.
UN NO. AIR	1866	AIR CLASS	3
AIR PACK GR.	III		

15 REGULATORY INFORMATION

LABELLING

Harmful

CONTAINS — ALIPHATIC POLYISOCYANATE

RISK PHRASES

R10	Flammable.
R20	Harmful by inhalation.
R43	May cause sensitisation by skin contact.

SAFETY PHRASES

S2	Keep out of the reach of children.
S13	Keep away from food, drink and animal feeding stuffs.
S24	Avoid contact with skin.
S37	Wear suitable gloves.
S46	If swallowed, seek medical advice immediately and show this container or label.
S51	Use only in well-ventilated areas.
S56	Dispose of this material and its container to hazardous or special waste collection point.
P4	Contains isocyanates. See information supplied by the manufacturer.

UK REGULATORY REFERENCES

Chemicals (Hazard Information & Packaging) Regulations. The Control of Substances Hazardous to Health Regulations 1988. Health and Safety at Work Act 1974.

ENVIRONMENTAL LISTING

Control of Pollution Act 1974. Rivers (Prevention of Pollution) Act 1961.

EU DIRECTIVES

Dangerous Substance Directive 67/548/EEC. Dangerous Preparations Directive 1999/45/EC.

STATUTORY INSTRUMENTS

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

APPROVED CODE OF PRACTICE

Safety Data Sheets for Substances and Preparations. Classification and Labelling of Substances and Preparations Dangerous for Supply. Dangerous Substances and Explosive Atmospheres Regulations 2002 [L138]

GUIDANCE NOTES

Workplace Exposure Limits EH40. CHIP for everyone HSG(108).

NATIONAL REGULATIONS

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002. No. 1689. Workplace Exposure Limits 2005 (EH40) Health and Safety at Work Act (As Amended) 1974 Control of Substances Hazardous to Health Regulations 2002 (as amended) The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2007 (CDG 2007) Dangerous Substances and Explosive Atmospheres Regulations 2002 [SI 2002: 2776] The Manual Handling Operations Regulations 1992 [SI 1992:2793]

16 OTHER INFORMATION

REVISION COMMENTS

Issued in new format for Reach compliance Corrections to Section 14, Transport Information Issued in compliance with 30th & 31st ATP to Council Directive 67/548, as detailed in Commission Directive 2004/73/EC (1st ATP of EC Regulation 1272/2008)

ISSUED BY

Technical Dept. (P.E.)

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SAFETY DATA SHEET STATUS

Approved.

DATE	Date printed _____
SIGNATURE	Initials _____

RISK PHRASES IN FULL

R10	Flammable.
R20/21	Harmful by inhalation and in contact with skin.
R20	Harmful by inhalation.
R11	Highly flammable.
R36/37/38	Irritating to eyes, respiratory system and skin.
R38	Irritating to skin.
R42/43	May cause sensitisation by inhalation and skin contact.
R43	May cause sensitisation by skin contact.
R23	Toxic by inhalation.

DISCLAIMER

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.