

Safety Data Sheet

according to UK REACH Regulation

Hardener LT (formerly R&G EPH 161)

Revision date: 19.12.2023 Product code: 112125 Page 1 of 13

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

1.1. Product identifier

Hardener LT (formerly R&G EPH 161)

UFI: GFH0-QA9N-900W-69C2

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 Vergiftungs-Informations-Zentrale Freiburg

number: Tel: +49 (0)761 19240

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GB CLP Regulation

Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Chronic 3; H412

Full text of hazard statements: see SECTION 16.

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.



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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 shower.

P305+P351+P338 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					
	EC No	Index No	RE	ACH No		
	Classification (GB CLP Regula					
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine					
	220-666-8	612-067-00-9	01-	2119514687-32		
	Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1A; H302 H314 H318 H317					
9046-10-0	Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl group					
	618-561-0					
	Skin Corr. 1B, Eye Dam. 1, Aq					
112-24-3	3,6-diazaoctane-1,8-diamine					
	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. I	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: ATE 1030 mg/kg Skin Sens. 1A; H317: >= 0,001 - 100	
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



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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.

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

General advice

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

For non-emergency personnel

No information available.

For emergency responders

No information available.

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

For containment

No information available.



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For cleaning up

No information available.

Other information

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.

Advice on general occupational hygiene

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.

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: FrostProtect 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			
DNEL type		Exposure route	Effect	Value
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine			
Worker DNEL,		inhalation		20,1 mg/m³
112-24-3	3,6-diazaoctane-1,8-diamine			
Worker DNEL,		dermal	systemic	5380 mg/kg bw/day
Worker DNEL,		inhalation	systemic	1 mg/m³



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PNEC values

CAS No	Substance					
Environment	Value					
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 exhaustion at critical locations.

Individual protection measures, such as personal protective equipment

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 >= 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



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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

Melting point/freezing point:

Boiling point or initial boiling point and

> 200 °C

boiling range:

Flammability: not applicable

not applicable

Lower explosion limits: not determined Upper explosion limits: not determined Flash point: > 100 °C Auto-ignition temperature: not determined Decomposition temperature: not determined pH-Value: not applicable Viscosity / kinematic: not determined Water solubility: **Immiscible**

Solubility in other solvents

not determined

Partition coefficient n-octanol/water:

Vapour pressure:

Density (at 23 °C):

Relative vapour density:

not determined

not determined

not determined

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

The product is not: Explosive.

Self-ignition temperature

Solid: The product is not: Spontaneously

flammable.

Gas: The product is not: Spontaneously

flammable.

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Oxidizing properties Not oxidising.

Other safety characteristics

Evaporation rate: not determined Viscosity / dynamic: not determined

(at 25 °C)

Further 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



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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 hazard classes as defined in GB CLP Regulation

Acute toxicity

Harmful if swallowed.

Harmful in contact with skin.

ATEmix calculated

ATE (oral) 1205 mg/kg; ATE (dermal) 1999 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name							
	Exposure route	Dose		Species	Source	Method		
2855-13-2	3-aminomethyl-3,5,5-trin	hyl-3,5,5-trimethylcyclohexylamine						
	oral	ATE 1030	mg/kg					
	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.

11.2. Information on other hazards



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Endocrine disrupting properties

No information available.

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 mg/l	> 50	72 h	Scenedesmus subspicatus	Manufacturer	EG 88/302	
	Acute crustacea toxicity	EC50	23 mg/l		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	(EC50 mg/l)	137		Pseudomonas putida			

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

No information available.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH. not applicable

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

No information available.

12.7. 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)



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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 or ID 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):

14.4. Packing group:
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 or ID 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)

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14.3. Transport hazard class(es):814.4. Packing group:IIIHazard label:8



Classification code: C7
Limited quantity: 5 L
Excepted quantity: E1

Marine transport (IMDG)

14.1. UN number or ID 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):814.4. Packing group:IIIHazard label:8



Marine pollutant:

Limited quantity:

Excepted quantity:

EmS:

F-A, S-B

Segregation group:

18 - alkalis

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID 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):814.4. Packing group:IIIHazard label:8



Limited quantity Passenger: 5 L Excepted quantity: 5 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Warning: Substances, corrosive

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information



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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, Entry 75

2004/42/EC (VOC): 0.0 %

Information according 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).

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

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



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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

Acute Tox: Acute toxicity Skin Corr: Skin corrosion Eye Dam: Eye damage Skin Sens: Skin sensitisation

Aquatic Chronic: Chronic aquatic hazard

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.

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.



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