Safety Data Sheet

according to Regulation (EC) No 1907/2006

Hardener L

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

1.1. Product identifier

Hardener L

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

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

Regulation (EC) No. 1272/2008

Hazard categories:
Acute toxicity: Acute Tox. 4
Acute toxicity: Acute Tox. 4
Skin corrosion/irritation: Skin Corr. 1A
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:
Toxic if inhaled.
Harmful if swallowed.
Harmful in contact with skin or if inhaled.
Causes severe skin burns and eye damage.
Causes skin irritation.
Causes serious eye damage.
May cause an allergic skin reaction.
Toxic to aquatic life with long lasting effects.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)
3-aminomethyl-3,5,5-trimethylcyclohexylamine
Phenol, styrenated
2,2'-iminodiethylamine; diethylenetriamine

Signal word: Danger

Pictograms:

Hazard statements

H331	Toxic if inhaled.
H302	Harmful if swallowed.
H312+H332	Harmful in contact with skin or if inhaled.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H317	May cause an allergic skin reaction.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

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.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Epoxidharzhärter, Formulierung auf Basis aliphatischer Polyamine

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine			25-50%
	220-666-8	612-067-00-9		
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H312 H302 H314 H317 H412			
100-51-6	benzyl alcohol			25-50%
	202-859-9	603-057-00-5		
	Acute Tox. 4, Acute Tox. 4; H332 H302			
140-31-8	2-piperazin-1-ylethylamine			2,5-10%
	205-411-0	612-105-00-4		
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H312 H302 H314 H317 H412			
61788-44-1	Phenol, styrenated			< 2,5%
	262-975-0		01-2119979575-18	
	Skin Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H317 H411			
69-72-7	Salicylsäure			< 2,5%
	200-712-3			
	Acute Tox. 4, Eye Dam. 1; H302 H318			

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Immediately take off soiled, impregnated clothing.

After inhalation

consult a doctor.

After contact with skin

Washing places concerned with a lot of water and soap. If the symptom doesn´t stop, consult doctor.

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. Call a doctor, giving the substance's exact name.

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

The product does not contain any relevant quantities of substances with workplace-related limit values to be monitored.

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

The product does not contain any relevant quantities of substances with workplace-related limit values to be monitored.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO_2). Extinguishing powder. Water spray. Fight major fires with a water spray jet or alcohol-resistant foam.

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 possible.

Additional information

Fire residue and contaminated firefighting water must be disposed of in accordance with government regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wearing a personal protective clothing.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Do not allow to enter the soil or subsoil.

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Dispose of contaminated material as § 13 waste. Provide adequate ventilation.

6.4. Reference to other sections

Carefully cleaning scene of an accident.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

The usual precautions when handling chemicals must be observed. Provide adequate room ventilation, if necessary with vapour extraction at the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep only in the original container. Provide for retaining containers, eg. floor pan without outflow.

Hints on joint storage

Store separately from foodstuffs.

Further information on storage conditions

Provide for retaining containers, eg. floor pan without outflow.

7.3. Specific end use(s)

The product does not contain any relevant quantities of substances with workplace-related limit values to be monitored.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.2. Exposure controls

Protective and hygiene measures

Von Nahrungsmitteln, Getränken und Futtermitteln fernhalten.
Beschmutzte, getränkte Kleidung sofort ausziehen.
Vor den Pausen und bei Arbeitsende Hände waschen.
Berührung mit den Augen und der Haut vermeiden.

Eye/face protection

Dichtschliessende Schutzbrille

Hand protection

Nur Chemikalien-Schutzhandscuhe mit einer CE-Kennzeichnung der Kategorie III verwenden. Zur Minimierung der Nässe im Handschuh durch Schweißbildung ist ein Wehseln der Handschuhe während einer Schicht erforderlich. Vor jeder erneuten Verwendung des Handschuhs ist die Dichtheit zu prüfen. Vorbeugender Hautschutz durch Verwendung von Hautschutzmitteln wird empfohlen.
Handschuhmaterial: Nitrilkautschuk, Fluorkautschuk (Viton)
Empfohlene Materialstärke: >= 0,5mm

Skin protection

Arbeitsschutzkleidung

Respiratory protection

Bei unzureichender Belüftung Atemschutz. Empfohlenes Filtergerät für kurzzeitigen Einsatz: Kombinationsfilter A-P2

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid
Colour:	yellowish
Odour:	amine-like

		Test method
Changes in the physical state		
Initial boiling point and boiling range:	> 200 °C	
Flash point:	> 100 °C	
Lower explosion limits:		
Upper explosion limits:		
Density (at 23 °C):	0,998 g/cm³	ISO 2811-2
Water solubility:	slightly soluble	
Viscosity / dynamic: (at 25 °C)	115 mPa·s	ISO 3219

SECTION 10: Stability and reactivity

10.2. Chemical stability

no decomposition when stored and handled properly

10.3. Possibility of hazardous reactions

No known hazardous reactions.

10.4. Conditions to avoid

The product does not contain any relevant quantities of substances with workplace-related limit values to be monitored.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Fire and decomposition may release irritant, caustic, ignitable, unhealthy, toxic gases and vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

6864-37-5 2,2'-Dimethyö-4,4'methylenbis(cyclohexylamin)
Oral LD50 320-460 mg/kg (rat)
Dermal LD50 200-400 mg/kg (rab)
Inhalativ LC50/4 h 0,42 mg/l (rat)

100-51-6 Benzylalkohol
Oral LD50 1040 mg/kg (mou)
1230 mg/kg (rat)
1040 mg/kg (rbt)
Dermal LD50 2000 mg/kg (rbt)
Inhalativ LC 50/4 h >4,178 mg/l (rat)

2855-13-2 3-Aminomethyl-3,5,5-trimethyl-cyclohexylamin
Oral LD 50 819-2600 mg/kg (rat)
Dermal LD50 1840 mg/kg (rab)

111-40-0 3-Azapentan-1,5-diamin
Oral LD50 819-2600 mg/kg (rat)
Dermal LD50 670-1240 mg/kg (rbt)
Inhalativ LC50/4 h 0,07-0,25 mg/l (rat) als Aerosol

ATEmix calculated

ATE (dermal) 1690,5 mg/kg; ATE (inhalation aerosol) 3,750 mg/l

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	OECD 401	
	dermal	LD50 1840 mg/kg	Rabbit	Manufacturer	
	inhalation (4 h) aerosol	LC50 > 5,01 mg/l	Rat	OECD 403	
100-51-6	benzyl alcohol				
	oral	LD50 1230 mg/kg	Rat	GESTIS	
	inhalation vapour	ATE 11 mg/l			
	inhalation aerosol	ATE 1,5 mg/l			
140-31-8	2-piperazin-1-ylethylamine				
	oral	ATE 500 mg/kg			
	dermal	LD50 866 mg/kg	Rabbit	IUCLID	
61788-44-1	Phenol, styrenated				
	oral	LD50 2197 mg/kg	Rat	Quantitative structure-activity relationship (QSAR)	
	dermal	LD50 3166 mg/kg	Rat	Quantitative structure-activity relationship (QSAR)	
69-72-7	Salicylsäure				
	oral	LD50 891 mg/kg	(rat)		
	dermal	LD50 >2000 mg/kg	(rat)		

Irritation and corrosivity

Strong caustic effects on eyes, skin, and mucous membranes.

Sensitising effects

May cause sensitization by skin contact.

Additional information on tests

111-40-0 3-Azapentan-1,5-diamin
no effect level 30 mg/kg/d (-)
Reproduktionstoxizitäts-Screeningtest (OECD 421) Ratte
(90d) 70-80 mg/kg/d (rat)
subchronische orale Toxizität

SECTION 12: Ecological information

12.1. Toxicity

not determined

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)	Regulation (EC) No. 440/2008, Annex, C.1	
	Acute algae toxicity	ErC50 mg/l	> 50	72 h	Scenedesmus subspicatus	Regulation (EC) No. 440/2008, Annex, C.3	
	Acute crustacea toxicity	EC50	388 mg/l	48 h	Chaetogammarus marinus	IUCLID	
140-31-8	2-piperazin-1-ylethylamine						
	Acute fish toxicity	LC50 mg/l	2190	96 h	Pimephales promelas (fathead minnow)	OECD 203	
	Acute algae toxicity	ErC50	495 mg/l	72 h	Selenastrum capricornutum	OECD 201	
	Acute crustacea toxicity	EC50	58 mg/l	48 h	Daphnia magna (Big water flea)	OECD 202	
61788-44-1	Phenol, styrenated						
	Acute fish toxicity	LC50	4 mg/l	96 h	Pimephales promelas (fathead minnow)	Quantitative structure-activity relationship (QSAR)	
	Acute algae toxicity	ErC50 mg/l	1,637	72 h	Pseudokirchneriella subcapitata	Quantitative structure-activity relationship (QSAR)	
	Acute crustacea toxicity	EC50 mg/l	1,878	48 h	Daphnia magna	Quantitative structure-activity relationship (QSAR)	
69-72-7	Salicylsäure						
	Acute fish toxicity	LC50 mg/l	1380	96 h	Pimephales promelas (fathead minnow)		
	Acute algae toxicity	ErC50 mg/l	> 100	72 h	Desmodesmus subspicatus		

