

Safety Data Sheet

according to UK REACH Regulation

Epoxy Resin HT 2

Revision date: 14.01.2023

Product code: 105104

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

Epoxy Resin HT 2

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

Epoxy binder

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:

Skin corrosion/irritation: Skin Irrit. 2

Serious eye damage/eye irritation: Eye Irrit. 2

Respiratory or skin sensitisation: Skin Sens. 1

Hazardous to the aquatic environment: Aquatic Chronic 2

Hazard Statements:

Causes skin irritation.

May cause an allergic skin reaction.

Causes serious eye irritation.

Toxic to aquatic life with long lasting effects.

2.2. Label elements**GB CLP Regulation****Hazard components for labelling**

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane

Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-

(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane

Reaction products of hexane-1,6-diol with 2-(chloromethyl) oxirane (1:2)

Signal word:

Warning

Pictograms:

**Hazard statements**

H315

Causes skin irritation.

H317

May cause an allergic skin reaction.

H319

Causes serious eye irritation.

H411

Toxic to aquatic life with long lasting effects.

Precautionary statements

P501

Entsorgung des Inhalts / des Behälters gemäß den örtlichen / regionalen / nationalen / internationalen Vorschriften.

P333+P313

If skin irritation or rash occurs: Get medical advice/attention.

P305+P351+P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P280

Wear protective gloves and eye/face protection.

P273

Avoid release to the environment.

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P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

Special labelling of certain mixtures

EUH205 Contains epoxy constituents. May produce an allergic reaction.

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	
1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane	25-50 %
	216-823-5	01-2119456619-26
	Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H319 H317 H411	
	Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl]oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane	10-25 %
	701-263-0	01-2119454392-40
	Skin Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H317 H411	
933999-84-9	Reaction products of hexane-1,6-diol with 2-(chloromethyl) oxirane (1:2)	10-<25 %
	618-939-5	01-2119463471-41
	Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1, Aquatic Chronic 3; H315 H319 H317 H412	

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	
1675-54-3	216-823-5	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane	25-50 % %
		dermal: LD50 = 23000 mg/kg; oral: LD50 = 15000 mg/kg	
	701-263-0	Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl]oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane	10-25 % %
		dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 2000 mg/kg	
933999-84-9	618-939-5	Reaction products of hexane-1,6-diol with 2-(chloromethyl) oxirane (1:2)	10-<25 % %
		dermal: LD50 = 2000 mg/kg; oral: LD50 = 2190 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**

Immediately remove any clothing contaminated with product.

After inhalation

Supply plenty of fresh air and seek medical attention for safety reasons. In case of unconsciousness, position and transport in stable lateral position.

After contact with skin

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

After contact with eyes

Rinse opened eye for several minutes with running water. Consult a doctor if symptoms persist.

After ingestion

Rinse mouth immediately and drink plenty of water.

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

CO₂, extinguishing powder or water spray. Fight larger fires with water spray. Adapt fire extinguishing measures to the surroundings.

5.2. Special hazards arising from the substance or mixture

Carbon monoxide (CO) Under certain fire conditions, traces of toxic substances cannot be excluded, such as: Hydrogen chloride (HCl)

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

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

Wear protective equipment. Keep unprotected persons away.

6.2. Environmental precautions

Do not discharge into drains/surface waters/groundwater. Do not discharge into the subsoil/soil.

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

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Ensure good ventilation/exhaustion at the workplace. Avoid formation of aerosols.

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

Employ reliable measures to prevent the product from entering the soil. Keep only in the original container.

Hints on joint storage

Store separately from foodstuffs.

Further information on storage conditions

Store container in a well-ventilated place.

