

Safety Data Sheet

according to UK REACH Regulation

Hardener EPH 161

Revision date: 25.03.2022

Product code: 112125

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Hardener EPH 161

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

epoxy resin hardener

Uses advised against

No further relevant information available.

1.3. Details of the supplier of the safety data sheet

Company name: R&G Faserverbundwerkstoffe GmbH

Street: Im Meißel 7 - 13

Place: D-71111 Waldenbuch

Post-office box: 1145

D-71107 Waldenbuch

Telephone: +49-7157-530460

Telefax: +49-7157-530470

e-mail: info@r-g.de

Contact person: Michael Groß

e-mail: info@r-g.de

Internet: www.r-g.de

Responsible Department: Management

1.4. Emergency telephone number: Vergiftungs-Informations-Zentrale Freiburg

Tel: +49 (0)761 19240

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****GB CLP Regulation**

Hazard categories:

Acute toxicity: Acute Tox. 4

Acute toxicity: Acute Tox. 4

Skin corrosion/irritation: Skin Corr. 1B

Serious eye damage/eye irritation: Eye Dam. 1

Respiratory or skin sensitisation: Skin Sens. 1

Hazardous to the aquatic environment: Aquatic Chronic 3

Hazard Statements:

Harmful if swallowed.

Harmful in contact with skin.

Causes severe skin burns and eye damage.

Causes serious eye damage.

May cause an allergic skin reaction.

Harmful to aquatic life with long lasting effects.

2.2. Label elements**GB CLP Regulation****Hazard components for labelling**

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl group

3,6-diazaoctanethylenediamin; triethylenetetramine

Signal word: Danger**Pictograms:****Hazard statements**

H302+H312 Harmful if swallowed or in contact with skin.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H317 May cause an allergic skin reaction.

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or

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P305+P351+P338 shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

P405 Store locked up.

P501 Dispose of waste according to applicable legislation.

2.3. Other hazards

Results of PBT and vPvB assessment: not applicable

SECTION 3: Composition/information on ingredients**3.2. Mixtures****Chemical characterization**

Hardener

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine			50 - 100 %
	220-666-8	612-067-00-9	01-2119514687-32	
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1, Aquatic Chronic 3; H312 H302 H314 H318 H317 H412			
9046-10-0	Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl group			10 - 25 %
	618-561-0			
	Skin Corr. 1B, Eye Dam. 1, Aquatic Chronic 2; H314 H318 H411			
112-24-3	3,6-diazaoctane-1,8-diamine			2,5-10%
	203-950-6	612-059-00-5	01-2119487919-13	
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H312 H302 H314 H317 H412			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
2855-13-2	220-666-8	3-aminomethyl-3,5,5-trimethylcyclohexylamine	50 - 100 %
	dermal: LD50 = 1840 mg/kg; oral: LD50 = 1030 mg/kg		
9046-10-0	618-561-0	Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl group	10 - 25 %
	dermal: LD50 = 2980 mg/kg; oral: LD50 = 2885 mg/kg		
112-24-3	203-950-6	3,6-diazaoctane-1,8-diamine	2,5-10% %
	dermal: LD50 = 1465 mg/kg; oral: LD50 = 1716 mg/kg		

SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

Take off immediately all contaminated clothing.

After inhalation

Remove casualty to fresh air and keep warm and at rest. When in doubt or if symptoms are observed, get medical advice.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap. In case of skin irritation, consult a physician.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

After ingestion

Let water be drunken in little sips (dilution effect). Provide fresh air. Call a physician immediately.

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

No further relevant information available.

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

No further relevant information available.

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SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media**Carbon dioxide (CO₂), Extinguishing powder, Water spray jet.

In case of major fire and large quantities: Water spray jet, alcohol resistant foam

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

In case of fire may be liberated: Gases/vapours, toxic

5.3. Advice for firefighters

Use suitable breathing apparatus.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water. Dispose of waste according to applicable legislation.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Provide adequate ventilation. Use personal protection equipment. Evacuate area.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Collect and dispose of contaminated water.

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal. Provide adequate ventilation. Clean contaminated articles and floor according to the environmental legislation.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

The usual precautions when handling chemicals must be observed. Keep receptacles tightly sealed.

Advice on protection against fire and explosion

No special fire protection measures are necessary.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Keep container tightly closed. Store in a dry place. Keep/Store only in original container. Provide for retaining containers, e.g. floor pan without outflow.

Hints on joint storage

Do not store together with: Food and feedingstuffs

Further information on storage conditions

Protect against: Frost/Protect against the effects of heat and direct sunlight.