12.2. Persistence and degradability

The product does not contain any relevant quantities of substances with workplace-related limit values to be monitored.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine			
	OECD 301A/ ISO 7827/ EEC 92/69/V, C.4-A	8 %	28	IUCLID
	Not readily biodegradable (according to OECD criteria)			
140-31-8	2-piperazin-1-ylethylamine			
	OECD 301F/ ISO 9408/ EEC 92/69/V, C.4-D	0%	28	
	Not readily biodegradable (according to OECD criteria)			
61788-44-1	Phenol, styrenated			
	OECD 301C/ ISO 9408/ EEC 92/69/V, C.4-F	73 %	14	
	Readily biodegradable (according to OECD criteria).			

12.3. Bioaccumulative potential

The product does not contain any relevant quantities of substances with workplace-related limit values to be monitored.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine	0,8
100-51-6	benzyl alcohol	1,05
140-31-8	2-piperazin-1-ylethylamine	-1,48

BCF

CAS No	Chemical name	BCF	Species	Source
2855-13-2	3-aminomethyl-3,5,5-trimethylcyclohexylamine	3,16	Quantitative structure-activity relationship (QSAR)	IUCLID
61788-44-1	Phenol, styrenated	26,5	Carassius auratus (goldfish)	Quantitative structure-activity relationship (QSAR)

12.4. Mobility in soil

The product does not contain any relevant quantities of substances with workplace-related limit values to be monitored.

Further information

Undiluted or nonneutralised product may not enter waste water channel or main outfall.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal number of waste from 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

Waste disposal number of 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: AMINES, LIQUID, CORROSIVE, N.O.S. (isophoronediamine)

14.3. Transport hazard class(es): 8

14.4. Packing group: III

Hazard label: 8

Classification code: C7

Special Provisions:	274
Limited quantity:	5 L
Transport category:	3
Hazard No:	80
Tunnel restriction code:	E

Other applicable information (land transport)

Special provisions: 274
E2
: 2

Marine transport (IMDG)

14.1. UN number:	UN 2735
14.2. UN proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (isophoronediamine)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8

Marine pollutant:	Nein
Special Provisions:	223, 274
Limited quantity:	5 L
EmS:	F-A, S-B

Other applicable information (marine transport)

E1
Special provisions: 274, 944
E2
E0

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number:	UN 2735
14.2. UN proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (isophoronediamine)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8

Special Provisions:	A3 A803
Limited quantity Passenger:	1 L
IATA-packing instructions - Passenger:	852
IATA-max. quantity - Passenger:	5 L
IATA-packing instructions - Cargo:	856
IATA-max. quantity - Cargo:	60 L

Other applicable information (air transport)

E1
Passenger-LQ: Y841
E2
: Y808
Special provisions: A3
E0
: Forbidden

: Y840

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

SECTION 15: Regulatory information

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

EU regulatory information

2004/42/EC (VOC): 26,25 &

National regulatory information

Water contaminating class (D): 3 - highly water contaminating

Additional information

BG Merkblatt:
Praxisleitfaden für den Umgang mit Epoxidharzen
(herausgegeben von der Berufsgenossenschaft der Bauwirtschaft)
www.bgbau.de oder www.gisbau.de

Epoxidharz-Systeme sicher handhaben
(herausgegeben von PlasticsEurope
www.plasticseurope.org

BGR 227 "Tätigkeiten mit Epoxidharzen"
(herausgegeben vom Hauptverband der gewerblichen Berufsgenossenschaften)
www.dguv.de
BGR 190 - Regel für den Einsatz von Atemschutzgeräten
BGR 192 - Regeln für den Einsatz von Augen- und Gesichtsschutz

SECTION 16: Other information

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H312+H332	Harmful in contact with skin or if inhaled.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

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