

Article no.: HU0062
Date of print: 17.06.2012
version:

EFDEDUR-Hardener
Revision date: 08.05.2012
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1. Identification of the substance/ preparation and of the company/ undertaking

1.1. Product identifiers:

Article no. (manufacturer / supplier): HU0062
Identification of the substance or preparation: EFDEDUR-Hardener

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

1.3. Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/downstream user/distributor):

Emil Frei GmbH & Co.KG

Döggingen

Am Bahnhof 6

D - 78199 Bräunlingen, Germany

Telephone: + 49 (0) 7707/151-0

Telefax: + 49 (0) 7707/151-238

E-mail: info@freilacke.de

homepage: www.freilacke.de

Dept. responsible for information:

Product Safety

E-mail:

info@freilacke.de

1.4. Emergency telephone number

Emergency telephone:

GBK Gefahrgut Büro GmbH, + 49 (0) 6132-84463
(24-Hour-Number)

2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC

The preparation is dangerous in the sense of Directive 1999/45/EC.

R10

Xn; R20/21

Xi; R37/38

R43

R52-53

Harmful

Irritant

Flammable.

Harmful by inhalation and in contact with skin.

Irritating to respiratory system and skin.

May cause sensitization by skin contact.

Harmful to aquatic organisms. May cause

long-term adverse effects in the aquatic environment.

2.2. Label elements

Labelling (67/548/EEC or 1999/45/EC)



Xn Harmful

Hazard Statements:

10

Flammable.

20/21

Harmful by inhalation and in contact with skin.

37/38

Irritating to respiratory system and skin.

43

May cause sensitization by skin contact.

52/53

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

Safety precautions:

24

Avoid contact with skin.

26

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37

Wear suitable protective clothing and gloves.

38

In case of insufficient ventilation, wear suitable respiratory equipment.

51

Use only in well-ventilated areas.

61

Avoid release to the environment. Refer to special instructions / safety data sheet.

23

Do not breathe vapour.

contains:

aliphatic polyisocyanate

isophorone di-isocyanate, homopolymer

Special provisions concerning the labelling of certain mixtures

91

Contains isocyanates. May produce an allergic reaction.

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2.3. Other hazards

3. Composition/ Information on ingredients

3.2. Mixtures

chemical characterization (preparation)

Description: Preparation based on aliphatic polyisocyanate resin

Hazardous ingredients:

Classification according to Directive 67/548/EEC or 1999/45/EC

EC No: CAS No.: INDEX no.:	REACH No: Identification of the hazard: classification:	% by weight Remark:
28182-81-2	aliphatic polyisocyanate R43	20 < 25
53880-05-0	isophorone di-isocyanate, homopolymer Xi; R37 / R43	20 < 25
204-658-1 123-86-4 607-025-00-1	01-2119485493-29-0000 n-butyl acetate R10 / R66 / R67	12,5 < 20
203-603-9 108-65-6 607-195-00-7	01-2119475791-29 2-methoxy-1-methylethyl acetate R10	5 < 10 *
265-199-0 64742-95-6 649-356-00-4	Solvent naphtha (petroleum), light arom.; Low boiling point naphtha - unspecified R10 / Xi; R37 / N; R51-53 / Xn; R65 / R66 / R67	5 < 10
215-535-7 1330-20-7 601-022-00-9	xylene, mixture of isomers R10 / Xn; R20/21 / Xi; R38	5 < 10
202-436-9 95-63-6 601-043-00-3	1,2,4-trimethylbenzene R10 / Xn; R20 / Xi; R36/37/38 / N; R51-53	2,5 < 5
203-604-4 108-67-8 601-025-00-5	mesitylene R10 / Xi; R37 / N; R51-53	1 < 2,5
202-849-4 100-41-4 601-023-00-4	ethylbenzene F; R11 / Xn; R20	1 < 2,5
203-132-9 103-65-1 601-024-00-X	propylbenzene R10 / Xn; R65 / Xi; R37 / N; R51-53	1 < 2,5
202-704-5 98-82-8 601-024-00-X	cumene R10 / Xn; R65 / Xi; R37 / N; R51-53	1 < 2,5
212-485-8 822-06-0 615-011-00-1	hexamethylene-di-isocyanate T; R23 / Xi; R36/37/38 / R42/43	< 0,5
223-861-6 4098-71-9 615-008-00-5	3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate T; R23 / Xi; R36/37/38 / R42/43 / N; R51-53	< 0,5

Additional information

Full text of R-phrases: see section 16.

