

SAFETY DATA SHEET

according to 1907/2006/EC, Article 31

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Flowdur HF Hardener

Revision 8
Revision date 2015-07-16

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

1.1. Product identifier

| | |
|---------------------|---------------------|
| Product name | Flowdur HF Hardener |
|---------------------|---------------------|

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 Screed. |
|--------------------|---|

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 790 744 8.30am to 5.00pm Mon - Fri |
|-----------------------------------|---|

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. |

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2.2. Label elements

| | |
|--|--|
| Precautionary Statement: Prevention | <p>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 .</p> <p>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.</p> |
| Precautionary Statement: Response | <p>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/ .</p> |
| Precautionary Statement: Storage | <p>P403+P233 - Store in a well-ventilated place. Keep container tightly closed. P405 - Store locked up.</p> |
| Precautionary Statement: Disposal | <p>P501 - Dispose of contents/container to</p> |

2.3. Other hazards

| | |
|---------------|--|
| Other hazards | <p>According to Regulation (EC) No 1272/2008 (CLP)</p> <p>No specific dangers known, if the regulations/notes for storage and handling are considered.</p> |
|---------------|--|

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.Classification (%w/w) | 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% | |

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3.2. Mixtures

EC 1272/2008

| Chemical Name | Index No. | CAS No. | EC No. | REACH Registration Number | Conc.Classification (%w/w) | 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 | 615-005-00-99016-87-9 | | | | 20 - 30% | |

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. |
|--|---|

SECTION 5: Firefighting measures

5.1. Extinguishing media

| | |
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| | Dry powder, carbon dioxide, alcohol-resistant foam, water spray. |
|--|--|

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

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

Further information

| | |
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| | Keep containers cool by spraying with water if exposed to fire. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations. |
|--|--|

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. |
|--|--|

6.2. Environmental precautions

| | |
|--|---|
| | Do not empty into drains. Do not discharge into the subsoil/soil. |
|--|---|

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.

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 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.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from water. Segregate from foods and animal feeds. Segregate from acids and bases.

Suitable materials for containers; carbon steel (iron), High density polyethylene (HDPE), Low density polyethylene (LDPE), tin (tinplate), Stainless steel 1 4301 (V2).

Unsuitable materials for containers;- paper, board.

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.

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.

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.

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



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8.2. Exposure controls

| | |
|-----------------------------------|------------------------------------|
| Eye / face protection | safety glasses with side-shields. |
| Skin protection - Hand protection | 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

| | |
|---------------------------|-------------------|
| 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. |
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10.2. Chemical stability

| | |
|--|---|
| | This product is stable if stored and handled as prescribed/indicated. |
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10.3. Possibility of hazardous reactions

| | |
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| | Reacts with water, with formation of carbon dioxide. Risk of bursting. Reacts with substances which contain active hydrogen. |
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10.4. Conditions to avoid

| | |
|--|----------------------|
| | Temperature < 15o C. |
|--|----------------------|

10.5. Incompatible materials

| | |
|--|--|
| | Acids, alcohols, amines, water, Alkalines. |
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10.6. Hazardous decomposition products

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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. |
| 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

SECTION 12: Ecological information

12.1. Toxicity

No data available

12.2. Persistence and degradability

No data is available on this product.

12.3. Bioaccumulative potential

No data is available on this product.

Partition coefficient

Flowdur HF Hardener No data available

12.4. Mobility in soil

No data is available on this product.

12.5. Results of PBT and vPvB assessment

No data is available on this product.

12.6. Other adverse effects

No data is available on this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Completely empty the packaging and process it according to local legislation.

SECTION 14: Transport information

14.6. Special precautions for user

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.

ADR/RID

The product is not classified as dangerous for carriage.

IMDG

The product is not classified as dangerous for carriage.

IATA

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| | |
|--|--|
| IATA | |
| | 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> |
| 15.2. Chemical safety assessment | |
| | For advice on essential measures see sections 7 and 8 of this safety data sheet. |
| 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. |
| 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. |