

Material Safety Data Sheet

Stepethane30 Sealer Hardener Part B

Classified as hazardous according to criteria of NOHSC.

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Section 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

PRODUCT NAME: Stepethane Sealer Hardener
OTHER NAMES: Isocyanate Hardener
MANUFACTURER'S PRODUCT CODE: F2405/27/2
PACKAGING GROUP: 111
METHOD OF APPLICATION: Roller, Brush or Spray
RECOMMENDED USE: Sealer for various surfaces.

UN No.: 1866
DANGEROUS GOODS CLASS: 3
SUB RISK: None Allocated
HAZCHEM: 3
POISONS SCHEDULE: Not scheduled poison

Section 2: HAZARDS IDENTIFICATION

HAZARD CLASSIFICATION: Classified as hazardous according to criteria of NOHSC

RISK PHRASES: R 10: Flammable.

R 20/21: Harmful by inhalation and in contact with skin.
R 43: May cause sensitisation by skin contact.
S 24: Avoid contact with skin.
S 37: Wear suitable gloves.
S 51: Use only in well - ventilated areas.

SAFETY PHRASES: Do not breathe gas, fumes, vapour or spray.

Ensure adequate ventilation when using
Avoid contact with skin and eyes
Wear suitable protective clothing, gloves and eye/face protection.
Wear a positive-pressure full-face respirator whilst spraying and until spray mist has been effectively dispersed.
Avoid release to the environment.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

aliphatic polyisocyanate
ca. 75 % in 1-methoxypropylacetate-2/xylene 1:1
(1-methoxypropylacetate-2 = 2-methoxy-1-methylethyl acetate)
aliphatic polyisocyanate
wt.-%: ca. 75
CAS No.: 28182-81-2 Index No.: --
EEC No.: --
Classification: Xi R43
(classification according to definition principle)
hexamethylene-1,6-diisocyanate
wt.-% < 0,5
CAS No.: 822-06-0 Index No.: 615-011-00-1
EEC No.: 212-485-8
Classification: T R23; Xi R36/37/38; R42/43
Threshold concentration for Hazard Symbol T = from 2,0 %
Threshold concentration for Hazard Symbol Xn = from 0,5 %
xylene isomer mixture
wt.-% ca. 10
CAS No.: 1330-20-7 Index No.: 601-022-00-9
EEC No.: 215-535-7
Classification: R10; Xn R20/21; Xi R38

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Threshold concentration for Hazard Symbol Xn = from 12,5 %
ethylbenzene

wt.-%: ca. 2,5

CAS No.: 100-41-4 Index No.: 601-023-00-4

EEC No.: 202-849-4

Classification: F R11; Xn R20

Threshold concentration for Hazard Symbol Xn = from 25 %

2-methoxy-1-methylethyl acetate

wt.-%: ca. 12,5

CAS No.: 108-65-6 Index No.: 607-195-00-7

EEC No.: 203-603-9

Classification: R10; Xi R36

in accordance with the EU Directives (GB) DD

Section 4: First Aid Measures

Inhalation If fumes or combustion products are inhaled, remove from contaminated area. If irritation persists seek medical attention.

Ingestion Rinse mouth with water. Do not induce vomiting. Drink two glasses of water and seek medical attention.

Skin contact: Remove contaminated clothing and wash skin with running water. If irritation occurs seek medical advice.

Eye Contact: Immediately wash eyes with running water, holding eyelids open. If irritation occurs, seek medical attention.

Medical Attention

And Special Treatment Treat symptomatically.

Section 5: Fire Fighting Measures

Suitable Extinguishing Media : Extinguishing Media Carbon dioxide. Dry chemical fire extinguishers. Foam.

Hazards from combustion products: In the event of fire, carbon monoxide, nitrogen oxides, isocyanate vapour and traces of hydrogen cyanide may be released.. The thermal decomposition products therefore should be treated as potentially hazardous substances and appropriate precautions should be taken.

Precautions for fire fighters and Special protective equipment: Wear positive-pressure self-contained breathing apparatus and protective fire- fighting clothing (includes fire-fighting helmet, coat, trousers, boots and gloves). Do not allow contaminated extinguishing water to enter the soil, ground water or surface waters.

Section 6: Accidental Release Measures

Emergency Procedures : Put on protective equipment (see Section 8). Remove sources of fire, ensure adequate ventilation / exhaust ventilation. Keep unauthorised persons away.

Do not empty into drains.

