

**Safety Data Sheet**

according to UK REACH Regulation

**Hardener GL 2**

Revision date: 23.07.2022

Product code: 104100

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

Hardener GL 2

**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 information available.

**1.3. Details of the supplier of the safety data sheet**

Company name: R&amp;G Faserverbundwerkstoffe GmbH

Composite Technology

Street: Im Meißel 7 - 13

Place: D-71111 Waldenbuch

Post-office box: 1145

D-71107 Waldenbuch

Telephone: +49 (0)7157 5304-60

Telefax: +49 (0)7157 5304-70

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:

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 2

Hazard Statements:

Causes severe skin burns and eye damage.

Causes serious eye damage.

May cause an allergic skin reaction.

Toxic to aquatic life with long lasting effects.

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

3-aminomethyl-3,5,5-trimethylcyclohexylamine

Polyoxypropylenediamine

Signal word: Danger

Pictograms:

**Hazard statements**

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H411 Toxic 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

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**SECTION 3: Composition/information on ingredients****3.2. Mixtures****Hazardous components**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
9046-10-0	Polyoxypropylenediamine			50 - 100 %
	618-561-0		01-2119557899-12	
	Skin Corr. 1C, Eye Dam. 1, Aquatic Chronic 3; H314 H318 H412			
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine			25-50%
	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			

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		
9046-10-0	618-561-0	Polyoxypropylenediamine	50 - 100 %
	dermal: LD50 = 2980 mg/kg; oral: LD50 = 2885 mg/kg		
2855-13-2	220-666-8	3-aminomethyl-3,5,5-trimethylcyclohexylamine	25-50% %
	dermal: LD50 = 1840 mg/kg; oral: LD50 = 1030 mg/kg		

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

Immediately remove any clothing contaminated with product.

**After inhalation**

Provide fresh air. When in doubt or if symptoms are observed, get medical advice.

**After contact with skin**

Wash with plenty of water/soap. If skin irritation occurs: Get medical advice/attention.

**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**

Rinse mouth immediately and drink plenty of water. Provide fresh air. Immediately call a doctor.

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

No information available.

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

Treat symptomatically.

**SECTION 5: Firefighting measures****5.1. Extinguishing media****Suitable extinguishing media**Carbon dioxide (CO<sub>2</sub>), Extinguishing powder. Water spray. 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, Gases/vapours, corrosive.

**5.3. Advice for firefighters**

Wear a self-contained breathing apparatus and chemical protective clothing.

**Additional information**

In case of fire and/or explosion do not breathe fumes. Suppress gases/vapours/mists with water spray jet. 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**

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**6.1. Personal precautions, protective equipment and emergency procedures**

Use personal protection equipment.

**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.

**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**

Provide adequate ventilation. Avoid contact with skin, eyes and clothes. Do not breathe gas/fumes/vapour/spray. Use personal protection equipment.

**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. Keep/Store only in original container.

**Hints on joint storage**

Do not store together with:

Oxidising agent

Food and feedingstuffs

**7.3. Specific end use(s)**

No 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		0,073 mg/m <sup>3</sup>

**PNEC values**

CAS No	Substance	Environmental compartment	Value
9046-10-0	Polyoxypropylenediamine	Freshwater	0,015 mg/l
		Marine water	0,0142 mg/l
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine	Freshwater	0,06 mg/l
		Marine water	0,006 mg/l

**8.2. Exposure controls****Appropriate engineering controls**

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

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**Protective and hygiene measures**

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. When using do not eat, drink or smoke. When using do not eat or drink. Avoid contact with eyes and skin. Do not breathe gas/fumes/vapour/spray. Keep away from food, drink and animal feedingstuffs.

**Eye/face protection**

Tightly sealed safety glasses.

**Hand protection**

Wear suitable gloves.

Suitable material:

NBR (Nitrile rubber), FKM (fluoro rubber)

Thickness of the glove material  $\geq 0,5$  mm

Unsuitable material: Thick fabric., Leather articles

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. 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.

Protect skin by using skin protective cream.

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.

**Skin protection**

Wear suitable protective clothing.

**Respiratory protection**

In case of inadequate ventilation wear respiratory protection. Combination filtering device A-P2

**Environmental exposure controls**

Avoid release to the environment.

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

Physical state:	Liquid
Colour:	slightly yellow
Odour:	like: Amines

**Test method**

pH-Value:	not determined
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**Changes in the physical state**

Melting point/freezing point:	not determined
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Boiling point or initial boiling point and boiling range:	247 °C
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Flash point:	> 100 °C
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Flash point:	> 100 °C
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**Flammability**

Solid:	not applicable
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Gas:	not applicable
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**Explosive properties**

not explosive.

