

SAFETY DATA SHEET

according to 1907/2006/EC, Article 31

Flowdur TF Hardener

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

1.1. Product identifier

Product name	Flowdur TF Hardener
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1.2. Relevant identified uses of the substance or mixture and uses advised against

Description	Restricted to professional users. Component of a Three Pack Polyurethane Floor Coating.
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1.3. Details of the supplier of the safety data sheet

Company	Virtus Resins
Address	The Shippon, Faenol Pentrecelyn Ruthin LL15 2SP
Web	www.epoxyresinsuppliers.co.uk
Telephone	+44 (0)1978 790 744
Fax	
Email	info@epoxyresinsuppliers.co.uk
Email address of the competent person	info@ epoxyresinsuppliers.co.uk

1.4. Emergency telephone number


Emergency telephone number	+44 (0)1978 790744 8.30am to 5.00pm Mon - Fri
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1. Classification - 1999/45/EC	Xn; R20-40-42/43-48/20 Xi; R36/37/38 Symbols: Xn: Harmful.
Main hazards	Harmful by inhalation. Irritating to eyes, respiratory system and skin. Limited evidence of a carcinogenic effect. May cause sensitisation by inhalation and skin contact. May cause sensitisation by inhalation. Harmful: danger of serious damage to health by prolonged exposure through inhalation.
2.1.2. Classification - EC 1272/2008	Skin Irrit. 2: H315; Skin Sens. 1: H317; Eye Irrit. 2: H319; Acute Tox. 4: H332; Resp. Sens. 1: H334; STOT SE 3: H335; Carc. 2: H351; STOT RE 2: H373;

2.2. Label elements

Hazard pictograms	
Signal Word	Danger
Hazard Statement	Skin Irrit. 2: H315 - Causes skin irritation. Skin Sens. 1: H317 - May cause an allergic skin reaction.

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2.2. Label elements

Precautionary Statement: Prevention	Eye Irrit. 2: H319 - Causes serious eye irritation. Acute Tox. 4: H332 - Harmful if inhaled. Resp. Sens. 1: H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled. STOT SE 3: H335 - May cause respiratory irritation. Carc. 2: H351 - Suspected of causing cancer . STOT RE 2: H373 - May cause damage to organs through prolonged or repeated exposure .
	P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P260 - Do not breathe dust/fume/gas/mist/vapours/spray. P261 - Avoid breathing dust/fume/gas/mist/vapours/spray. P264 - Wash thoroughly after handling. P271 - Use only outdoors or in a well-ventilated area. P272 - Contaminated work clothing should not be allowed out of the workplace. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P284 - [In case of inadequate ventilation] wear respiratory protection.
Precautionary Statement: Response	P302+P352 - IF ON SKIN: Wash with plenty of water/ . P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313 - IF exposed or concerned: Get medical advice/attention. P312 - Call a POISON CENTER/doctor/ /if you feel unwell. P314 - Get medical advice/attention if you feel unwell. P321 - Specific treatment (see on this label). P332+P313 - If skin irritation occurs: Get medical advice/attention. P333+P313 - If skin irritation or rash occurs: Get medical advice/attention. P337+P313 - If eye irritation persists: Get medical advice/attention. P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER/doctor/ .
Precautionary Statement: Storage	P403+P233 - Store in a well-ventilated place. Keep container tightly closed. P405 - Store locked up.
Precautionary Statement: Disposal	P501 - Dispose of contents/container to

2.3. Other hazards

Other hazards	According to Regulation (EC) No 1272/2008 (CLP) No specific dangers known, if the regulations/notes for storage and handling are considered.
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SECTION 3: Composition/information on ingredients

3.2. Mixtures

67/548/EEC / 1999/45/EC

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc. (%w/w)	Classification	M-factor.
4,4'-Methylenediphenyl diisocyanate	615-005-00-9	101-68-8	202-966-0		60 - 70%	Carc. Cat. 3; R40 Xn; R20-48/20 Xi; R36/37/38 R42/43	
4,4'-Diphenylmethane-diisocyanate	615-005-00-9	9016-87-9			20 - 30%		