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Methods and materials for

Containment and clean up: Remove mechanically; cover the remainder with wet, absorbent material (e.g. sawdust, chemical binder based on calcium silicate hydrate, sand). After approx. one hour transfer to waste container and do not seal (evolution of CO₂!). Keep damp in a safe ventilated area for several days. For further disposal measures see Section 13.

Section 7: Handling and Storage

Handling: Ensure adequate ventilation or exhaust ventilation in the working area. Exhaust ventilation necessary if product is sprayed. Avoid contact with skin and eyes. Provide adequate ventilation and if necessary, air extraction in working areas. Take precautions against the build-up of static electricity, as normal when handling flammable solvents.

Section 8: Exposure Controls, Personal Protection

National Exposure Standards: NOHSC1003(1995)Exposure Standard:

Isocyanates: 0.02mg/m³TWA,0.07mg/m³STEL(as-NCO)
ethyl benzene: 100ppm(434mg/m³)TWA,125ppm(543mg/m³)STEL
Xylene: 80ppm(350mg/m³)TWA,150ppm(655mg/m³)STEL

2-methoxy-1-methylacetate: Not Allocated

Protection of workers - UK Maximum Exposure Limits (MEL) or Occupational Exposure Standards (OES), per EH40 document (Health & Safety Executive). If no UK value exists, German MAK values given where available:

TYPE, 8-hr TWA 15-min STEL

YEAR substance CAS No. ppm mg/m³ ppm mg/m³

MEL isocyanates, all (as -NCO) - - 0.02 - 0.07

2003 (+ can cause respiratory sensitisation)

Included in the list of maximum exposure limits proposed for review as part of the transition to a new occupational exposure limit framework

OES 1-methoxypropylacetate 108-65-6 50 274 100 548

2003 (2-methoxy-1-methylethyl (+ can be absorbed through skin)

acetate) (values lowered in 2002)

H₃C-O-CH₂-C(OCOCH₃)H-CH₃

(Indicative Occupational Exposure Limit Values)

Health R-Phrases: R10, 36

maximum limit of excess factor 1

Remark: Y (That means, a risk of damage of the foetus is not expected, if the MAK-value and the German BAT-value are observed. [compare also TLVs and Biological Exposure Indices])

OES xylene 1330-20-7 50 220 100 441

2003 o-,m-,p- or mixed isomers (+ can be absorbed through skin)

C₆H₄(CH₃)₂ (values lowered in 2002)

(Indicative Occupational Exposure Limit Values)

Health R-Phrases: R20/21, 38

BMGV In addition, a Biological Monitoring Guidance Value exists:

Health Guidance Value: 650mmol methyl hippuric acid / mol

creatinine in urine

Sampling time: Post shift

OES ethylbenzene 100-41-4 100 441 125 552

2003 C₆H₅C₂H₅ (+ can be absorbed through skin)

(Indicative Occupational Exposure Limit Values)

(revised in 2002)

Health R-Phrase: R20

Engineering Controls/Personal Protection

Respiratory protection: Respiratory protection required in insufficiently

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ventilated working areas and during spraying. An air-fed mask, or for short periods of work, a combination of charcoal filter and particulate filter is recommended.

In case of hypersensitivity of the respiratory tract (e.g. asthmatics and those who suffer from chronic bronchitis) it is inadvisable to work with the product.

Hand protection:

Conditionally suitable materials for protective gloves; DIN EN 374-3: fluorinated rubber - FKM: thickness: $\geq 0,40$ mm;

Breakthrough time: "Only suitable as splash protection."

Only suitable for brief exposure. In the event of contamination, change protective gloves immediately.

Eye protection: Wear eye/face protection.

Body protection: Wear suitable protective clothing.

Protection and hygienic measures: Keep away from foodstuffs, drinks and tobacco. Wash hands before breaks and at end of work. Keep working clothes separate. Take off immediately all contaminated clothing.

Section 9: Physical and Chemical Properties

Form: liquid

Colour: yellowish

Odour: smell of solvent

Setting point: ca. -48 °C

Initial boiling point: ca. 145 °C

Density: ca. $1,07$ g/cm³ at 20 °C DIN EN ISO 2811

Vapour pressure:

xylene ca. $7-9$ mbar at 20 °C

hexamethylene-1,6-diisocyanate $0,014$ mbar at 25 °C

resin $<0,0001$ mbar at 20 °C

(vapour pressure balance/OECD No.104)

Viscosity: ca. 250 mPa·s at 23 °C DIN EN ISO 3219/A.3

ca. 80 s at 23 °C

flow time per DIN ISO 2431 (orifice: 5 mm)

Solubility in water: insoluble as resin;

reacts as described in paragraph 10

1-methoxypropylacetate-2 ca. 200 g/l at 20 °C

pH value: not applicable

Flash point: ca. 38 °C DIN 53213/1

Ignition temperature: ca. 460 °C DIN 51794

Explosive limits:

xylene lower: 1.0 % by vol. upper: 8.0 % by vol.

1-methoxypropylacetate-2 lower: 1.5 % by vol. upper: 10.8 % by vol.

Remarks: The values for density and viscosity are guide values.

Section 10: Stability and Reactivity

Hazardous decomposition products: No hazardous decomposition products when stored and handled correctly.

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

Section 11: Toxicological Information

Acute toxicity:

LD₅₀ oral, rat: more than $5\ 000$ mg/kg *)

Skin and mucous membrane compatibility, rabbit:

Skin 4 hours exposure - very slight irritant

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Eyes - very slight irritant
(OECD-Guidelines for Testing of Chemicals, No. 404 and No. 405) (1997) **)

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. **) (OECD Guideline for Testing of Chemicals, No. 406) (1997)

Skin sensitisation according to Magnusson/Kligmann (maximising test):
In the guinea-pig the product has a sensitising effect. **) (OECD Guideline for Testing of Chemicals, No. 406) (1997)

Salmonella/microsome test (Ames test):
No indication of mutagenic effects. **)

Subacute inhalation toxicity, rat:
Test concentration - 4,3; 14,7 and 89,8 mg aerosol/m³
exposure time - 3 weeks
(6 hours a day, 5 days a week) OECD 413; 1985
4,3 mg/m³ was tolerated without damage (NOEL),
14,7 mg/m³ caused increase of lung weight,
89,9 mg/m³ inflammatory changes in the respiratory tract.
No evidence was found of damage to organs other than the respiratory organs. **)

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 413; 1987
3,3 mg/m³ was tolerated without damage (NOEL),
26,4 mg/m³ caused increase of lung weight, indications of inflammatory changes in the respiratory tract.
All the changes were unspecific and are therefore attributed to the primary irritation potential of the product. No evidence was found of damage to organs other than the respiratory organs. **) (to be continued)

in accordance with the EU Directives (GB) DD
*) Toxicological studies of a comparable product
**) Toxicological studies on a comparable solvent-free product

Aromatic hydrocarbons, such as xylene, irritate the skin and mucous membranes and are narcotic if inhaled in high concentrations.

Special properties/effects:
Over-exposure, especially when spraying coatings containing isocyanate without the necessary precautions, entails the risk of concentration-dependent irritating effects on eyes, nose, throat, and respiratory tract. Delayed appearance of the complaints and development of hypersensitivity (difficult breathing, coughing, asthma) are possible. Hypersensitive persons may suffer from these effects even at low isocyanate concentrations, including concentrations below the UK Maximum Exposure Limit (MEL). Prolonged contact with the skin may cause tanning and irritant effects

Section 12: Ecological Information

Acute bacterial toxicity: EC₅₀ = 100-1000 mg/l
(OECD Guideline for Testing of Chemicals, No. 209)

Acute fish toxicity: LC₀ = 8,8 mg/l
LC₁₀₀ = 25,0 mg/l

Test species: Brachydanio rerio (Zebra barbel) Duration of test: 96 h

Ecotoxicological testing of the solvent-free product yielded the following results:

Biodegradability: 1 %, i.e. not readily degradable.
Degradation rate in 28 days.
(OECD Guideline for Testing of Chemicals, No. 301 D)

Acute fish toxicity: LC₀ >= 100 mg/l

Test species: Brachydanio rerio (Zebra barbel) Duration of test: 96 h

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(OECD Guideline for Testing of Chemicals, No. 203) *)

Acute toxicity for daphnia: $EC_{50} \geq 100$ mg/l

Test species: Daphnia magna (water flea) Duration of test: 48 h

(OECD Guideline for Testing of Chemicals, No. 202) *)

Acute toxicity for algae: no toxic effect at 100 mg/l

Tested on: scenedesmus subs. Duration of test: 72 h

(OECD Guideline for Testing of Chemicals, No. 201) *)

*) Sample preparation on account of the reactivity of the substance with water: Ultra turrax: 60 sec, 8,000 rpm; 24 h magnetic stirrer; filtration. (to be continued)

in accordance with the EU Directives (GB) DD

On the basis of the data for ecotoxicological effects, the substance can be classified as non-critical to aquatic organisms in the water-soluble range. As the compound is not readily biodegradable, long retention times in water are to be expected. This applies only in cases where no other elimination mechanisms (photodegradation, hydrolysis, adsorption) are active. However, as there is no ecotoxic effect, no damage to the ecosystem is to be expected.

