

**Safety Data Sheet**

according to UK REACH Regulation

**Hardener HT 2**

Revision date: 03.01.2023

Product code: 105110

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

Hardener HT 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 further relevant 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:

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.

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-trimethyl-cyclohexylamine

benzyl alcohol

Phenol, styrenated

**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.

H412

Harmful to aquatic life with long lasting effects.

**Precautionary statements**

P405

Store locked up.

P362+P364

Take off contaminated clothing and wash it before reuse.

P260

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

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

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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.

**2.3. Other hazards**

Results of PBT and vPvB assessment  
PBT: Not applicable. vPvB: Not applicable.

**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-trimethyl-cyclohexylamine			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			
100-51-6	benzyl alcohol			25-50%
	202-859-9	603-057-00-5	01-2119492630-38	
	Acute Tox. 4, Acute Tox. 4, Eye Irrit. 2; H332 H302 H319			
61788-44-1	Phenol, styrenated			2,5-10%
	262-975-0		01-2119979575-18	
	Skin Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H317 H411			

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-trimethyl-cyclohexylamine	25-50% %
		dermal: LD50 = 1840 mg/kg; oral: LD50 = 1030 mg/kg	
100-51-6	202-859-9	benzyl alcohol	25-50% %
		inhalation: ATE = 11 mg/l (vapours); inhalation: LC50 = > 4,178 mg/l (dusts or mists); dermal: LD50 = 2000 mg/kg; oral: LD50 = 1620 mg/kg	
61788-44-1	262-975-0	Phenol, styrenated	2,5-10% %
		dermal: LD50 = >2000 mg/kg; oral: LD50 = >2000 mg/kg	

**Further Information**

The wording for the listed danger notices can be taken from Section 16.

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

Remove contaminated clothing immediately.

**After inhalation**

If unconscious, storage and transport in stable lateral position consult a doctor.

**After contact with skin**

Immediately with water and soap and rinse thoroughly. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs.

**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**

Do NOT induce vomiting. 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**

No further relevant information available.

**SECTION 5: Firefighting measures****5.1. Extinguishing media**

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**Suitable extinguishing media**Carbon dioxide (CO<sub>2</sub>), 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 a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

**Additional information**

Suppress gases/vapours/mists with water spray jet. 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. Keep unprotected persons at a safe distance. Ensure good ventilation/extraction at the workplace.

**6.2. Environmental precautions**

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

**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. Keep receptacles tightly sealed. Store in a dry place. 15 - 20 °C

**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	Exposure route	Effect	Value
2855-13-2	3-aminomethyl-3,5,5-trimethyl-cyclohexylamine			
Worker DNEL,		inhalation		0,073 mg/m <sup>3</sup>
100-51-6	benzyl alcohol			
Worker DNEL, long-term		dermal		9,5 mg/kg bw/day
Worker DNEL, long-term		inhalation		22 mg/m <sup>3</sup>
61788-44-1	Phenol, styrenated			
Worker DNEL,		dermal		2,1 mg/kg bw/day

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**PNEC values**

CAS No	Substance	Value
Environmental compartment		
2855-13-2	3-aminomethyl-3,5,5-trimethyl-cyclohexylamine	
Freshwater		0,06 mg/l
Marine water		0,006 mg/l
100-51-6	benzyl alcohol	
Freshwater		1 mg/l
Marine water		0,1 mg/l
61788-44-1	Phenol, styrenated	
Freshwater		0,03 mg/l
Marine water		0,003 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), @0802.B008198

Thickness of glove material: > 0,5mm

**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

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 DIN 53171

Flash point: > 100 °C ISO 2719

**Flammability**

Solid: not applicable

Gas: not applicable

Lower explosion limits:

Upper explosion limits:

**Self-ignition temperature****Test method**

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Solid:

not applicable

Gas:

not applicable

Decomposition temperature:

not determined

**Oxidizing properties**

Not oxidising.

Density (at 23 °C):

0,997 g/cm<sup>3</sup> ISO 2811-2

Water solubility:

The study does not need to be conducted because the substance is known to be insoluble in water.

**Solubility in other solvents**

not determined

Partition coefficient n-octanol/water:

not determined

Viscosity / dynamic:

ca. 202 mPa·s ISO 3219

(at 25 °C)

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.

