

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Hardener MP Advanced

Revision date: 25.04.2021

Product code: 125157-2018

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

Hardener MP Advanced

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

hardener

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	
Contact person:	Michael Groß	Telephone: +49 (0)7157 5304-60
e-mail:	urlaubmg@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 Statements:
 Harmful if swallowed.
 Harmful in contact with skin.
 Causes severe skin burns and eye damage.
 Causes serious eye damage.
 May cause an allergic skin reaction.
 May damage fertility.
 May cause respiratory irritation.
 May cause damage to organs through prolonged or repeated exposure.
 Very toxic to aquatic life.
 Very toxic to aquatic life with long lasting effects.

2.2. Label elements**Regulation (EC) No. 1272/2008****Hazard components for labelling**

Diethylmethylbenzenediamine, Cyclohex-1,2-ylenediamine, 4,4'-Isopropylidendiphenole,
 4,4'-Isopropylidendiphenole
 Restricted to professional users.

Signal word: Danger**Pictograms:**

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Hazard statements

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H317	May cause an allergic skin reaction.
H360F	May damage fertility.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P302+P352	IF ON SKIN: Wash with plenty of water.
P301+P310	IF SWALLOWED: Immediately call poison information centre.
P201	Obtain special instructions before use.

2.3. Other hazards

This substance/mixture does not contain any components at concentrations of 0.1% or higher that are classified as either persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB).

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

CAS No	Chemical name	Quantity
	EC No	
	Index No	
	REACH No	
	GHS Classification	
68479-98-1	diethylmethylbenzenediamine	>= 50 - < 70 %
	270-877-4	612-130-00-0
		01-2119486805-25
	Acute Tox. 4, Acute Tox. 4, Eye Irrit. 2, STOT RE 2, Aquatic Acute 1, Aquatic Chronic 1; H312 H302 H319 H373 H400 H410	
694-83-7	Cyclohex-1,2-ylendiamine	>= 10 - < 20 %
	211-776-7	
		01-2119976312-37
	Acute Tox. 4, Acute Tox. 4, Acute Tox. 4, Skin Corr. 1, Eye Dam. 1, STOT SE 3; H332 H312 H302 H314 H318 H335	
80-05-7	4,4'-isopropylidenediphenole	>= 10 - < 20 %
	201-245-8	604-030-00-0
		01-2119457856-23
	Repr. 1B, Eye Dam. 1, Skin Sens. 1, STOT SE 3; H360F H318 H317 H335	
104-15-4	p-toluenesulphonic acid	>= 1 - < 10 %
	203-180-0	
		01-2119538811-39
	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3; H315 H319 H335	

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

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Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
68479-98-1	270-877-4	diethylmethylbenzenediamine	>= 50 - < 70 %
		dermal: ATE = 1100 mg/kg; oral: ATE = 500 mg/kg	
694-83-7	211-776-7	Cyclohex-1,2-ylendiamine	>= 10 - < 20 %
		inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); dermal: ATE = 1100 mg/kg; oral: ATE = 500 mg/kg	

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

After ingestion the stomach must be emptied by a doctor using a probe. Remove affected persons from the danger zone. Consult a doctor. Show this safety data sheet to the attending physician. Symptomatic treatment. If symptoms occur, seek medical attention.

After inhalation

Consult a physician after serious exposure. If inhaled, remove to fresh air. If symptoms occur, seek medical attention.

After contact with skin

Immediate medical treatment required because injuries that are not treated are hard to cure. If on the skin, rinse well with water. If on clothes, take off clothes.

After contact with eyes

Small splashes in the eyes can cause irreversible tissue damage and blindness. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue to flush eyes during transport to hospital. Remove contact lenses. Keep eye wide open when rinsing. Consult a medical specialist if eye irritation persists.

After ingestion

Keep airways clear. Do NOT induce vomiting. never give an unconscious person things thru the mouth Consult a doctor when complaints persist. Take patient to hospital immediately.

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

None known.

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**

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

Do not allow run-off water from firefighting operations to enter sewage or watercourses.

