Safety Data Sheet

according to UK REACH Regulation

Active diluent EPD-BD

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

1.1. Product identifier

Active diluent EPD-BD

Substance name:	1,4-bis(2,3 epoxypropoxy)butane
CAS No:	2425-79-8
Index No:	603-072-00-7
EC No:	219-371-7

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

Use of the substance/mixture

Diluent

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	
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

Repr. 1B; H360F
Acute Tox. 4; H332
Acute Tox. 4; H312
Acute Tox. 4; H302
Skin Irrit. 2; H315
Eye Dam. 1; H318
Skin Sens. 1; H317
Aquatic Chronic 3; H412

Full text of hazard statements: see SECTION 16.

2.2. Label elements

GB CLP Regulation

Hazard components for labelling

1,4-Bis(2,3-epoxypropoxy)butane

Signal word: Danger

Pictograms:

Hazard statements

H302+H312+H332	Harmful if swallowed, in contact with skin or if inhaled.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H360F	May damage fertility.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P310	Immediately call a POISON CENTER/doctor.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501	Dispose of contents/container to Dispose of waste according to applicable legislation.

2.3. Other hazards

Contains epoxy constituents. May produce an allergic reaction.
For commercial users only.

SECTION 3: Composition/information on ingredients

3.1. Substances

Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
2425-79-8	1,4-bis(2,3 epoxypropoxy)butane			100 %
	219-371-7	603-072-00-7		
	Repr. 1B, Acute Tox. 4, Acute Tox. 4, Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1, Skin Sens. 1, Aquatic Chronic 3; H360F H332 H312 H302 H315 H318 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		
2425-79-8	219-371-7	1,4-bis(2,3 epoxypropoxy)butane	100 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); dermal: LD50 = >2.150 mg/kg; oral: LD50 = 1.882 mg/kg		

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove affected person from the danger area and lay down. Remove contaminated, saturated clothing immediately. Symptoms of poisoning may develop several hours following exposure. Victim should be under medical observation for at least 48 hours after exposure.

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

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

Seek medical advice 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

Suitable extinguishing media

Carbon dioxide (CO2).
Water spray.
Fight a major fire with water spray jet.
Feuerlöschmaßnahmen auf die Umgebung abstimmen.

5.3. Advice for firefighters

Mount respiratory protective device.
Wear breathing apparatus with own air supply.
Wear a protective full body suit.

Additional information

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Wear personal protection equipment. Keep unprotected persons at a safe distance.

6.2. Environmental precautions

Notify the responsible authority when the substance enters open water, the soil, or sewerage system.
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

For cleaning up

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).
Dispose contaminated material as waste according to item 13.
Provide adequate ventilation.

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 ventilation/vapour extraction at the workplace.

Advice on general occupational hygiene

Take off immediately all contaminated clothing Product is not explosive. However, formation of explosive air/vapour mixtures are possible. after work and before breaks for thorough skin cleansing. Keep away from

food, drink and animal feedingstuffs.

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.

Hints on joint storage

Store separately from foodstuffs.

Further information on storage conditions

Keep receptacles tightly sealed.
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

DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
2425-79-8	1,4-bis(2,3 epoxypropoxy)butane			
Consumer DNEL, long-term		oral	systemic	0,56 mg/kg bw/day
Worker DNEL, long-term		dermal	systemic	9,26 mg/kg bw/day
Consumer DNEL, long-term		dermal	systemic	5,56 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	0,48 mg/m³
Worker DNEL, long-term		inhalation	systemic	1,63 mg/m³

PNEC values

CAS No	Substance	
Environmental compartment		Value
2425-79-8	1,4-bis(2,3 epoxypropoxy)butane	
Freshwater		0,024 mg/l
Freshwater (intermittent releases)		0,24 mg/l
Marine water		0,0024 mg/l
Freshwater sediment		0,084 mg/kg
Marine sediment		0,0084 mg/kg
Secondary poisoning		0,028 mg/kg
Micro-organisms in sewage treatment plants (STP)		100 mg/l
Soil		0,0027 mg/kg

Additional advice on limit values

Based on references valid at the time of compilation.

8.2. Exposure controls

Appropriate engineering controls

No further details, see section 7.

Individual protection measures, such as personal protective equipment

Eye/face protection

Protective goggles

Hand protection

The glove material must be impermeable and resistant to the product / substance / preparation. Due to the lack of tests, no recommendation can be made on the glove material for the product / preparation / chemical mixture. Selection of the glove material considering the breakthrough times, permeation rates and degradation.

