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

1.1 Product identifier

Product form : Mixture

Product name : HARDENER

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

Relevant identified uses

Main use category : Professional use

Use of the substance/mixture : Adhesives, binding agents

1.3 Details of the supplier of the safety data sheet

Premier Farnell plc

150 Armley Road, Leeds, LS12 2QQ

+44 (0) 870 129 8608, F + 44 (0) 870 129 8611

1.4. Emergency telephone number

+44(0) 1793 823741

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (dermal), Category 4	H312
Skin corrosion/irritation, Category 1, Sub-Category 1B	H314
Serious eye damage/eye irritation, Category 1	H318
Skin sensitisation, Category 1	H317
Reproductive toxicity, Category 2	H361
Specific target organ toxicity – Repeated exposure, Category 1	H372
Hazardous to the aquatic environment – Chronic Hazard, Category 2	H411

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

Adverse physicochemical, human health and environmental effects

Suspected of damaging fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure. Harmful in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Toxic to aquatic life with long lasting effects.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)

GHS05 GHS07 GHS08 GHS09

Signal word (CLP) : Danger

Contains : REACTION MASS OF TRIENTINE AND TRIENTINE, MONO- AND DI-PROPOXYLATED; 2-piperazin-1-ylethylamine; Reaction mass of (1-phenylethyl)phenols and bis-(1-phenylethyl)phenols

Hazard statements (CLP) : H312 - Harmful in contact with skin.
H314 - Causes severe skin burns and eye damage.
H317 - May cause an allergic skin reaction.
H361 - Suspected of damaging fertility or the unborn child.
H372 - Causes damage to organs through prolonged or repeated exposure.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) : P201 - Obtain special instructions before use.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water .
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 or doctor.

2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1 Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
barium sulphate, natural substance with national workplace exposure limit(s) (GB)	CAS-No.: 7727-43-7 EC-No.: 231-784-4	≥ 50 – < 75	Not classified
	CAS-No.: 140-31-8 EC-No.: 205-411-0 EC Index-No.: 612-105-00-4	≥ 5 – < 25	Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Dermal), H311 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 Repr. 2, H361 STOT RE 1, H372 Aquatic Chronic 3, H412
Reaction mass of (1-phenylethyl) phenols and bis-(1-phenylethyl)phenols	EC-No.: 701-443-9	≥ 5 – < 25	Skin Irrit. 2, H315 Skin Sens. 1A, H317 Aquatic Chronic 2, H411
REACTION MASS OF TRIENTINE AND TRIENTINE, MONO- AND DI-PROPOXYLATED	EC-No.: 942-835-1	≥ 10 – < 15	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1B, H317 Aquatic Chronic 2, H411
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) substance with national workplace exposure limit(s) (GB)	CAS-No.: 67762-90-7	≥ 0.1 – < 5	Not classified

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
carbon black	CAS-No.: 1333-86-4 EC-No.: 215-609-9	≥ 0.1 – < 5	Not classified

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

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact : Rinse skin with water/shower. Take off immediately all contaminated clothing. Call a physician immediately.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

First-aid measures after ingestion : Rinse mouth. Do not induce vomiting. Call a physician immediately.

First-aid measures for first aider : First aid workers will be equipped with suitable personal protective equipment.

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

Symptoms/effects after skin contact : Burns. May cause an allergic skin reaction.

Symptoms/effects after eye contact : Serious damage to eyes.

Symptoms/effects after ingestion : Burns.

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 : Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Explosion hazard : No direct explosion hazard.

Hazardous decomposition products in case of fire : Toxic fumes may be released. Corrosive vapours.

5.3. Advice for firefighters

Firefighting instructions : Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection. Complete protective clothing. Prevent fire fighting water from entering the environment.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : Ventilate spillage area. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin, eyes and clothing.

6.2. Environmental precautions

Avoid release to the environment. Do not allow to enter drains or water courses.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.

Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station, ventilate curing ovens to prevent emissions in the workplace. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing.

Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.

Storage conditions : Store locked up. Keep container tightly closed. Store in original container.

Incompatible materials : Strong acids, strong bases and oxidation agents.

Packaging materials : Store always product in container of same material as original container.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure and biological limit values

carbon black (1333-86-4)	
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	3.5 mg/m³
WEL STEL (OEL STEL)	7 mg/m³
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) (67762-90-7)	
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	6 mg/m³ inhalable dust; 2.4 mg/m³ respirable dust

barium sulphate, natural (7727-43-7)	
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	10 mg/m³ (Inhalable dust); 4 mg/m³ (Respirable dust)

8.2. Exposure controls

Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station, ventilate curing ovens to prevent emissions in the workplace. Local exhaust and general ventilation must be adequate to meet exposure standards.

Personal protection equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Personal protective equipment symbol(s):

Eye and face protection

Eye protection : Chemical goggles. Wear eye protection

Skin protection

Skin and body protection : Wear suitable protective clothing

Hand protection : Protective gloves. Chemically resistant protective gloves. Nitrile rubber gloves. VITON gloves. Vinyl. Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.

Respiratory protection

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls

Environmental exposure controls : Avoid release to the environment.

Other information : The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Colour : Black.

Odor : Characteristic.

Odour threshold : Not available

Melting point : Not applicable

Freezing point : Not available

Boiling point : Not available

Flammability : Non flammable.

Lower explosion limit : Not available

Upper explosion limit	: Not available
Flash point	: Not available
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: Not available
Viscosity	: Not available
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: 1.73
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Keep away from heat.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Harmful in contact with skin.
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)

MC001838 HARDENER	
ATE CLP (dermal)	1763.98 mg/kg bodyweight
REACTION MASS OF TRIENTINE AND TRIENTINE, MONO- AND DI-PROPOXYLATED	
LD50 oral rat	4500 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity)
LD50 dermal rat	≥ 2150 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)

carbon black (1333-86-4)	
LD50 oral rat	> 10000 mg/kg (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 28 day(s))
LD50 dermal rabbit	> 8000 mg/kg Source: ECHA
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) (67762-90-7)	
LD50 oral rat	> 5000 mg/kg (Rat, Oral)
LD50 dermal rat	> 2000 mg/kg (Rat, Dermal)
N-(2-Aminoethyl)piperazine (140-31-8)	
LD50 oral rat	2097 mg/kg bodyweight (Rat, Male, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	866 mg/kg bw/day (24 h, Rabbit, Male, Experimental value, Dermal, 14 day(s))
barium sulphate, natural (7727-43-7)	
LD50 oral rat	> 5000 mg/kg (Equivalent or similar to OECD 401, Rat, Male, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, Rat, Read-across, Dermal)
Reaction mass of (1-phenylethyl)phenols and bis-(1-phenylethyl)phenols	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method)
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LC50 Inhalation - Rat	> 4.92 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity), Guideline: EU Method B.2 (Acute Toxicity (Inhalation))
Skin corrosion/irritation	Causes severe skin burns.
carbon black (1333-86-4)	
pH	4 – 10 (5%, 20°C)
N-(2-Aminoethyl)piperazine (140-31-8)	
pH	11.4
barium sulphate, natural (7727-43-7)	
pH	No data available in the literature
Reaction mass of (1-phenylethyl)phenols and bis-(1-phenylethyl) phenols	
pH	6.85 Temp.: 30 °C Concentration: 1 vol%
Serious eye damage/irritation	Causes serious eye damage.
carbon black (1333-86-4)	
pH	4 – 10 (5%, 20°C)
N-(2-Aminoethyl)piperazine (140-31-8)	
pH	11.4
barium sulphate, natural (7727-43-7)	
pH	No data available in the literature
Reaction mass of (1-phenylethyl)phenols and bis-(1-phenylethyl)phenols	
pH	6.85 Temp.: 30 °C Concentration: 1 vol%

Respiratory or skin sensitisation Germ cell mutagenicity Carcinogenicity	May cause an allergic skin reaction. Not classified (Based on available data, the classification criteria are not met) Not classified (Based on available data, the classification criteria are not met)
carbon black (1333-86-4)	
IARC group	2B - Possibly carcinogenic to humans
barium sulphate, natural (7727-43-7)	
NOAEL (chronic, oral, animal/male, 2 years)	60 mg/kg bodyweight Animal: rat, Animal sex: male, Remarks on results: other:Effect type: carcinogenicity (migrated information)
NOAEL (chronic, oral, animal/female, 2 years)	75 mg/kg bodyweight Animal: rat, Animal sex: female, Remarks on results: other:Effect type: carcinogenicity (migrated information)
Reproductive toxicity STOT-single exposure STOT-repeated exposure	Suspected of damaging fertility or the unborn child. Not classified (Based on available data, the classification criteria are not met) Causes damage to organs through prolonged or repeated exposure.
REACTION MASS OF TRIENTINE AND TRIENTINE, MONO- AND DI-PROPOXYLATED	
NOAEL (oral, rat, 90 days)	300 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
carbon black (1333-86-4)	
LOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.0071 mg/l air Animal: rat, Animal sex: male, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)
NOAEL (oral, rat, 90 days)	> 1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)
NOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.0011 mg/l air Animal: rat, Animal sex: male, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)
N-(2-Aminoethyl)piperazine (140-31-8)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Reaction mass of (1-phenylethyl)phenols and bis-(1-phenylethyl)phenols	
LOAEL (oral, rat, 90 days)	337 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
NOAEL (dermal, rat/rabbit, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 410 (Repeated Dose Dermal Toxicity: 21/28-Day Study)
Aspiration hazard	Not classified (Based on available data, the classification criteria are not met)
N-(2-Aminoethyl)piperazine (140-31-8)	
Viscosity	No data available in the literature

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short–term (acute) : Not classified (Based on available data, the classification criteria are not met)

Hazardous to the aquatic environment, long–term (chronic) : Toxic to aquatic life with long lasting effects.

REACTION MASS OF TRIENTINE AND TRIENTINE, MONO- AND DI-PROPOXYLATED	
LC50 - Fish [1]	4.1 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [1]	48 mg/l Test organisms (species): Daphnia magna
EC50 - Other aquatic organisms [1]	48 mg/l
REACTION MASS OF TRIENTINE AND TRIENTINE, MONO- AND DI-PROPOXYLATED	
EC50 72h - Algae [1]	4.1 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)
carbon black (1333-86-4)	
LC50 - Fish [1]	> 1000 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Static system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	> 5600 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 24 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
EC50 72h - Algae [1]	> 10000 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
EC50 72h - Algae [2]	> 10000 mg/l Test organisms (species):
ErC50 algae	> 10000 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Nominal concentration)
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) (67762-90-7)	
LC50 - Fish [1]	> 10000 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Brachydanio rerio, Literature)
EC50 - Crustacea [1]	> 1000 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 24 h, Daphnia magna, Literature)
ErC50 algae	> 10000 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Scenedesmus subspicatus, Literature)
N-(2-Aminoethyl)piperazine (140-31-8)	
LC50 - Fish [1]	2190 mg/l (96 h, Pimephales promelas, Static system, Fresh water, Experimental value)
EC50 - Crustacea [1]	58 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Experimental value, GLP)
EC50 72h - Algae [1]	> 1000 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
ErC50 algae	> 1000 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Fresh water, Experimental value, GLP)
barium sulphate, natural (7727-43-7)	
LC50 - Fish [1]	> 174 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Static system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	> 58.8 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 1.15 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)

EC50 72h - Algae [2]	> 30.07 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
ErC50 algae	> 100 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)
Reaction mass of (1-phenylethyl)phenols and bis-(1-phenylethyl)phenols	
LC50 - Fish [1]	1.77 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 72h - Algae [1]	1.35 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
NOEC (chronic)	0.115 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

12.2. Persistence and degradability

MC001838 HARDENER	
Persistence and degradability	Not rapidly degradable
REACTION MASS OF TRIENTINE AND TRIENTINE, MONO- AND DI-PROPOXYLATED	
Persistence and degradability	Not rapidly degradable
carbon black (1333-86-4)	
Persistence and degradability	Biodegradability in soil: not applicable, Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) (67762-90-7)	
Persistence and degradability	Biodegradability in soil: no data available.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable
N-(2-Aminoethyl)piperazine (140-31-8)	
Persistence and degradability	Not readily biodegradable in water.
Chemical oxygen demand (COD)	0.56 g O_2/g substance
barium sulphate, natural (7727-43-7)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
Reaction mass of (1-phenylethyl)phenols and bis-(1-phenylethyl)phenols	
Persistence and degradability	Not rapidly degradable

12.3. Bioaccumulative potential

carbon black (1333-86-4)	
Bioaccumulative potential	Not bioaccumulative.
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) (67762-90-7)	
Bioaccumulative potential	No bioaccumulation data available.

N-(2-Aminoethyl)piperazine (140-31-8)	
BCF - Fish [1]	0.3 – 6.3 (OECD 305: Bioconcentration: Flow-Through Fish Test, 6 week(s), Cyprinus carpio, Flow-through system, Fresh water, Read-across)
Partition coefficient n-octanol/water (Log Pow)	-1.48 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20°C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
barium sulphate, natural (7727-43-7)	
BCF - Fish [1]	1.2 – 74.4 l/kg (Lepomis macrochirus, Fresh water, Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

carbon black (1333-86-4)	
Surface tension	Not applicable (solid)
Ecology - soil	No (test)data on mobility of the substance available. Not toxic to plants. Not toxic to animals.
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) (67762-90-7)	
Ecology - soil	No (test)data on mobility of the substance available.
N-(2-Aminoethyl)piperazine (140-31-8)	
Surface tension	No data available in the literature
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	4.57 (log Koc, Read-across, GLP)
Ecology - soil	Low potential for mobility in soil.
barium sulphate, natural (7727-43-7)	
Surface tension	No data available in the literature
Ecology - soil	No (test)data on mobility of the substance available.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation : Disposal must be done according to official regulations.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Sewage disposal recommendations : Disposal must be done according to official regulations.

Product/Packaging disposal recommendations : Disposal must be done according to official regulations.

Additional information : Do not re-use empty containers.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 2735	UN 2735	UN 2735	UN 2735	UN 2735
14.2. UN proper shipping name				
AMINES, LIQUID, CORROSIVE, N.O.S. (N-(2-Aminoethyl) piperazine)	AMINES, LIQUID, CORROSIVE, N.O.S. (N- 2-Aminoethyl) piperazine)	Amines, liquid, corrosive, n.o.s. (N-(2-Aminoethyl)piperazine)	AMINES, LIQUID, CORROSIVE, N.O.S. (N-2-Aminoethyl) piperazine)	AMINES, LIQUID, CORROSIVE, N.O.S. (N-(2-Aminoethyl) piperazine)
Transport document description				
UN 2735 AMINES, LIQUID, CORROSIVE, N.O.S. (N-(2-Aminoethyl)piperazine), 8, II, (E), ENVIRONMENTALLY HAZARDOUS	UN 2735 AMINES, LIQUID, CORROSIVE, N.O.S. (N-(2-Aminoethyl)piperazine), 8, II, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 2735 Amines, liquid, corrosive, n.o.s. (N-(2-Aminoethyl) piperazine), 8, II, ENVIRONMENTALLY HAZARDOUS	UN 2735 AMINES, LIQUID, CORROSIVE, N.O.S. (N-(2-Aminoethyl)piperazine), 8, II, ENVIRONMENTALLY HAZARDOUS	UN 2735 AMINES, LIQUID, CORROSIVE, N.O.S. (N-(2-Aminoethyl)piperazine), 8, II, ENVIRONMENTALLY HAZARDOUS
14.3. Transport hazard class(es)				
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes EmS-No. (Fire): F-A EmS-No. (Spillage): S-B	Dangerous for the environment: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR) : C7
Special provisions (ADR) : 274
Limited quantities (ADR) : 1l
Excepted quantities (ADR) : E2
Packing instructions (ADR) : P001, IBC02
Mixed packing provisions (ADR) : MP15
Portable tank and bulk container instructions (ADR) : T11
Portable tank and bulk container special provisions (ADR) : TP1, TP27
Tank code (ADR) : L4BN

Vehicle for tank carriage	: AT
Transport category (ADR)	: 2
Hazard identification number (Kemler No.)	: 80
Orange plates	: 
Tunnel restriction code (ADR)	: E
EAC code	: 2X
Transport by sea	
Special provisions (IMDG)	: 274
Limited quantities (IMDG)	: 1 L
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
IBC packing instructions (IMDG)	: IBC02
Tank instructions (IMDG)	: T11
Tank special provisions (IMDG)	: TP1, TP27
Stowage category (IMDG)	: A
Segregation (IMDG)	: SGG18, SG35
Properties and observations (IMDG)	: Colourless to yellowish liquids or solutions with a pungent odour. Miscible with or soluble in water. When involved in a fire, evolve toxic gases. Corrosive to most metals, especially to copper and its alloys. Reacts violently with acids. Cause burns to skin, eyes and mucous membranes.
Air transport	
PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y840
PCA limited quantity max net quantity (IATA)	: 0.5L
PCA packing instructions (IATA)	: 851
PCA max net quantity (IATA)	: 1L
CAO packing instructions (IATA)	: 855
CAO max net quantity (IATA)	: 30L
Special provisions (IATA)	: A3, A803
ERG code (IATA)	: 8L
Inland waterway transport	
Classification code (ADN)	: C7
Special provisions (ADN)	: 274
Limited quantities (ADN)	: 1 L
Excepted quantities (ADN)	: E2
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP, EP
Number of blue cones/lights (ADN)	: 0
Rail transport	
Classification code (RID)	: C7
Special provisions (RID)	: 274
Limited quantities (RID)	: 1L
Excepted quantities (RID)	: E2
Packing instructions (RID)	: P001, IBC02
Mixed packing provisions (RID)	: MP15
Portable tank and bulk container instructions (RID)	: T11

Portable tank and bulk container special provisions (RID)	: TP1, TP27
Tank codes for RID tanks (RID)	: L4BN
Transport category (RID)	: 2
Colis express (express parcels) (RID)	: CE6
Hazard identification number (RID)	: 80

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)	
Reference code	**Applicable on**
3(b)	MC001838 HARDENER ; REACTION MASS OF TRIENTINE AND TRIENTINE, MONO- AND DI-PROPOXYLATED ; N-(2-Aminoethyl)piperazine ; Reaction mass of (1-phenylethyl)phenols and bis-(1-phenylethyl)phenols
3(c)	MC001838 HARDENER ; REACTION MASS OF TRIENTINE AND TRIENTINE, MONO- AND DI-PROPOXYLATED ; N-(2-Aminoethyl)piperazine ; Reaction mass of (1-phenylethyl)phenols and bis-(1-phenylethyl)phenols

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disruptor

Full text of H- and EUH-statements:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
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.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
Repr. 2	Reproductive toxicity, Category 2
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
Skin Sens. 1A	Skin sensitisation, category 1A
Skin Sens. 1B	Skin sensitisation, category 1B
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1

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

1.1 Product identifier

Product form : Mixture

Product name : RESIN

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

Relevant identified uses

Main use category : Professional use

Use of the substance/mixture : Adhesives, binding agents

1.3 Details of the supplier of the safety data sheet

Premier Farnell plc

150 Armley Road, Leeds, LS12 2QQ

+44 (0) 870 129 8608, F + 44 (0) 870 129 8611

1.4. Emergency telephone number

+44(0) 1793 823741

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 1	H318
Skin sensitisation, Category 1	H317
Hazardous to the aquatic environment – Chronic Hazard, Category 2	H411

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

Adverse physicochemical, human health and environmental effects

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Toxic to aquatic life with long lasting effects.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)

GHS05 GHS07 GHS09

Signal word (CLP) : Danger

Contains : 1,4-bis(2,3-epoxypropoxy)butane; bis-[4-(2,3-epoxipropoxi)phenyl] propane, EPOXY RESIN (Number average MW ≤ 700)

Hazard statements (CLP) : H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H318 - Causes serious eye damage.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) : P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P273 - Avoid release to the environment.

P280 - Wear protective gloves, protective clothing, eye protection, face protection.
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 or doctor.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.

2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII
The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1 Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
bis-[4-(2,3-epoxipropoxi)phenyl] propane	CAS-No.: 1675-54-3 EC-No.: 216-823-5 EC Index-No.: 603-073-00-2 REACH-no: 01-2119456619-26	< 75	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411
barium sulphate, natural substance with national workplace exposure limit(s) (GB)	CAS-No.: 7727-43-7 EC-No.: 231-784-4	≥ 25 – < 50	Not classified
1,4-bis(2,3-epoxypropoxy)butane	CAS-No.: 2425-79-8 EC-No.: 219-371-7 EC Index-No.: 603-072-00-7 REACH-no: 01-2119494060-45	≥ 5 – < 10	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) substance with national workplace exposure limit(s) (GB)	CAS-No.: 67762-90-7	≥ 0.1 – < 5	Not classified

Specific concentration limits:

Name	Product identifier	Specific concentration limits (%)
bis-[4-(2,3-epoxipropoxi)phenyl] propane	CAS-No.: 1675-54-3 EC-No.: 216-823-5 EC Index-No.: 603-073-00-2 REACH-no: 01-2119456619-26	(5 ≤ C ≤ 100) Skin Irrit. 2; H315 (5 ≤ C ≤ 100) Eye Irrit. 2; H319

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

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If you feel unwell, seek medical advice.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

First-aid measures for first aider : First aid workers will be equipped with suitable personal protective equipment.

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

Symptoms/effects after skin contact : Burns. May cause an allergic skin reaction.

Symptoms/effects after eye contact : Serious damage to eyes.

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 : Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Explosion hazard : No direct explosion hazard.

Hazardous decomposition products in case of fire : Toxic fumes may be released. Corrosive vapours.

5.3. Advice for firefighters

Firefighting instructions : Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection. Complete protective clothing. Prevent fire fighting water from entering the environment.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Evacuate unnecessary personnel. Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: “Exposure controls/personal protection”.

Emergency procedures : Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment. Do not allow to enter drains or water courses.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.

Methods for cleaning up : Take up liquid spill into absorbent material.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Do not breathe dust created by sanding, grinding or machining.

Precautions for safe handling : Ensure good ventilation of the work station, ventilate curing ovens to prevent emissions in the workplace. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing.

Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.

Storage conditions : Store locked up. