

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Hardener S

Print date: 28.07.2017

Product code: 100140

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

Hardener S

1.2. Relevant identified uses of the substance or mixture and uses advised against**Use of the substance/mixture**

Epoxy resin dispersions-Hardener (Crosslinker)

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-Informationen-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

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:

Harmful if swallowed.

Causes severe skin burns and 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**

Phenol, styrenated

2,2,4-trimethylhexane-1,6-diamine

m-phenylenebis(methylamine)

Phenol, methylstyrenated

Signal word: Danger**Pictograms:****Hazard statements**

H302

Harmful if swallowed.

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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.
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.

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	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]	
61788-44-1	Phenol, styrenated	25-50%
	262-975-0	01-2119979575-18
	Skin Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H317 H411	
25513-64-8	2,2,4-trimethylhexane-1,6-diamine	10-25%
	247-063-2	01-2119560598-25
	Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H302 H314 H317 H412	
1477-55-0	m-phenylenebis(methylamine)	10-25%
	216-032-5	
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Skin Sens. 1, Aquatic Chronic 3; H302 H332 H314 H317 H412 EUH071	
69-72-7	salicylic acid	2,5-10%
	200-712-3	01-2119486984-17
	Acute Tox. 4, Eye Dam. 1; H302 H318	
68512-30-1	Phenol, methylstyrenated	10-25%
	270-966-8	01-2119555274-38
	Acute Tox. 4, Skin Irrit. 2, Skin Sens. 1, Aquatic Chronic 3; H312 H315 H317 H412	
9046-10-0	Polyoxyalkylenediamine	2,5-10%
	618-561-0	01-2119557899-12
	Skin Corr. 1B, Eye Dam. 1, Aquatic Chronic 2; H314 H318 H411	

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

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

Remove contaminated clothing immediately.

After inhalation

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

After contact with skin

After contact with skin, wash immediately with polyethylene glycol, followed by plenty of water. Take off

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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

Drink plenty of water and fresh air. Call a doctor immediately

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 (CO₂), Extinguishing powder, Water spray.

Unsuitable extinguishing media

High power water jet

5.2. Special hazards arising from the substance or mixture

In case of fire: Formation of: Gases/vapours, toxic

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. Collect contaminated fire extinguishing water separately.

Do not allow entering drains or surface water.

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). Treat the recovered material as prescribed in the section on waste disposal.

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

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.

Advice on storage compatibility

Store separately from foodstuffs.

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Further information on storage conditions

Keep receptacles tightly sealed.

7.3. Specific end use(s)

No further relevant information

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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.

Suitable material: NBR (Nitrile rubber) FKM (fluoro rubber) (Viton)

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

Skin protection

Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid
Colour:	yellowish
Odour:	Amines

Test method

pH-Value:	not determined
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Changes in the physical state

Melting point:	not determined
Initial boiling point and boiling range:	> 200 °C
Flash point:	> 100 °C

Flammability

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Solid: not applicable
 Gas: not applicable

Explosive properties

The product is: not explosive according to EU A.14

Lower explosion limits: 1,2 vol. %
 Upper explosion limits: not determined
 Ignition temperature: 240 °C

Auto-ignition temperature

Solid: not applicable
 Gas: not applicable

Decomposition temperature: not determined

Oxidizing properties

Not oxidizing.

Vapour pressure: 4 hPa
(at 20 °C)Density (at 23 °C): 1,038 g/cm³ ISO 2811

Water solubility: insoluble

Solubility in other solvents

not determined

Partition coefficient: not determined

Viscosity / dynamic: 240 mPa·s ISO 3219
(at 25 °C)

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

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

10.5. Incompatible materials

Oxidising agent, strong

10.6. Hazardous decomposition products

No known 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**

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ATEmix calculated

ATE (oral) 1706,4 mg/kg

Acute toxicity

CAS No	Chemical name			
	Exposure route	Dose	Species	Source
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)
25513-64-8	2,2,4-trimethylhexane-1,6-diamine			
	oral	LD50 1200 mg/kg	Rat	IUCLID
1477-55-0	m-phenylenebis(methylamine)			
	oral	LD50 980 mg/kg	Rat	OECD 401
	dermal	LD50 > 3100 mg/kg	Rat	IUCLID
	inhalative vapour	ATE 11 mg/l		
	inhalative aerosol	ATE 1,5 mg/l		
69-72-7	salicylic acid			
	oral	LD50 891 mg/kg	Rat	OECD 401
	dermal	LD50 > 2000 mg/kg	Rat	OECD 402
68512-30-1	Phenol, methylstyrenated			
	oral	LD50 3600 mg/kg	Rabbit	
	dermal	ATE 1100 mg/kg		
9046-10-0	Polyoxyalkylenediamine			
	oral	LD50 2885,3 mg/kg	Rat	OECD 401
	dermal	LD50 2979,7 mg/kg	Rabbit	OECD 402

Additional information on tests

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

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

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CAS No	Chemical name				
	Aquatic toxicity	Dose	[h] [d]	Species	Source
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 1,637 mg/l	72 h	Pseudokirchneriella subcapitata	Quantitative structure-activity relationship (QSAR)
	Acute crustacea toxicity	EC50 1,878 mg/l	48 h	Daphnia magna	Quantitative structure-activity relationship (QSAR)
25513-64-8	2,2,4-trimethylhexane-1,6-diamine				
	Acute algae toxicity	ErC50 29,5 mg/l	72 h	Desmodesmus subspicatus	IUCLID
1477-55-0	m-phenylenebis(methylamine)				
	Acute fish toxicity	LC50 87,6 mg/l	96 h	Oryzias latipes (Ricefish)	OECD 203
	Acute algae toxicity	ErC50 20,3 mg/l	72 h	Pseudokirchneriella subcapitata	OECD 201
	Acute crustacea toxicity	EC50 35,1 mg/l	48 h	Daphnia magna	OECD 202
	Crustacea toxicity	NOEC 4,7 mg/l	21 d	Daphnia magna	OECD 211
69-72-7	salicylic acid				
	Acute fish toxicity	LC50 1370 mg/l	96 h	Pimephales promelas (fathead minnow)	OECD 203
	Acute algae toxicity	ErC50 > 100 mg/l	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
68512-30-1	Phenol, methylstyrenated				
	Acute fish toxicity	LC50 25,8 mg/l	96 h		
	Acute algae toxicity	ErC50 15 mg/l	72 h	Scenedesmus subspicatus	
	Acute crustacea toxicity	EC50 14-51 mg/l	48 h	Daphnia magna	
9046-10-0	Polyoxyalkylenediamine				
	Acute fish toxicity	LC50 > 15 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)	Oncorhynchus mykiss (Rainbow trout)
	Acute crustacea toxicity	EC50 418,34 mg/l	48 h	Acartia tonsa	ISO TC147/SC5/WG2
	Fish toxicity	NOEC 15 mg/l	4 d	Oncorhynchus mykiss (Rainbow trout)	Oncorhynchus mykiss (Rainbow trout)
	Algae toxicity	NOEC 0,32 mg/l	3 d	Pseudokirchneriella subcapitata	OECD 201
	Crustacea toxicity	NOEC 200 mg/l	2 d	Acartia tonsa	ISO TC147/SC5/WG2

12.2. Persistence and degradability

The product has not been tested.

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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).			
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)			
1477-55-0	m-phenylenebis(methylamine)			
	OECD 301B/ ISO 9439/ EEC 92/69/V, C.4-C	49 %	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).			
9046-10-0	Polyoxyalkylenediamine			
	OECD 301B/ ISO 9439/ EEC 92/69/V, C.4-C	0%	28	
	Not 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
9046-10-0	Polyoxyalkylenediamine	1,34

BCF

CAS No	Chemical name	BCF	Species	Source
61788-44-1	Phenol, styrenated	26,5	Carassius auratus (goldfish)	Quantitative structure-activity relationship (QSAR)
1477-55-0	m-phenylenebis(methylamine)	3,16		Data obtained by analogy conclusion, e.g. 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 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

Advice on disposal

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.

Waste disposal number of waste from residues/unused products

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080409 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 adhesives and sealants (including waterproofing products); waste adhesives and sealants containing organic solvents or other hazardous substances
Classified as hazardous waste.

Waste disposal number of used product

080409 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 adhesives and sealants (including waterproofing products); waste adhesives and sealants containing organic solvents or other hazardous substances
Classified as hazardous waste.

Waste disposal number of contaminated packaging

150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances
Classified as hazardous waste.

Contaminated packaging

Non-contaminated packages may be recycled. 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. (mphenylenebis(methylamine), Phenol, styrolisiert)
14.3. Transport hazard class(es): 8
14.4. Packing group: II
 Hazard label: 8



Classification code: C7
 Special Provisions: 274
 Limited quantity: 1 L
 Transport category: 2
 Hazard No: 80
 Tunnel restriction code: E

Other applicable information (land transport)

Excepted quantity: E2

Inland waterways transport (ADN)

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

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Classification code: C7
 Special Provisions: 274
 Limited quantity: 1 L

Other applicable information (inland waterways transport)

Excepted quantity: E2

Marine transport (IMDG)

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



Marine pollutant: JA
 Special Provisions: 274
 Limited quantity: 1 L
 EmS: F-A, S-B
 Segregation group: alkalis

Other applicable information (marine transport)

Excepted quantity: E2

Air transport (ICAO)

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



Special Provisions: A3 A803
 Limited quantity Passenger: 0.5 L
 IATA-packing instructions - Passenger: 851
 IATA-max. quantity - Passenger: 1 L
 IATA-packing instructions - Cargo: 855
 IATA-max. quantity - Cargo: 30 L

Other applicable information (air transport)

Excepted quantity: E2
 Passenger-LQ: Y840

14.5. Environmental hazards

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ENVIRONMENTALLY HAZARDOUS: yes



Danger releasing substance: Phenol, styrenated

14.6. Special precautions for user

Warning: Toxic.

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****Additional information**

To follow: 850/2004/EC, 79/117/EEC, 689/2008/EC

National regulatory information

Employment restrictions: Observe restrictions to employment for juvenils 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 contaminating class (D): 2 - water contaminating

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**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.

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

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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.)