5.3. Advice for firefighters

In case of fire, wear self-contained breathing apparatus if necessary.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

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General measures

Wear personal protection equipment. Provide adequate ventilation.

6.2. Environmental precautions

Take precautions to prevent the product from entering the sewage system. Prevent further leakage or spillage if this can be done without risk. In case of contamination of water or sewage system, inform the competent authorities.

6.3. Methods and material for containment and cleaning up**For cleaning up**

Absorb with inert liquid-binding material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Place in suitable and sealed containers for disposal.

Other information

Stop leak if safe to do so. Dilute with plenty of water. Notify the responsible authority when the substance enters open water, the soil, or sewerage system. Absorb with sand, earth, or another absorbent substance. The product must be disposed of by an approved company in accordance with the local government regulations.

6.4. Reference to other sections

1,8,13

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

Personal protective equipment see Section 8 Avoid contact during pregnancy and while nursing. Product is not explosive. However, formation of explosive air/vapour mixtures are possible. Do not breathe in vapours or spray mists. Avoid release to the environment. Provide adequate room ventilation, if necessary with vapour extraction at the workplace. Keep only in the original container.

Advice on protection against fire and explosion

Personal protective equipment see Section 8 Avoid contact during pregnancy and while nursing. Product is not explosive. However, formation of explosive air/vapour mixtures are possible. Do not breathe in vapours or spray mists. Avoid release to the environment. Provide adequate room ventilation, if necessary with vapour extraction at the workplace. Keep only in the original container.

Further information on handling

Do not smoke, eat, or drink during work. Take off contaminated clothing and wash it before reuse.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Protect against the effects of heat and direct sunlight. Dry Keep separate from other hazardous and incompatible substances. Keep locked up.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Exposure limits (EH40)**

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
80-05-7	Bisphenol A, inhalable dust	-	2		TWA (8 h)	WEL

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DNEL/DMEL values

CAS No	Substance		
DNEL type	Exposure route	Effect	Value
68479-98-1	diethylmethylbenzenediamine		
Worker DNEL, long-term	inhalation	systemic	0,13 mg/m ³
Worker DNEL, long-term	dermal	systemic	1 mg/kg bw/day
Consumer DNEL, long-term	inhalation	systemic	0,1 mg/m ³
Consumer DNEL, long-term	dermal	systemic	1 mg/kg bw/day
Consumer DNEL, long-term	oral	systemic	0,1 mg/kg bw/day
104-15-4	p-toluenesulphonic acid		
Worker DNEL, long-term	dermal	systemic	7,6 mg/kg bw/day
Worker DNEL, long-term	inhalation	systemic	53,6 mg/m ³
Consumer DNEL, long-term	dermal	systemic	2,5 mg/kg bw/day
Consumer DNEL, long-term	inhalation	systemic	8,7 mg/m ³
Consumer DNEL, long-term	oral	systemic	2,5 mg/kg bw/day

PNEC values

CAS No	Substance	
Environmental compartment	Value	
68479-98-1	diethylmethylbenzenediamine	
Freshwater	0,001 mg/l	
Freshwater (intermittent releases)	0,005 mg/l	
Marine water	0,0001 mg/l	
Freshwater sediment	0,029 mg/kg	
Marine sediment	0,003 mg/kg	
Secondary poisoning	2 mg/kg	
Micro-organisms in sewage treatment plants (STP)	17 mg/l	
Soil	0,005 mg/kg	
104-15-4	p-toluenesulphonic acid	
Freshwater	0,073 mg/l	
Freshwater (intermittent releases)	0,073 mg/l	
Marine water	0,0073 mg/kg	
Freshwater sediment	0,0577 mg/kg	
Marine sediment	0,00577 mg/kg	
Micro-organisms in sewage treatment plants (STP)	58 mg/l	
Soil	0,016 mg/kg	

8.2. Exposure controls**Appropriate engineering controls**

Ensure adequate ventilation of the storage area. The exposure level should be below the permissible exposure level (PEL) or maximum allowable concentration (TLV) is held for this product. If exposure exceeds recommended levels, use a cartridge respirator or gas mask with NIOSH approval is recommended. If necessary, technical protection measures are carried out in order to reduce exposure.

