Safety Data Sheet

according to UK REACH Regulation

Hardener GL 1 (30 min.)

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

1.1. Product identifier

Hardener GL 1 (30 min.)

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 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:
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
Reproductive toxicity: Repr. 2
Hazardous to the aquatic environment: Aquatic Chronic 3
Hazard Statements:
Harmful if swallowed.
Causes severe skin burns and eye damage.
Causes serious eye damage.
May cause an allergic skin reaction.
Suspected of damaging the unborn child.
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
1,3-Benzoldimethanamine
2,2,4-trimethylhexane-1,6-diamine

Signal word: Danger

Pictograms:

Hazard statements

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H317	May cause an allergic skin reaction.
H361d	Suspected of damaging the unborn child.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

P405	Store locked up.
P310	Immediately call a POISON CENTER/doctor.

P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
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			
61788-44-1	Phenol, styrenated			10-25%
	262-975-0		01-2119979575-18	
	Skin Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H317 H411			
1477-55-0	1,3-Benzoldimethanamine			10-25%
	216-032-5		01-2119480150-50	
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H332 H302 H314 H317 H412 EUH071			
9046-10-0	Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl group			2,5-10%
	618-561-0			
	Skin Corr. 1B, Eye Dam. 1, Aquatic Chronic 3; H314 H318 H412			
25513-64-8	2,2,4-trimethylhexane-1,6-diamine			2,5-10%
	247-063-2		01-2119560598-25	
	Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H302 H314 H317 H412			
69-72-7	salicylic acid			2,5-10%
	200-712-3		01-2119486984-17	
	Acute Tox. 4, Eye Dam. 1; H302 H318			

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	25-50% %
	dermal: LD50 = 1840 mg/kg; oral: LD50 = 1030 mg/kg		
61788-44-1	262-975-0	Phenol, styrenated	10-25% %
	dermal: LD50 = >2000 mg/kg; oral: LD50 = >2000 mg/kg		
1477-55-0	216-032-5	1,3-Benzoldimethanamine	10-25% %
	inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); dermal: LD50 = 3100 mg/kg; oral: LD50 = 930 mg/kg		
9046-10-0	618-561-0	Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl group	2,5-10% %
	dermal: LD50 = 2980 mg/kg; oral: LD50 = 2885 mg/kg		
25513-64-8	247-063-2	2,2,4-trimethylhexane-1,6-diamine	2,5-10% %
	oral: LD50 = 910 mg/kg		
69-72-7	200-712-3	salicylic acid	2,5-10% %
	dermal: LD50 = > 2000 mg/kg; oral: LD50 = 891 mg/kg		

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated clothing immediately.

After inhalation

consult a doctor.

After contact with skin

Immediately with water and soap and rinse thoroughly. Consult a doctor if skin irritation persists.

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

Drink plenty of water and fresh air. Call a doctor 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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2),Extinguishing powder, Water spray jet.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

When heating up or in the fire case formation of poisonous gasses.

5.3. Advice for firefighters

Wear breathing apparatus with own air supply.

Additional information

Fire residues and contaminated extinguishing water must be disposed of in accordance with official regulations.
Contaminated extinguishing water must be collected separately and must not be allowed to enter the sewage system.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protection equipment.

6.2. Environmental precautions

Do not discharge into drains, surface or groundwater.
Do not allow to enter subsoil/soil/subsoil.

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

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Provide adequate room ventilation, if necessary with vapour extraction at the workplace.

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/Store only in original container. Provide for retaining containers, eg. floor pan without outflow.

Hints on joint storage

Store separately from foodstuffs.

Further information on storage conditions

Keep receptacles tightly sealed.

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		0,073 mg/m³
,				
61788-44-1	Phenol, styrenated			
Worker DNEL,		dermal		2,1 mg/kg bw/day
1477-55-0	1,3-Benzoldimethanamine			
Worker DNEL,		inhalation		20,1 mg/m³
69-72-7	salicylic acid			
Worker DNEL,		dermal		2 mg/kg bw/day

PNEC values

CAS No	Substance	
Environmental compartment		Value
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine	
Freshwater		0,06 mg/l
Marine water		0,006 mg/l
61788-44-1	Phenol, styrenated	
Freshwater		0,03 mg/l
Marine water		0,003 mg/l
1477-55-0	1,3-Benzoldimethanamine	
Freshwater		0,094 mg/l
Marine water		0,0094 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
25513-64-8	2,2,4-trimethylhexane-1,6-diamine	
Freshwater		0,0295 mg/l
Marine water		0,00295 mg/l
69-72-7	salicylic acid	
Freshwater		0,2 mg/l
Marine water		0,02 mg/l

8.2. Exposure controls

Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Eye/face protection

Suitable eye protection: goggles.

Hand protection

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. 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. Recommended material: FKM (fluoro rubber), NBR (Nitrile rubber).

Thickness of glove material: > 0,5mm

Gloves made of the following materials are not suitable: Gloves made of leather. Gloves made of thick fabric.

Skin protection

Wear suitable protective clothing.

Respiratory protection

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid		
Colour:	light yellow		
Odour:	like: Amines		
			Test method
pH-Value:		not determined	
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	
Lower explosion limits:		1,2 vol. %	
Upper explosion limits:			
Auto-ignition temperature:		365 °C	
Self-ignition temperature			
Solid:		not applicable	
Gas:		not applicable	
Decomposition temperature:		not determined	
Oxidizing properties			
Not oxidising.			
Density (at 23 °C):		1 g/cm³	ISO 2811
Solubility in other solvents			
not determined			
Partition coefficient n-octanol/water:		not determined	
Viscosity / dynamic: (at 25 °C)		100 mPa·s	ISO 3219
Relative vapour density:		not determined	
Evaporation rate:		not determined	

9.2. Other information

Solid content: not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures. no decomposition when stored and handled properly

10.3. Possibility of hazardous reactions

No known hazardous reactions.

10.4. Conditions to avoid

No further relevant information available.

10.5. Incompatible materials

Oxidizing agents, strong.

10.6. Hazardous decomposition products

In case of fire may be liberated: toxic and caustic gases and vapours

SECTION 11: Toxicological information

11.1. Information on toxicological effects

ATEmix calculated

ATE (oral) 1150,0 mg/kg; ATE (dermal) 1784,2 mg/kg; ATE (inhalation aerosol) 3,333 mg/l

Acute toxicity

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine				
	oral	LD50 1030 mg/kg	Rat	Manufacturer	
	dermal	LD50 1840 mg/kg	Rabbit	Manufacturer	
61788-44-1	Phenol, styrenated				
	oral	LD50 >2000 mg/kg	Rat		
	dermal	LD50 >2000 mg/kg	Rat		
1477-55-0	1,3-Benzoldimethanamine				
	oral	LD50 930 mg/kg	Rat		
	dermal	LD50 3100 mg/kg	Rat		
	inhalation vapour	ATE 11 mg/l			
	inhalation aerosol	ATE 1,5 mg/l			
9046-10-0	Reaction products of propane-1,2-diol, propoxylated by amination of the terminal hydroxyl group				
	oral	LD50 2885 mg/kg	Rat	Manufacturer	
	dermal	LD50 2980 mg/kg	Rabbit	Manufacturer	
25513-64-8	2,2,4-trimethylhexane-1,6-diamine				
	oral	LD50 910 mg/kg	Rat		
69-72-7	salicylic acid				
	oral	LD50 891 mg/kg	Rat	OECD 401	
	dermal	LD50 > 2000 mg/kg	Rat	OECD 402	

Irritation and corrosivity

Causes severe skin burns and eye damage. May cause an allergic skin reaction.