4. First-aid measures

4.1. Description of first aid measures:

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General information:

In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness give nothing by mouth, place in unconscious position and seek medical advice.

After inhalation

Move victim to fresh air. Put victim at rest and keep warm. In case of irregular breathing or respiratory arrest provide artificial respiration.

In case of skin contact:

Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water and soap. Do not use solvents or thinners.

In case of eye contact:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical advice.

After ingestion:

If swallowed, rinse mouth with water (only if the person is conscious). Consult physician immediately. Keep victim calm. Do not induce vomiting.

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

In all cases of doubt, or when symptoms persist, seek medical advice.

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

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

alcohol resistant foam, Carbon dioxide, Powder, spray mist, (water)

Extinguishing media which must not be used for safety reasons:

Strong water jet

5.2. Special exposure hazards arising from the substance or preparation itself, its combustion products or from resulting gases:

Dense black smoke occurs during fire. Inhaling hazardous decomposing products can cause serious health damage.

5.3. Special protective equipment for firefighters:

Provide a conveniently located respiratory protective device.

Additional information:

Cool closed containers that are near the source of the fire. Do not allow water used to extinguish fire to enter drains, ground or waterways. Treat runoff as hazardous.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Keep away from sources of ignition. Ventilate affected area. Do not breathe vapours. See protective measures under point 7 and 8.

6.2. Environmental measures

Do not allow to enter into surface water or drains. If the product contaminates lakes, rivers or sewages, inform competent authorities in accordance with local regulations.

6.3. Methods and material for containment and cleaning up

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see chapter 13). Use appropriate container to avoid environmental contamination. Fouled surfaces must be immediately cleaned with suitable solvents, Useable as such (flammable): water 45 vol.% ethanol or i-propanol 50 vol. % ammonia solution (density= 0.88) 5 vol.%
Alternative (non-flammable): sodium carbonate 5 vol.% water 95 vol.%.

Take up spilled residuals with the same agent and leave them for a few days in unclosed containers until there is no further reaction. Then, close the containers and dispose of them in accordance with the regulations for waste removal (refer to Chapter 13)

6.4. Reference to other sections

Observe protective provisions (see chapter 7 and 8).

7. Handling and storage

People who suffer from skins problems, asthma, allergies, chronic or recurring respiratory illnesses must not be deployed in

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processes, which use this substance.

People who spray this preparation should have regular pulmonary function tests.

7.1. Precautions for safe handling

Advices on safe handling

Avoid formation of flammable and explosive vapour concentrations in the air and exceeding the exposure limit values. Only use the material in places where open light, fire and other flammable sources can be kept away. Electrical equipment must be protected meeting the accepted standard. Product may become electrostatically charged. Provide earthing of containers, equipment, pumps and ventilation facilities. Anti-static clothing including shoes are recommended. Floors must be electrically conductive. Be careful when opening used containers (excess pressure). Precautionary measures should be taken in order to reduce strain from humidity or water: CO₂ is formed which may produce excess pressure in closed containers. Keep away from heat sources, sparks and open flames. Use only spark proof tools. Avoid contact with skin, eyes and clothes. Do not inhale dusts, particulates and spray mist when using this preparation. Avoid respiration of swarf. When using do not eat, drink or smoke. Personal protective equipment: refer to chapter 8. Do not empty containers with pressure - no pressure vessel! Always keep in containers that correspond to the material of the original container. Follow the legal protection and safety regulations.

Precautions against fire and explosion:

Vapours are heavier than air and will spread at floor level. Vapours form explosive mixtures with air.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Storage in accordance with the Ordinance on Industrial Safety and Health (BetrSiVO). Keep container tightly closed. Do not empty containers with pressure - no pressure vessel! Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks.

Hints on joint storage

Keep away from strongly acidic and alkaline materials as well as oxidizers. Keep away from amines, alcohols and water.

Further information on storage conditions

Take care of instructions on label. Store in a well-ventilated and dry room at temperatures between 5 °C and 25 °C. Protect from heat and direct sunlight. Keep container tightly closed. Remove all sources of ignition. Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks.

7.3. Specific end use(s)

Observe technical data sheet. Observe instructions for use.

Polyisocyanate are moisture-sensitive and should be stored therefore in closely packaging. With appropriate storage the storage time at least 6 months.

8. Exposure controls / Personal protection

People who suffer from skins problems, asthma, allergies, chronic or recurring respiratory illnesses must not be deployed in processes, which use this substance.

People who spray this preparation should have regular pulmonary function tests.