Protective and hygiene measures

Wash hands before breaks and after work. Immediately take off soiled, impregnated clothing. Take off contaminated clothing and wash it before reuse. Do not eat, drink or smoke during work time. Keep away from

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foodstuffs and beverages. Avoid contact with eyes and skin. Remove soiled or soaked clothing immediately. Do not inhale vapours. Wash hands before breaks and after work. Provide eye wash fountain in work area. Have emergency shower available.

Eye/face protection

Eye wash bottle with pure water. Tightly fitting safety goggles. In case of processing difficulties, wear face shield and protective suit.

Hand protection

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. Material of gloves for long term application (BTT > 480 min): Butyl rubber, Ethylvinylalkohollaminat (EVAL), nitrile rubber, neoprene rubber, polyvinyl chloride (PVC). Material of gloves for short-term use / Pritzer (10 min < BTT < 480 min): Butyl rubber, Ethylvinylalkohollaminat (EVAL), nitrile rubber, polyvinyl chloride (PVC). There are in accordance with accepted standards such as for example EN 374 (Europe), F739 (U.S.) tested gloves are used. The suitability and durability of a glove is dependent on the use, eg the contact frequency and duration, the skill. Let us advise you always have the gloves. Additional information can for example be found under www.gisbau.de

Skin protection

Use personal protection equipment.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Environmental exposure controls

When monitoring emissions from plants, the following substances contained in this product are to be determined:

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

Physical state:	liquid
Colour:	yellow
Odour:	weak

Test method**Changes in the physical state**

Flash point:	>150 °C	DIN 51758
Decomposition temperature:	>200 °C	
Density (at 20 °C):	1 g/cm ³	
Viscosity / dynamic: (at 25 °C)	250 - 350 mPa·s	

9.2. Other information

No data available.

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

unknown

10.2. Chemical stability

stable

10.3. Possibility of hazardous reactions

The product is stable under storage at normal ambient temperatures.

10.4. Conditions to avoid

None known.

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10.5. Incompatible materials

Acids strong alkalis strong alkalis and acid Strong oxidizing agents.

10.6. Hazardous decomposition products

The product is stable under storage at normal ambient temperatures.

SECTION 11: Toxicological information**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Harmful if swallowed.

Harmful in contact with skin.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
68479-98-1	diethylmethylbenzenediamine				
	oral	ATE 500 mg/kg			
	dermal	ATE 1100 mg/kg			
694-83-7	Cyclohex-1,2-ylendiamine				
	oral	ATE 500 mg/kg			
	dermal	ATE 1100 mg/kg			
	inhalation vapour	ATE 11 mg/l			
	inhalation aerosol	ATE 1,5 mg/l			

Irritation and corrosivity

Causes severe skin burns and eye damage.

Causes serious eye damage.

Sensitising effects

May cause an allergic skin reaction. (4,4'-isopropylidenediphenole)

Carcinogenic/mutagenic/toxic effects for reproduction

May damage fertility. (4,4'-isopropylidenediphenole)

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

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

STOT-single exposure

May cause respiratory irritation.

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure. (diethylmethylbenzenediamine)