Do not allow to escape into waterways, waste water or soil.

The resin reacts with water at the interface forming CO_2 and a solid insoluble product with high melting point (polyurea). This reaction is accelerated by surfactants (e.g. detergents) or by water-soluble solvents.

Section 13: Disposal Considerations

The relevant EC Directives and local, regional and national regulations must be complied with. It is among the tasks of the polluter to assign the waste to waste codes specific to industrial sectors and processes according to the European Waste Catalogue. It is recommended that details be worked out with the waste disposal company responsible.

The waste can be disposed of in a suitable incinerator, provided that national/local legislation is complied with.

For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

After final product withdrawal, all residues must be removed from containers (drip-free, powder-free or paste-free). Once the product residues adhering to the walls of the containers have been rendered harmless, the product and hazard labels must be invalidated. Containers must be recycled in compliance with national legislation and environmental regulations.

Section 14: Transport Information

Dangerous Good according to ADG Code (6th Edition) Hazchem: 3[Y]

GGVSE: 3 UN: 1866 PG: III SP: 640E

RID/ADR: 3 UN: 1866 PG: III SP: 640E

Warning sign: Hazard no. 30 UN No.: 1866

ADNR: 3 UN: 1866 PG: III SP: 640E

GGVSee/IMDG Code: 3 UN: 1866 PG: III MPO: NO

ICAO-TI/IATA-DGR: 3 UN: 1866 PG: III

Declaration for land shipment: RESIN SOLUTION

Declaration for sea shipment: RESIN SOLUTION

Declaration for shipment by air: RESIN SOLUTION

Limited quantity regulations applicable in accordance with chapter 3.4 RID/ADR in compliance with threshold value

Other information:

Combustible, flash point +38 °C. Keep dry. Keep separated from foodstuffs. in accordance with the EU Directives (GB) DD

Section 15: Regulatory Information

Not a scheduled poison under SUSDP 19.

Labelling as required by the Chemicals (Hazard Information and Packaging for Supply) Regulations 2002 (CHIP3), in accordance with EC Directives:

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Symbol: Xn, hazard description: harmful

---- Contains isocyanates. See information supplied by the manufacturer.

R 10: Flammable.

R 20/21: Harmful by inhalation and in contact with skin.

R 43: May cause sensitisation by skin contact.

S 24: Avoid contact with skin.

S 37: Wear suitable gloves.

S 51: Use only in well-ventilated areas.

The manufacturer's information on the handling of isocyanates is contained in this Safety Data Sheet.

The European Committee of Paint, Printing Ink and Artists' Colours Manufacturers' Associations (CEPE) provides the following information on coatings containing isocyanates:

Ready-to-use paints containing isocyanates may have an irritant effect on mucous membranes - especially on breathing organs - and cause hypersensitivity reactions. Inhalation of vapour or spray mist may cause sensitisation. When handling paints containing isocyanates all precautions required for solvent-containing paints must be followed. Vapour and spray mist in particular should not be inhaled. Persons who are allergic, asthmatic, or prone to respiratory ailments should not work with isocyanate-containing paints.

TRGS 905-classification:

Ethylbenzene (CAS No.: 100-41-4) is not classified as a carcinogenic substance in accordance with TRGS 905 in Germany, nor is it included in the EU substance list. It is classified as a Category 3A carcinogenic substance in accordance with the list of MAK and BAT values from the German Research Commission.

Airborne emissions must be controlled within local and national limits, in accordance with the appropriate legislation.

hexamethylene-1,6-diisocyanate = Class I

Water pollution class (WGK): 2 - impairment of water quality

WGK = Classification in accordance with the German Water Resources Act (in accordance with Annex 4 to the Directive on Water-Hazardous Substances)

Any existing national regulations on the handling of isocyanates and solvents must be observed.

Section 16: Other Information

Contact Person: General Manager, Transpacific Bituminous Products Pty Ltd
02 9772 4433
After hours 0414 499 402

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END OF MSDS