EC 1272/2008

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc. (%w/w)	Classification	M-factor.
4,4'-Methylenediphenyl diisocyanate	615-005-00-9	101-68-8	202-966-0		60 - 70%	Carc. 2: H351; Acute Tox. 4: H332; STOT RE 2: H373; Eye Irrit. 2: H319; STOT SE 3: H335; Skin Irrit. 2: H315; Resp. Sens. 1: H334; Skin Sens. 1: H317;	
4,4'-Diphenylmethane-diisocyanate	615-005-00-9	9016-87-9			20 - 30%		

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SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Keep patient calm, remove to fresh air, seek medical attention.
Eye contact	Immediately wash affected eyes for at least 15 minutes under running water with eyelids help open, consult an eye specialist.
Skin contact	After contact with skin, wash immediately with plenty of water and soap.
Ingestion	Immediately rinse mouth and then drink plenty of water, do not induce vomiting, seek medical attention.

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

Eye contact	Irritating to eyes.
Skin contact	Irritating to skin.

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

	Treatment:- Treat according to symptoms (decontamination, vital functions), no known specific antidote, administer corticosteroid dose aerosol to prevent pulmonary oedema.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

	Dry powder, carbon dioxide, alcohol-resistant foam, water spray.
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5.2. Special hazards arising from the substance or mixture

	Carbon dioxide, carbon monoxide, hydrogen cyanide, hydrocyanic acid, nitrogen oxides, isocyanate. The substance/groups of substances mentioned can be released in case of fire.
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5.3. Advice for firefighters

	Special protective equipment. Wear self-contained breathing apparatus and chemical-protective clothing.
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Further information

	Keep containers cool by spraying with water if exposed to fire. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

	Use personal protective clothing. Ensure adequate ventilation. Use breathing apparatus if exposed to vapours/dust/aerosol.
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6.2. Environmental precautions

	Do not empty into drains. Do not discharge into the subsoil/soil.
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6.3. Methods and material for containment and cleaning up

	For large amounts:- Pump off product. For residues;- Pick up with absorbent material (e.g sand, sawdust, general purpose binder). Dispose of absorbed material in accordance with regulations. Neutralize with a solution of 5-10% Sodium carbonate, 0.2-2 % detergents and 90-95 % water.
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6.4. Reference to other sections

	Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

	Provide suitable exhaust ventilation at the processing machines. Ensure thorough ventilation of stores and work areas. Avoid aerosol formation. When handling heated product, vapours of the product should be ventilated and respiratory protection used. Wear respiratory protection when
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7.1. Precautions for safe handling

	spraying. Danger of bursting when seal gastight. Protect against moisture. Products freshly manufactured from isocyanates can contain incompletely reacted isocyanates and other dangerous substances. Clean up contamination as soon as they occur. Provide basic employee training to prevent/minimize exposures.
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7.2. Conditions for safe storage, including any incompatibilities

	<p>Keep away from water. Segregate from foods and animal feeds. Segregate from acids and bases.</p> <p>Suitable materials for containers; carbon steel (iron), High density polyethylene (HDPE), Low density polyethylene (LDPE), tin (tinplate), Stainless steel 1 4301 (V2).</p> <p>Unsuitable materials for containers;- paper, board.</p> <p>Further information on storage containers; Keep container tightly closed in cool, well-ventilated place. Protect against moisture. Formation of CO₂ and build up of pressure possible. Danger of bursting when sealed gastight. Information concerning the compliance to the Packaging (Essential Requirements) Regulations 1998 and their amendments may be obtained from the manufacturer.</p>
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7.3. Specific end use(s)

	For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.
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SECTION 8: Exposure controls/personal protection


8.1. Control parameters

	Are listed on the following items according to where it is going to be used.
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8.1.1. Exposure Limit Values

4,4'-Diphenylmethane-diisocyanate	WEL 8-hr limit ppm:	WEL 8-hr limit mg/m ³ : 0.02
	WEL 15 min limit ppm:	WEL 15 min limit mg/m ³ : 0.07
	WEL 8-hr limit mg/m ³ total inhalable dust:	WEL 15 min limit mg/m ³ total inhalable dust:
	WEL 8-hr limit mg/m ³ total respirable dust:	WEL 15 min limit mg/m ³ total respirable dust:
4,4'-Methylenediphenyl diisocyanate	WEL 8-hr limit ppm:	WEL 8-hr limit mg/m ³ : 0.02
	WEL 15 min limit ppm:	WEL 15 min limit mg/m ³ : 0.07
	WEL 8-hr limit mg/m ³ total inhalable dust:	WEL 15 min limit mg/m ³ total inhalable dust:
	WEL 8-hr limit mg/m ³ total respirable dust:	WEL 15 min limit mg/m ³ total respirable dust:

8.2. Exposure controls

	
Eye / face protection	safety glasses with side-shields.
Skin protection - Handprotection	Chemical resistant gloves.
Skin protection - Other	Wear suitable protective clothing.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

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9.1. Information on basic physical and chemical properties

Appearance	Liquid
Colour	Yellowish
Odour	Earthy, musty
pH	Not applicable.
Melting point	No data available
Freezing Point	No data available
Initial boiling point	> 200
Flash point	200
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	No data available
Fat Solubility	No data available
Partition coefficient	No data available
Autoignition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available
Solubility	No data available

9.2. Other information

Conductivity	No data available
Surface tension	No data available
Gas group	No data available
Benzene Content	Not applicable.
Lead content	Not applicable.
VOC (Volatile organic compounds)	No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

10.2. Chemical stability

This product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions

Reacts with water, with formation of carbon dioxide. Risk of bursting. Reacts with substances which contain active hydrogen.

10.4. Conditions to avoid

Temperature < 15o C.

10.5. Incompatible materials

Acids, alcohols, amines, water, Alkalines.

10.6. Hazardous decomposition products

No hazardous decomposition products if stored and handled as prescribed/indicated.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity No data is available on this product.

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11.1. Information on toxicological effects

Skin corrosion/irritation	Sensitization.
Serious eye damage/irritation	Causes serious eye irritation.
Respiratory or skin sensitisation	May cause sensitisation by inhalation.
Germ cell mutagenicity	No data is available on this product.
Carcinogenicity	No data is available on this product.
Reproductive toxicity	No data is available on this product.

11.1.4. Toxicological Information

	No data available
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SECTION 12: Ecological information

12.1. Toxicity

	No data available
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12.2. Persistence and degradability

	No data is available on this product.
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12.3. Bioaccumulative potential

	No data is available on this product.
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Partition coefficient

	Flowdur TF Hardener No data available
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12.4. Mobility in soil

	No data is available on this product.
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12.5. Results of PBT and vPvB assessment

	No data is available on this product.
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12.6. Other adverse effects

	No data is available on this product.
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SECTION 13: Disposal considerations

13.1. Waste treatment methods

	Completely empty the packaging and process it according to local legislation.
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SECTION 14: Transport information

14.1. UN number

	The product is not classified as dangerous for carriage.
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14.2. UN proper shipping name

	The product is not classified as dangerous for carriage.
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14.3. Transport hazard class(es)

	The product is not classified as dangerous for carriage.
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14.4. Packing group

	The product is not classified as dangerous for carriage.
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14.5. Environmental hazards

	The product is not classified as dangerous for carriage.
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14.6. Special precautions for user

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14.6. Special precautions for user

	The product is not classified as dangerous for carriage.
	The product is not classified as dangerous for carriage.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

	The product is not classified as dangerous for carriage.
	The product is not classified as dangerous for carriage.

SECTION 15: Regulatory information

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

	<p>"COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC".</p> <p>"REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC".</p>
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15.2. Chemical safety assessment

	For advice on essential measures see sections 7 and 8 of this safety data sheet.
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SECTION 16: Other information

Other information

Revision	This document differs from the previous version in the following areas: 12 - 12.1. Toxicity.
Text of risk phrases in Section 3	R20 - Harmful by inhalation. R36/37/38 - Irritating to eyes, respiratory system and skin. R40 - Limited evidence of a carcinogenic effect. R42/43 - May cause sensitisation by inhalation and skin contact. R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Text of Hazard Statements in Section 3	Skin Irrit. 2: H315 - Causes skin irritation. Skin Sens. 1: H317 - May cause an allergic skin reaction. Eye Irrit. 2: H319 - Causes serious eye irritation. Acute Tox. 4: H332 - Harmful if inhaled. Resp. Sens. 1: H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled. STOT SE 3: H335 - May cause respiratory irritation. Carc. 2: H351 - Suspected of causing cancer . STOT RE 2: H373 - May cause damage to organs through prolonged or repeated exposure .

General information

	This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy.
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Further information

	The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. 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 other process.
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