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	
	Acute algae toxicity	ErC50	> 50 mg/l	72 h	Scenedesmus subspicatus	Manufacturer	
	Acute crustacea toxicity	EC50	23 mg/l	48 h	Daphnia magna	Manufacturer	
61788-44-1	Phenol, styrenated						
	Acute fish toxicity	LL50	14,8 mg/l	96 h	fish		
	Acute crustacea toxicity	EL50	1-10 mg/l	48 h	Daphnia magna		
1477-55-0	1,3-Benzoldimethanamine						
	Acute fish toxicity	LC50	87,6 mg/l	96 h	Oryzias latipes (Ricefish)		
	Acute algae toxicity	ErC50	20,3 mg/l	72 h	Selenastrum capricornutum		
	Acute crustacea toxicity	EC50	15,2 mg/l	48 h	Daphnia magna		
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)		
25513-64-8	2,2,4-trimethylhexane-1,6-diamine						
	Acute algae toxicity	ErC50	29,5 mg/l	72 h	Desmodesmus subspicatus	IUCLID	
69-72-7	salicylic acid						
	Acute fish toxicity	LC50	1370 mg/l	96 h	Pimephales promelas (fathead minnow)	OECD 203	
	Acute algae toxicity	ErC50 mg/l	> 100	72 h	Scenedesmus subspicatus	OECD 201	
	Acute crustacea toxicity	EC50	870 mg/l	48 h	Daphnia magna	OECD 202	
	Crustacea toxicity	NOEC	10 mg/l	21 d	Daphnia magna	OECD 202	

12.2. Persistence and degradability

The product has not been tested.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
61788-44-1	Phenol, styrenated			
	OECD 301C/ ISO 9408/ EEC 92/69/V, C.4-F	73 %	14	
	Readily biodegradable (according to OECD criteria).			
1477-55-0	1,3-Benzoldimethanamine			
	OECD 301B/ ISO 9439/ EEC 92/69/V, C.4-C	49 %	28	
	Not readily biodegradable (according to OECD criteria)			
25513-64-8	2,2,4-trimethylhexane-1,6-diamine			
	OECD 301A/ ISO 7827/ EEC 92/69/V, C.4-A	7%	28	
	Not readily biodegradable (according to OECD criteria)			
69-72-7	salicylic acid			
	OECD 301C/ ISO 9408/ EEC 92/69/V, C.4-F	88,1 %	14	
	Readily biodegradable (according to OECD criteria).			

12.3. Bioaccumulative potential

The product has not been tested.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
69-72-7	salicylic acid	2,26

BCF

CAS No	Chemical name	BCF	Species	Source
61788-44-1	Phenol, styrenated	26,5	Carassius auratus (goldfish)	Quantitative structure-activity relationship (QSAR)

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

not applicable

12.6. Other adverse effects

No information available.

Further information

Do not let the product enter the groundwater, open water, or the sewerage system. Must not be discharged undiluted or un-neutralised into waste water or receiving waters. Harmful to aquatic life.

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

List of Wastes Code - contaminated packaging

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: AMINES, LIQUID, CORROSIVE, N.O.S. (3-aminomethyl-3,5,5-trimethylcyclohexylamine, mphenylenebis(methylamine), Phenol, styrolisiert, 2,2,4-trimethylhexane-1,6-diamine)

14.3. Transport hazard class(es): 8

14.4. Packing group: II

Hazard label: 8

Classification code: C7
Limited quantity: 1L
Excepted quantity: E2
Transport category: 2
Hazard No: 80
Tunnel restriction code: E

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, mphenylenebis(methylamine), Phenol, styrolisiert, 2,2,4-trimethylhexane-1,6-diamine)

14.3. Transport hazard class(es): 8

14.4. Packing group: II

Hazard label: 8

Classification code: C7
Limited quantity: 1L
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, 1,3-Benzoldimethanamine, 2,2,4-trimethylhexane-1,6-diamine)

14.3. Transport hazard class(es): 8

14.4. Packing group: II

Hazard label: 8

Marine pollutant: Nein
Limited quantity: 1L
Excepted quantity: E2
EmS: F-A, S-B
Segregation group: 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, 1,3-Benzoldimethanamine, 2,2,4-trimethylhexane-1,6-diamine)

14.3. Transport hazard class(es): 8

14.4. Packing group: II

Hazard label: 8

Limited quantity Passenger: 0.5 L
Excepted quantity: E2

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Warning: strongly corrosive.
Stowage Category: A
Segregation Code: SG35 Stow "separated from" acids.

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

National regulatory information

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

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

Additional information

BG bulletin: BGR 227, 190, 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): 2,12.

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%

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.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H361d	Suspected of damaging the unborn child.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH071	Corrosive to the respiratory tract.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

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