**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**

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****Acute toxicity**

Harmful if swallowed.

**ATEmix calculated**

ATE (oral) 1309,2 mg/kg; ATE (inhalation aerosol) 3,326 mg/l

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
2855-13-2	3-aminomethyl-3,5,5-trimethyl-cyclohexylamine				
	oral	LD50 mg/kg	1030	Rat	Manufacturer
	dermal	LD50 mg/kg	1840	Rabbit	Manufacturer
100-51-6	benzyl alcohol				
	oral	LD50 mg/kg	1620	Rat	
	dermal	LD50 mg/kg	2000	rabbit	
	inhalation vapour	ATE	11 mg/l		
	inhalation (4 h) aerosol	LC50 mg/l	> 4,178	Rat	OECD 403
61788-44-1	Phenol, styrenated				
	oral	LD50 mg/kg	>2000	Rat	
	dermal	LD50 mg/kg	>2000	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-trimethyl-cyclohexylamine; Phenol, styrenated)

**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.

**Additional information on tests**

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP]. Special hazards arising from the substance or mixture!

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

Toxic 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
2855-13-2	3-aminomethyl-3,5,5-trimethyl-cyclohexylamine					
	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
100-51-6	benzyl alcohol					
	Acute fish toxicity	LC50	460 mg/l	96 h	Pimephales promelas (fathead minnow)	EPA OPP 72-1
	Acute algae toxicity	ErC50	640 mg/l	96 h	Algae Scenedesmus sp.)	
	Acute crustacea toxicity	EC50	253 mg/l	48 h	Daphnia magna (Big water flea)	OECD 202
	Algae toxicity	NOEC	3140 mg/l	3 d	Pseudokirchneriella subcapitata	OECD 201
	Acute bacteria toxicity	(400 mg/l)		0,5 h	Pseudomonas putida	
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	

**12.2. Persistence and degradability**

No further relevant information available.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
100-51-6	benzyl alcohol			
	OECD 301C/ ISO 9408/ EEC 92/69/V, C.4-F	92-96 %	14	
	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**

No further relevant information available.

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
100-51-6	benzyl alcohol	1,05

**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**

No further relevant information available.

**12.5. Results of PBT and vPvB assessment**

Results of PBT and vPvB assessment · PBT: Not applicable. · vPvB: 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.

Water hazard class 2 (Self-assessment): hazardous to water.

Harmful to aquatic life.

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

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**Disposal recommendations**

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.

**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:**

POLYAMINE, FLÜSSIG, ÄTZEND, N.A.G.  
(3-aminomethyl-3,5,5-trimethyl-cyclohexylamine, benzyl alcohol)

**14.3. Transport hazard class(es):**

8

**14.4. Packing group:**

III

Hazard label:

8



Classification code:

C7

Limited quantity:

1 L

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:**

POLYAMINE, FLÜSSIG, ÄTZEND, N.A.G.  
(3-aminomethyl-3,5,5-trimethyl-cyclohexylamine, benzyl alcohol)

**14.3. Transport hazard class(es):**

8

**14.4. Packing group:**

III

Hazard label:

8



Classification code:

C7

Limited quantity:

1 L

Excepted quantity:

E2

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

UN 2735

**14.2. UN proper shipping name:**

POLYAMINES, LIQUID, CORROSIVE, N.O.S  
(3-aminomethyl-3,5,5-trimethyl-cyclohexylamine, benzyl alcohol)

**14.3. Transport hazard class(es):**

8

**14.4. Packing group:**

III

Hazard label:

8



Marine pollutant:

Nein

Limited quantity:

1 L



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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:** POLYAMINES, LIQUID, CORROSIVE, N.O.S  
 (3-aminomethyl-3,5,5-trimethyl-cyclohexylamine, benzyl alcohol)  
**14.3. Transport hazard class(es):** 8  
**14.4. Packing group:** III  
 Hazard label: 8



Limited quantity Passenger: 1 L  
 Excepted quantity: E2

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS: No

**14.6. Special precautions for user**

Warning: strongly corrosive.  
 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  
 2004/42/EC (VOC): 28,5 %

**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  
 Skin resorption/Sensitization: Causes allergic hypersensitivity reactions.

**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): 2,9,11,12,14.

**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.

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H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

**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.

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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.)*