7.3. Specific end use(s)

No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane			
Worker DNEL,		dermal		0,75 mg/kg bw/day
Worker DNEL,		inhalation		4,93 mg/m ³
	Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-{2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl]oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane			
Worker DNEL, long-term		dermal	systemic	104,15 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	29,39 mg/m ³
933999-84-9	Reaction products of hexane-1,6-diol with 2-(chloromethyl) oxirane (1:2)			
Worker DNEL, acute		dermal	local	22,6 mg/cm ²
Worker DNEL, long-term		dermal	local	22,6 mg/cm ²
Worker DNEL, long-term		dermal	systemic	2,8 mg/kg bw/day
Worker DNEL, acute		inhalation	systemic	4,9 mg/m ³
Worker DNEL, long-term		inhalation	systemic	4,9 mg/m ³
Worker DNEL, long-term		inhalation	local	0,44 mg/m ³

PNEC values

CAS No	Substance	Value
1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane	
Freshwater		0,006 mg/l
Marine water		0,001 mg/l
Freshwater sediment		0,341 mg/kg
Marine sediment		0,034 mg/kg
Secondary poisoning		11 mg/kg
Micro-organisms in sewage treatment plants (STP)		10 mg/l
Soil		0,065 mg/kg
	Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-{2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl]oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane	
Freshwater		0,003 mg/l
Freshwater (intermittent releases)		0,025 mg/l
Marine water		0 mg/l
Freshwater sediment		0,294 mg/kg
Marine sediment		0,029 mg/kg
Micro-organisms in sewage treatment plants (STP)		10 mg/l
Soil		0,237 mg/kg
933999-84-9	Reaction products of hexane-1,6-diol with 2-(chloromethyl) oxirane (1:2)	
Freshwater		0,0115 mg/l
Marine water		0,00115 mg/l
Marine water (intermittent releases)		0,0283 mg/kg
Freshwater sediment		0,283 mg/kg
Micro-organisms in sewage treatment plants (STP)		1 mg/l
Soil		0,223 mg/kg

Additional advice on limit values

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

8.2. Exposure controls

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**Protective and hygiene measures**

Keep away from food, drink and animal feeding stuffs. Immediately remove contaminated, soaked clothing. Wash hands before breaks and at the end of work. Avoid contact with eyes and skin.

Eye/face protection

Protective goggles

Hand protection

The glove material must be impermeable and resistant to the product / substance / preparation. Selection of the glove material considering the breakthrough times, permeation rates and degradation. Before each new use of the glove, the tightness must be tested. Preventive skin protection by using skin protectant is recommended. Glove material: Butyl rubber Nitrile rubber Recommended material thickness: = 0.4 mm The selection of a suitable glove depends not only on the material, but also on other quality characteristics and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of glove materials cannot be calculated in advance and must therefore be checked before use. Penetration time of the glove material The exact penetration time must be obtained from the protective glove manufacturer and must be observed.

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:	light yellow
Odour:	characteristic

pH-Value:	not determined	Test method
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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

Explosive properties

The product is not explosive.

Lower explosion limits:	not determined
Upper explosion limits:	not determined
Auto-ignition temperature:	300 °C

Oxidizing properties

Not oxidising.

Vapour pressure: (at 20 °C)	1 hPa
Density (at 20 °C):	1,13 g/cm ³

Solubility in other solvents

Not miscible or only slightly miscible.

Viscosity / dynamic:	380 mPa·s ISO 3219
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9.2. Other information

Solid content:	not determined
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No further relevant information available.

SECTION 10: Stability and reactivity

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10.1. Reactivity

No further relevant information available.

10.2. Chemical stability

Thermal decomposition / conditions to be avoided: No decomposition if used as directed.

10.3. Possibility of hazardous reactionsPartially very violent reactions with bases as well as numerous organic substance classes such as alcohols and amines.
Polymerization under heat generation.**10.4. Conditions to avoid**

No further relevant information available.

10.5. Incompatible materials

No further relevant information available.