8.1. Control parameters

EC No: CAS No.:	Description:	type:	Limit value		unit
			STEL (EC)	TWA (EC)	
215-535-7 1330-20-7	xylene, mixture of isomers		441	220	mg/m ³
		EN	100	50	ppm
202-849-4 100-41-4	ethylbenzene		552	441	mg/m ³
		EN	125	100	ppm
203-604-4 108-67-8	mesitylene			100	mg/m ³
		EG		20	ppm
202-704-5 98-82-8	cumene		375	125	mg/m ³
		EN	50	25	ppm
204-658-1 123-86-4	n-butyl acetate		966	724	mg/m ³
		EN	200	150	ppm
203-603-9 108-65-6	2-methoxy-1-methylethyl acetate		548	274	mg/m ³
		EN	100	50	ppm
202-436-9 95-63-6	1,2,4-trimethylbenzene			100	mg/m ³
		EG		20	ppm
265-199-0 64742-95-6	Solvent naphtha (petroleum), light arom.; Low boiling point naphtha - unspecified			200	mg/m ³
		EG		50	ppm

Additional information

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) No 453/2010

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TWA (EC): Occupational exposure limit value
STEL (EC): Short term occupational exposure limit value

8.2. Exposure controls

Provide good ventilation. This can be achieved with local or room suction. When spraying, wear self-contained breathing apparatus. For other tasks a suitable respiratory system must be used, if local and room suction is not sufficient for keeping aerosol and solvent vapour concentration below the exposure limit values. (refer to Personal protective equipment.)

Occupational exposure controls:

Respiratory protection:

If concentration of solvents is beyond the occupational exposure limit values, approved and suitable respiratory protection must be used. Use only respiratory protection equipment with CE-symbol including four digit test number.

Hand protection:

For prolonged or repeated handling the following glove material must be used:

Thickness of the glove material: > 0,4 mm ; penetration time (maximum wearing period): > 480 min.

Observe the instructions and details for use, storage, maintenance and replacement provided by the protective glove manufacturer. Penetration time of glove material depending on intensity and duration of exposure to skin. Recommended glove articles: DIN EN 374

Barrier creams can help protecting exposed skin areas. In no case should they be used after contact.

Eye protection:

Wear closely fitting protective glasses in case of splashes.

Body protection:

Wear antistatic clothing of natural fibers (cotton) or heat resistant synthetic fibers.

Protective measures:

After contact clean skin thoroughly with water and soap oder use appropriate cleanser.

Environmental exposure controls

Do not allow to enter into surface water or drains. refer to chapter 7. No further action is necessary.

9. Physical and chemical properties

9.1. information on basic physical and chemical properties

Appearance:

Physical state: liquid
Colour: colorless
Odour: typical

Safety relevant basis data	unit	Method	Remark:
Flash point (°C):	24 °C	--	
Ignition temperature (AIT):	315 °C	--	
lower explosion limit:	0,6 Vol-%	--	
Upper explosion limit:	10,8 Vol-%	--	
Vapour pressure (at temperature in °C): 20	3,41 mbar		
density (at temperature in °C): 20	1,00 g/cm³	--	
Water solubility (g/l):	not soluble		
pH (at temperature in °C): 20	not applicable	--	
Viscosity: 20	12 s 4 mm	cup	
Solvent separation test (%):	< 3 %		
Solid content (%):	48 % by weight		
solvent content:			
Organic solvents::	52 % by weight		
boiling temperature / boiling range:	127 °C	--	

9.2. Other information:

10. Stability and reactivity

10.1. Reactivity

10.2. Chemical stability

Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to chapter 7.

10.3. Possibility of hazardous reactions

Keep away from strong acids, strong bases and strong oxidizing agents to avoid exothermic reactions.

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10.4. Conditions to avoid

Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to chapter 7. Hazardous decomposition byproducts may form with exposure to high temperatures.

10.5. Incompatible materials

10.6. Hazardous decomposition products

Hazardous decomposition byproducts may form with exposure to high temperatures, e.g.: carbon dioxide, carbon monoxide, smoke, nitrogen oxides.

11. Toxicological information

No data on preparation itself available.

11.1. Information on toxicological effects

Acute toxicity

Toxicological data are not available.

Irritant and corrosive effects

Toxicological data are not available.

Sensitisation

Toxicological data are not available.

Specific target organ toxicity

Toxicological data are not available.

Aspiration hazard:

Toxicological data are not available.

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Toxicological data are not available.

Practical experience

Other observations:

Inhaling of solvent components above the MWC-value can lead to health damage, e.g. irritation of the mucous membrane and respiratory organs, as well as damage to the liver, kidneys and the central nerve system. Indications for this are: headache, dizziness, fatigue, amyosthenia, dizziness, in serious cases: unconsciousness. Solvents may cause some of the aforementioned effects through skin resorption. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis and/or absorption through skin. Splashing may cause eye irritation and reversible damage. Because of the isocyanate components' properties of this and with consideration of similar preparations the following applies: Preparation may cause acute irritation and/or sensitization of airways which lead to tightness in thorax, short-breath and asthmatic complaints. After sensitization even concentrations below the exposure limit values may cause asthma. Repeated inhaling can lead to permanent illness of the respiratory tract. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis and/or absorption through skin.

Overall Assessment on CMR properties:

The components in this formulation do not meet the criteria for classification as CMR category 1 or 2.

There is no information available on the preparation itself. The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and classified according to the toxicological dangers. See chapters 2 and 15 for details.

12. Ecological information

Overall evaluation:

There is no information available on the preparation itself.
Do not allow to enter into surface water or drains.

12.1. Toxicity

No information available.

Long Term Ecotoxicity

Toxicological data are not available.

12.2. Persistence and degradability

Toxicological data are not available.

12.3. Bioaccumulative potential

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according to Regulation (EC) No. 1907/2006 (REACH)
according to Regulation (EU) No 453/2010

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Toxicological data are not available.

Bioconcentration factor (BCF):

Toxicological data are not available.

12.4. Mobility in soil

Toxicological data are not available.

12.5. Results of PBT and vPvB assessment

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

12.6. Other adverse effects

The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and is classified for eco-toxicological properties accordingly. See Sections 2 and 15 for details.

13. Disposal considerations

13.1. Waste treatment methods

Appropriate disposal / Product Recommendation:

Do not allow to enter into surface water or drains. Handle contaminated packaging in the same way as the substance itself. This material and its container must be disposed of in a safe way. Waste disposal according to EC directives 75/442/EEC and 91/689/EEC in the corresponding versions, covering waste and dangerous waste.

Control report for waste code/ waste marking according to EAKV:

080111 waste paint and varnish containing organic solvents or other dangerous substances

Contaminated packaging:

Recommendation:

Cleaned containers may be recycled. Vessels not properly emptied are special waste.

14. Transport information

14.1. UN-No.:

1866

14.2. UN proper shipping name

Land transport (ADR/RID): Resin solution
Sea transport (IMDG): RESIN SOLUTION
Air transport (ICAO-TI / IATA-DGR): Resin solution

14.3. Transport hazard class(es)

3

14.4. Packing Group:

III

14.5. Environmental hazards:

Land transport (ADR/RID) not applicable
Marine pollutant: not applicable

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

Transport always in closed, upright and safe containers. Make sure that persons transporting the product know what to do in case of an accident or leakage.

Advices on safe handling: see parts 6 - 8

Further remarks:

Land transport (ADR/RID)

Tunnel restriction code: D/E

Sea transport (IMDG)

EmS-No.: F-E, S-E

14.7.

not applicable

15. Regulatory information

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

EU legislation

Information according to 1999/13/EC about limitation of emissions of volatile organic compounds (VOC-guideline).

VOC-value (in g/l) ASTM D 2369: 516

National regulations

Informations on working limitations:

Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).

15.2. Chemical Safety Assessment

Chemical safety assessments for substances in this preparation were not carried out.

16. Other information

Wording of the r-phrases under paragraph 3:

R10		Flammable.
Xn; R20/21	Harmful	Harmful by inhalation and in contact with skin.
Xi; R38	Irritant	Irritating to skin.
F; R11	Highly flammable	Highly flammable
Xn; R20	Harmful	Harmful by inhalation.
Xn; R65	Harmful	Harmful: may cause lung damage if swallowed.
Xi; R37	Irritant	Irritating to respiratory system.
N; R51-53	Dangerous for the environment	Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.
T; R23	Toxic	Toxic by inhalation.
Xi; R36/37/38	Irritant	Irritating to eyes, respiratory system and skin.
R42/43		May cause sensitization by inhalation and skin contact.
R66		Repeated exposure may cause skin dryness or cracking.
R67		Vapours may cause drowsiness and dizziness.
R43		May cause sensitization by skin contact.

Further remarks:

The information supplied on this safety data sheet complies with our current level of knowledge as well as with national and EU regulations. Without written approval, the product must not be used for purposes different from those mentioned in chapter 1. It is always the user's duty to take any necessary measures for meeting the requirements laid down by local rules and regulations. The details in this safety data sheet describe the safety requirements of our product and are not to be regarded as guaranteed attributes of the product.