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.

penetration time:
The exact breakthrough time can be obtained from the protective glove manufacturer and must be adhered to. For the mixture of chemicals listed below, the breakthrough time must be at least >480 minutes (permeation according to EN 16523-1:2015: Level 6). The breakthrough times determined in accordance with EN 16523-1:2015 are not carried out under practical conditions. carried out under practical conditions. A maximum wear time corresponding to 50 % of the breakthrough time is therefore recommended.

Skin protection

Wear protective clothing.

Respiratory protection

In case of insufficient ventilation. In case of brief exposure or low pollution use respiratory filter device during intensive or longer exposure use self-contained breathing apparatus. Filter A / P 2
Respiratory protection only in case of aerosol or mist formation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid
Colour:	light yellow
Odour:	characteristic

		Test method
Melting point/freezing point:	-21,5 °C	
Boiling point or initial boiling point and boiling range:	294 °C	
Flash point:	140 °C	
Auto-ignition temperature:	260 °C	
Water solubility: (at 20 °C)	55,6 g/l	
Vapour pressure: (at 22 °C)	<25 hPa	
Density (at 20 °C):	1,1 g/cm³	

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

The product is not explosive.

Other safety characteristics

Viscosity / dynamic: ,,

SECTION 10: Stability and reactivity

10.1. Reactivity

No further relevant information available.

10.2. Chemical stability

no decomposition when stored and handled properly

10.3. Possibility of hazardous reactions

Reactions with alkalis, amines and strong acids.

10.4. Conditions to avoid

No further relevant information available.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Irritant gases / vapors

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in GB CLP Regulation

Toxicocinetics, metabolism and distribution

Harmful if swallowed, in contact with skin or if inhaled.

Acute toxicity

CAS No	Chemical name					
	Exposure route	Dose		Species	Source	Method
2425-79-8	1,4-bis(2,3 epoxypropoxy)butane					
	oral	LD50 mg/kg	1.882	rat		
	dermal	LD50 mg/kg	>2.150	rabbit		
	inhalation vapour	ATE	11 mg/l			
	inhalation dust/mist	ATE	1,5 mg/l			

Irritation and corrosivity

Causes skin irritation. Causes serious eye damage.

Sensitising effects

May cause an allergic skin reaction.

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.

11.2. Information on other hazards

Endocrine disrupting properties

The substance is not soluble in water.

SECTION 12: Ecological information

12.1. Toxicity

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
2425-79-8	1,4-bis(2,3 epoxypropoxy)butane						
	Acute fish toxicity	LC50 mg/l	19,8	96 h	fish		
	Acute crustacea toxicity	EC50	75 mg/l	48 h	Daphnia magna		

12.2. Persistence and degradability

No further relevant information available.

12.3. Bioaccumulative potential

No further relevant information available.

12.4. Mobility in soil

No further relevant information available.

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of UK REACH.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

Harmful for Fish.

Further information

Water hazard class 1 (list classification): slightly hazardous to water.
Do not allow undiluted product or large quantities of it to reach ground water, water bodies or the sewage system.
Must not be discharged undiluted or un-neutralised into waste water or receiving waters.
Harmful to aquatic life.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Must be given special treatment in compliance with official regulations. Must not be disposed of together with household waste. Do not allow to enter drains.

Contaminated packaging

Recommendation: Contaminated packaging should be emptied in the best possible way; it can then be recycled after appropriate cleaning.

SECTION 14: Transport information

Land transport (ADR/RID)

Other applicable information (land transport)

No dangerous good in sense of these transport regulations.

Inland waterways transport (ADN)

Other applicable information (inland waterways transport)

No dangerous good in sense of these transport regulations.

Marine transport (IMDG)

Other applicable information (marine transport)

No dangerous good in sense of these transport regulations.

Air transport (ICAO-TI/IATA-DGR)

Other applicable information (air transport)

No dangerous good in sense of these transport regulations.

Other applicable information

No dangerous good in sense of these transport regulations.

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, Entry 75

National regulatory information

Employment restrictions:	Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
Water hazard class (D):	1 - slightly hazardous to water

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information

Abbreviations and acronyms

Acute Tox: Acute toxicity
Skin Irrit: Skin irritation
Eye Dam: Eye damage
Skin Sens: Skin sensitisation
Repr: Reproductive toxicity
Aquatic Chronic: Chronic aquatic hazard

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H302+H312+H332	Harmful if swallowed, in contact with skin or if inhaled.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H360F	May damage fertility.
H412	Harmful to aquatic life with long lasting effects.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.