10.6. Hazardous decomposition products

Irritant gases / vapors

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Acute toxicity**

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane				
	oral	LD50 mg/kg	15000	rat	
	dermal	LD50 mg/kg	23000	rabbit	
	Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane				
	oral	LD50 mg/kg	> 2000	Rat	Manufacturer
	dermal	LD50 mg/kg	> 2000	Rabbit	Manufacturer
933999-84-9	Reaction products of hexane-1,6-diol with 2-(chloromethyl) oxirane (1:2)				
	oral	LD50 mg/kg	2190	rat	
	dermal	LD50 mg/kg	2000	rabbit	

Irritation and corrosivity

On the skin: Causes skin irritation. Serious eye damage/irritation: Causes severe eye irritation.

Sensitising effects

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.

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**

Aquatic toxicity

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
1675-54-3	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane					
	Acute fish toxicity	LC50	2 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)	
	Acute algae toxicity	ErC50	11 mg/l	72 h	algae	
	Acute crustacea toxicity	EC50	1,8 mg/l	48 h	Daphnia magna	
	Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane					
	Acute fish toxicity	LC50	2,54 mg/l	96 h	Leuciscus idus (golden orfe)	Manufacturer
	Acute algae toxicity	ErC50	11 mg/l	72 h	Algae	Manufacturer
	Acute crustacea toxicity	EC50	2,55 mg/l	48 h	Daphnia magna (Big water flea)	Manufacturer
933999-84-9	Reaction products of hexane-1,6-diol with 2-(chloromethyl) oxirane (1:2)					
	Acute fish toxicity	LC50	30 mg/l	96 h	fish	
	Acute algae toxicity	ErC50	11 mg/l	72 h	algae	
	Acute crustacea toxicity	EC50	1,8 mg/l	48 h	Daphnia magna	

12.2. Persistence and degradability

Product is biodegradable with difficulty.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
	Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane			
	OECD 301B	16 %	28	Manufacturer
	Not 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
	Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane	3,3

BCF

CAS No	Chemical name	BCF	Species	Source
	Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane	150		

12.4. Mobility in soil

No further relevant information available.

12.5. Results of PBT and vPvB assessment

PBT: Not applicable. vPvB: Not applicable.

12.6. Other adverse effects

No further relevant 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****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

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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

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 3082

14.2. UN proper shipping name:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXIDHARZ)

14.3. Transport hazard class(es):

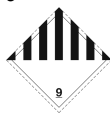
9

14.4. Packing group:

III

Hazard label:

9



Limited quantity:

5 L

Excepted quantity:

E1

Transport category:

3

Hazard No:

90

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

UN 3082

14.2. UN proper shipping name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Epoxy resin)
MARINE POLLUTANT**14.3. Transport hazard class(es):**

9

14.4. Packing group:

III

Hazard label:

9



Marine pollutant:

Ja

Limited quantity:

5 L

Excepted quantity:

E1

EmS:

F-A, S-F

Air transport (ICAO-TI/IATA-DGR)**14.1. UN number:**

UN 3082

14.2. UN proper shipping name:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resin)

14.3. Transport hazard class(es):

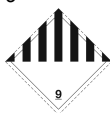
9

14.4. Packing group:

III

Hazard label:

9

**14.5. Environmental hazards**

ENVIRONMENTALLY HAZARDOUS:

Yes



Danger releasing substance:

The product contains environmentally hazardous substances:
bis[4(2,3-epoxypropoxy)phenyl]propane**14.6. Special precautions for user**

Attention: Various hazardous substances and objects

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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).

Water hazard class (D):

2 - obviously hazardous to water

Skin resorption/Sensitization:

Causes allergic hypersensitivity reactions.

Additional information

BG code of practice: M023 ("Polyester and epoxy resins") (ZH 1/301)

Safety, health and environmental protection regulations/specific legislation for the substance or mixture:

Sara

Section 355 (extremely hazardous substances): None of the ingredients are included.

TSCA (Toxic Substances Control Act): 1675-54-3 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

ACTIVE

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): 15.

Abbreviations and acronymsADR: 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)

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH205	Contains epoxy constituents. May produce an allergic reaction.

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.)