7.3. Specific end use(s)

No further relevant information available.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****DNEL/DMEL values**

CAS No	Substance	Exposure route	Effect	Value
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine			
Worker DNEL,		inhalation		20,1 mg/m ³
112-24-3	3,6-diazaoctane-1,8-diamine			
Worker DNEL,		dermal	systemic	5380 mg/kg bw/day
Worker DNEL,		inhalation	systemic	1 mg/m ³

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PNEC values

CAS No	Substance	Value
Environmental compartment		
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine	
Freshwater		0,06 mg/l
Marine water		0,006 mg/l
9046-10-0	Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl group	
Freshwater		0,015 mg/l
Marine water		0,0142 mg/l
112-24-3	3,6-diazaoctane-1,8-diamine	
Freshwater		0,135 mg/l
Marine water		0,0027 mg/l

8.2. Exposure controls**Appropriate engineering controls**

Provide adequate ventilation as well as local exhaust at critical locations.

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Protect skin by using skin protective cream. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink. Keep away from food, drink and animal feedingstuffs. Avoid contact with skin, eyes and clothes.

Eye/face protection

Tightly sealed safety glasses.

Hand protection

Wear protective gloves.

Suitable material: NBR (Nitrile rubber), FKM (fluoro rubber)

Thickness of the glove material \geq 0,5 mm

Unsuitable material: Leather articles

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. (Category III) The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Check leak tightness/impermeability prior to use. Breakthrough times and swelling properties of the material must be taken into consideration.

Penetration time of the glove material The exact penetration time must be obtained from the protective glove manufacturer and must be observed.

Value for permeation: Level = 6

Skin protection

Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

short-term:

Filtering device (full mask or mouthpiece) with filter: A-P2

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state:	Liquid
Colour:	yellow
Odour:	like: Amines
Odour threshold:	not determined

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pH-Value: not applicable

Changes in the physical state

Melting point/freezing point: not determined

Boiling point or initial boiling point and boiling range: > 200 °C

Flash point: > 100 °C

Flammability

Solid: not applicable

Gas: not applicable

Explosive properties

The product is not: Explosive.

Lower explosion limits: not determined

Upper explosion limits: not determined

Auto-ignition temperature: not determined

Self-ignition temperature

Solid: The product is not: Spontaneously flammable.

Gas: The product is not: Spontaneously flammable.

Decomposition temperature: not determined

Oxidizing properties

Not oxidising.

Vapour pressure: not determined

Density (at 23 °C): not determined

Water solubility: Immiscible

Solubility in other solvents

not determined

Partition coefficient n-octanol/water: not determined

Viscosity / dynamic:
(at 25 °C) not determined

Viscosity / kinematic: not determined

Relative vapour density: not determined

Evaporation rate: not determined

9.2. Other information

No information available.

SECTION 10: Stability and reactivity**10.1. Reactivity**

No information available.

10.2. Chemical stability

Thermal decomposition: none

10.3. Possibility of hazardous reactions

No known hazardous reactions.

10.4. Conditions to avoid

No further relevant information available.

10.5. Incompatible materials

Oxidising agent, strong

10.6. Hazardous decomposition products

In case of fire may be liberated: Gases/vapours, toxic, Gases/vapours, corrosive

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Acute toxicity**

Harmful if swallowed.

Harmful in contact with skin.

ATEmix calculated

ATE (oral) 1204,6 mg/kg; ATE (dermal) 1998,7 mg/kg

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine				
	oral	LD50 mg/kg	1030	Rat	Manufacturer
	dermal	LD50 mg/kg	1840	Rabbit	Manufacturer
9046-10-0	Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl group				
	oral	LD50 mg/kg	2885	Rat	Manufacturer
	dermal	LD50 mg/kg	2980	Rabbit	Manufacturer
112-24-3	3,6-diazaoctane-1,8-diamine				
	oral	LD50 mg/kg	1716	rat	
	dermal	LD50 mg/kg	1465	rat	

Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

Sensitising effects

May cause an allergic skin reaction. (3-aminomethyl-3,5,5-trimethylcyclohexylamine; 3,6-diazaoctane-1,8-diamine)

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

SECTION 12: Ecological information**12.1. Toxicity**

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

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine					
	Acute fish toxicity	LC50	110 mg/l	96 h	Leuciscus idus (golden orfe)	Manufacturer EG 88/449
	Acute algae toxicity	ErC50	> 50 mg/l	72 h	Scenedesmus subspicatus	Manufacturer EG 88/302
	Acute crustacea toxicity	EC50	23 mg/l	48 h	Daphnia magna (Big water flea)	Manufacturer OECD 202
9046-10-0	Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl group					
	Acute fish toxicity	LC50	>15 mg/l	96 h	Oncorhynchus mykiss	
	Acute algae toxicity	ErC50	15 mg/l	72 h	Pseudokirchneriella subcapitata	
	Acute crustacea toxicity	EC50	80 mg/l	48 h	Daphnia magna (Big water flea)	
112-24-3	3,6-diazaoctane-1,8-diamine					
	Acute fish toxicity	LC50	330 mg/l	96 h	Pimephales promelas (fathead minnow)	
	Acute algae toxicity	ErC50	20 mg/l	72 h	Selenastrum capricornutum (Grünalge)	
	Acute crustacea toxicity	EC50	31 mg/l	48 h	Daphnia magna	
	Acute bacteria toxicity	(137 mg/l)			Pseudomonas putida	

12.2. Persistence and degradability

No information available.