Lower explosion limits:	0,7 vol. %
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Upper explosion limits:	5,0 vol. %
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Auto-ignition temperature:	240 °C
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**Self-ignition temperature**

Solid:	not applicable
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Gas:	not applicable
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Decomposition temperature:	not determined
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**Oxidizing properties**

Not oxidising.

Vapour pressure:	0 hPa
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(at 20 °C)

Density (at 23 °C):	0,94 g/cm <sup>3</sup> ISO 2811-2
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Water solubility:	Immiscible
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**Solubility in other solvents**

not determined	
Partition coefficient n-octanol/water:	not determined
Viscosity / dynamic: (at 25 °C)	16 mPa·s ISO 3219
Viscosity / kinematic:	not determined
Relative vapour density:	not determined
Evaporation rate:	not determined

**9.2. Other information**

Odour threshold: not determined

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

No information available.

**10.2. Chemical stability**

The product is stable under storage at normal ambient temperatures.

**10.3. Possibility of hazardous reactions**

No known hazardous reactions.

**10.4. Conditions to avoid**

No information available.

**10.5. Incompatible materials**

Oxidizing agents, 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**

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

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
9046-10-0	Polyoxypropylenediamine				
	oral	LD50 mg/kg	2885	Rat	Manufacturer
	dermal	LD50 mg/kg	2980	Rabbit	Manufacturer
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine				
	oral	LD50 mg/kg	1030	Rat	Manufacturer
	dermal	LD50 mg/kg	1840	Rabbit	Manufacturer

**Irritation and corrosivity**

Causes severe skin burns and eye damage.

Causes serious eye damage.

When swallowed strong caustic effect on oral cavity and throat and risk of oesophagus and stomach perforation.

**Sensitising effects**

May cause an allergic skin reaction. (3-aminomethyl-3,5,5-trimethylcyclohexylamine)

**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.

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
9046-10-0	Polyoxypropylenediamine					
	Acute fish toxicity	LC50 > 15 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)	Manufacturer	
	Acute algae toxicity	ErC50 15 mg/l	72 h	Pseudokirchneriella subcapitata	Manufacturer	
	Acute crustacea toxicity	EC50 80 mg/l	48 h	Daphnia magna (Big water flea)	Manufacturer	
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine					
	Acute fish toxicity	LC50 110 mg/l	96 h	Leuciscus idus (golden orfe)	Manufacturer	
	Acute algae toxicity	ErC50 > 50 mg/l	72 h	Scenedesmus subspicatus	Manufacturer	
	Acute crustacea toxicity	EC50 23 mg/l	48 h	Daphnia magna	Manufacturer	

**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**

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.

**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.

**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

**Contaminated packaging**

This material and its container must be disposed of as hazardous waste. Handle contaminated packages in the same way as the substance itself.

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

UN 2735

**14.2. UN proper shipping name:**AMINES, LIQUID, CORROSIVE, N.O.S.  
(3-aminomethyl-3,5,5-trimethylcyclohexylamine, Polyoxypropylenediamine)**14.3. Transport hazard class(es):**

8

**14.4. Packing group:**

III

Hazard label:

8



Classification code:

C7

Limited quantity:

5 L

Excepted quantity:

E2

Transport category:

3

Hazard No:

80

Tunnel restriction code:

E

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**Inland waterways transport (ADN)**

**14.1. UN number:** UN 2735  
**14.2. UN proper shipping name:** AMINES, LIQUID, CORROSIVE, N.O.S.  
 (3-aminomethyl-3,5,5-trimethylcyclohexylamine, Polyoxypropylenediamine)  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** III  
 Hazard label: 8



Classification code: C7  
 Limited quantity: 5 L  
 Excepted quantity: E2

**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, Polyoxypropylenediamine)  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** III  
 Hazard label: 8



Marine pollutant: Ja  
 Limited quantity: 5 L  
 Excepted quantity: E2  
 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, Polyoxypropylenediamine)  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** III  
 Hazard label: 8

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: Yes



Danger releasing substance: Polyoxypropylenediamine

**14.6. Special precautions for user**

No information available.

**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

2010/75/EU (VOC): 0,00  
 2004/42/EC (VOC): 0,00

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

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

**National regulatory information**

Water hazard class (D):

1 - slightly hazardous to water

**Additional information**

BG bulletin: BGR 227, BGR 190, BGR 192

**15.2. Chemical safety assessment**

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

**SECTION 16: Other information****Changes**

This data sheet contains changes from the previous version in section(s): 2.

**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

MARPOL: International Convention for the Prevention of Marine Pollution from Ships

IBC: Intermediate Bulk Container

SVHC: Substance of Very High Concern

For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

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

**Relevant H and EUH statements (number and full text)**

H302	Harmful if swallowed.
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.)*