Aspiration hazard

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

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

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
68479-98-1	diethylmethylbenzenediamine					
	Acute fish toxicity	LC50 200 mg/l	96 h	Leuciscus idus (golden orfe)		DIN 38412
	Acute algae toxicity	ErC50 104 mg/l	72 h	(Desmodesmus subspicatus (Grünalge))		OECD-Prüfrichtlinie 201
	Acute crustacea toxicity	EC50 0,5 mg/l	48 h	Daphnia magna (Big water flea)		Richtlinie 67/548/EWG, Anhang V, C.2
694-83-7	Cyclohex-1,2-ylendiamine					
	Acute fish toxicity	LC50 200 mg/l	96 h	Leuciscus idus (golden orfe)		DIN 38412
	Acute algae toxicity	ErC50 29,6 mg/l	72 h			
	Acute crustacea toxicity	EC50 19,8 mg/l	48 h	Daphnia magna (Big water flea)		OECD 202
80-05-7	4,4'-isopropylidenediphenole					
	Acute fish toxicity	LC50 7,5 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)		
	Acute algae toxicity	ErC50 2,5 - 3,1 mg/l	96 h	Selenastrum capricornutum (Grünalge)		
	Acute crustacea toxicity	EC50 3,9 - 10,2 mg/l	48 h	Ceriodaphnia dubia (Wasserfloh)		
104-15-4	p-toluenesulphonic acid					
	Acute fish toxicity	LC50 325 mg/l	96 h	Leuciscus idus (golden orfe)		OECD 203
	Acute algae toxicity	ErC50 73 mg/l	72 h	Selenastrum capricornutum (Grünalge)		OECD 201
	Acute crustacea toxicity	EC50 103 mg/l	48 h	Daphnia magna (Big water flea)		OECD 202

12.2. Persistence and degradability

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
68479-98-1	diethylmethylbenzenediamine			
		< 60 %	28	
	Not readily biodegradable.			
80-05-7	4,4'-isopropylidenediphenole			
		1 - 2 %	28	
	Not readily biodegradable.			

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
694-83-7	Cyclohex-1,2-ylendiamine	< -0,9
80-05-7	4,4'-isopropylidenediphenole	3,32
104-15-4	p-toluenesulphonic acid	0,41

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12.5. Results of PBT and vPvB assessment

This substance/mixture does not contain any components at concentrations of 0.1% or higher that are classified as either persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB).

12.7. Other adverse effects

An environmental hazard cannot be excluded in case of improper handling or disposal. Very toxic to aquatic organisms, with long lasting effects.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****List of Wastes Code - residues/unused products**

070204 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of plastics, synthetic rubber and man-made fibres; other organic solvents, washing liquids and mother liquors; hazardous waste

List of Wastes Code - used product

070204 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of plastics, synthetic rubber and man-made fibres; other organic solvents, washing liquids and mother liquors; hazardous waste

List of Wastes Code - contaminated packaging

070204 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of plastics, synthetic rubber and man-made fibres; other organic solvents, washing liquids and mother liquors; hazardous waste

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. (1,2-DIAMINO CYCLOHEXANE, DIETHYLTOLUENEDIAMINE)
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
 Excepted quantity: E2
 Transport category: 2
 Hazard No: 80
 Tunnel restriction code: E

Marine transport (IMDG)

14.1. UN number: UN 2735
14.2. UN proper shipping name: Polyamines, liquid, corrosive, n.o.s. (1,2-DIAMINO CYCLOHEXANE, DIETHYLTOLUENEDIAMINE)
14.3. Transport hazard class(es): 8
14.4. Packing group: II
 Hazard label: 8

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Special Provisions: 274
 Limited quantity: 1 L
 Excepted quantity: E2
 EmS: F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: UN 2735
14.2. UN proper shipping name: Polyamines, liquid, corrosive, n.o.s. (1,2-DIAMINO CYCLOHEXANE, DIETHYLTOLUENEDIAMINE)
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
 Passenger LQ: Y840
 Excepted quantity: E2
 IATA-packing instructions - Passenger: 851
 IATA-max. quantity - Passenger: 1 L
 IATA-packing instructions - Cargo: 855
 IATA-max. quantity - Cargo: 30 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: Yes

**14.7. Maritime transport in bulk according to IMO instruments**

Not applicable to product as delivered.

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Authorisations (REACH, annex XIV):
 Substances of very high concern, SVHC (REACH, article 59):
 4,4'-isopropylidenediphenole

Restrictions on use (REACH, annex XVII):
 Entry 66

National regulatory information

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

SECTION 16: Other information**Changes**

This data sheet contains changes from the previous version in section(s): 1,2,3,4,5,6,8,9,10,12,14,15.

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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.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H360F	May damage fertility.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic 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.)