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12.3. Bioaccumulative potential

No information available.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

not applicable

12.6. Other adverse effects

No information available.

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Undiluted or nonneutralised product may not enter waste water channel or main outfall.

hazardous to water (WGK 2)

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

Product can be disposed of with household waste after curing.

Liquid: Send to a hazardous waste incinerator facility under observation of official regulations.

List of Wastes Code - residues/unused products

080299 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes from MFSU of other coatings (including ceramic materials); wastes not otherwise specified

List of Wastes Code - used product

080299 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes from MFSU of other coatings (including ceramic materials); wastes not otherwise specified

Contaminated packaging

Dispose of waste according to applicable legislation.

SECTION 14: Transport information**Land transport (ADR/RID)****14.1. UN number:**

UN 2735

14.2. UN proper shipping name:

AMINE, FLÜSSIG, ÄTZEND, N.A.G.
(3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMIN; ISOPHORONDIAMIN;
REAKTIONSPRODUKT VON PROPAN-1,2-DIOL, PROPOXYLIERT DURCH
AMINIERUNG DER TERMINALEN HYDROXYLGRUPPE)

14.3. Transport hazard class(es):

8

14.4. Packing group:

III

Hazard label:

8



Classification code:

C7

Limited quantity:

5 L

Excepted quantity:

E1

Transport category:

2

Hazard No:

80

Tunnel restriction code:

E

Other applicable information (land transport)

Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

Inland waterways transport (ADN)**14.1. UN number:**

UN 2735

14.2. UN proper shipping name:

AMINE, FLÜSSIG, ÄTZEND, N.A.G.
(3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMIN; ISOPHORONDIAMIN;
REAKTIONSPRODUKT VON PROPAN-1,2-DIOL, PROPOXYLIERT DURCH
AMINIERUNG DER TERMINALEN HYDROXYLGRUPPE)

14.3. Transport hazard class(es):

8

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14.4. Packing group:

Hazard label:

III

8



Classification code:

C7

Limited quantity:

5 L

Excepted quantity:

E1

Marine transport (IMDG)**14.1. UN number:**

UN 2735

14.2. UN proper shipping name:

AMINES, LIQUID, CORROSIVE, N.O.S.
 (3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE;
 ISOPHORONEDIAMINE; REACTION PRODUCT OF PROPANE-1,2-DIOL,
 PROPOXYLATED BY AMINATION OF THE TERMINAL HYDROXYL GROUP)

14.3. Transport hazard class(es):

8

14.4. Packing group:

III

Hazard label:

8



Marine pollutant:

-

Limited quantity:

5 L

Excepted quantity:

E1

EmS:

F-A, S-B

Segregation group:

18 - alkalis

Air transport (ICAO-TI/IATA-DGR)**14.1. UN number:**

UN 2735

14.2. UN proper shipping name:

AMINES, LIQUID, CORROSIVE, N.O.S.
 (3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE;
 ISOPHORONEDIAMINE; REACTION PRODUCT OF PROPANE-1,2-DIOL,
 PROPOXYLATED BY AMINATION OF THE TERMINAL HYDROXYL GROUP)

14.3. Transport hazard class(es):

8

14.4. Packing group:

III

Hazard label:

8



Limited quantity Passenger:

5 L

Excepted quantity:

E1

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:

No

14.6. Special precautions for user

Warning: Substances, corrosive

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

not applicable

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 3

Information according to 2012/18/EU
(SEVESO III):

Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Employment restrictions:

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

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Water hazard class (D): 2 - obviously hazardous to water

15.2. Chemical safety assessment

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

SECTION 16: Other information**Abbreviations and acronyms**

CLP: Classification, labelling and Packaging
 REACH: Registration, Evaluation and Authorization of Chemicals
 GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
 UN: United Nations
 CAS: Chemical Abstracts Service
 DNEL: Derived No Effect Level
 DMEL: Derived Minimal Effect Level
 PNEC: Predicted No Effect Concentration
 ATE: Acute toxicity estimate
 LC50: Lethal concentration, 50%
 LD50: Lethal dose, 50%
 LL50: Lethal loading, 50%
 EL50: Effect loading, 50%
 EC50: Effective Concentration 50%
 ErC50: Effective Concentration 50%, growth rate
 NOEC: No Observed Effect Concentration
 BCF: Bio-concentration factor
 PBT: persistent, bioaccumulative, toxic
 vPvB: very persistent, very bioaccumulative
 ADR: Accord européen sur le transport des marchandises dangereuses par Route
 (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 RID: Regulations concerning the international carriage of dangerous goods by rail
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
 IMDG: International Maritime Code for Dangerous Goods
 EmS: Emergency Schedules
 MFAG: Medical First Aid Guide
 IATA: International Air Transport Association
 ICAO: International Civil Aviation Organization
 MARPOL: International Convention for the Prevention of Marine Pollution from Ships
 IBC: Intermediate Bulk Container
 VOC: Volatile Organic Compounds
 SVHC: Substance of Very High Concern
 For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H302+H312	Harmful if swallowed or in contact with skin.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)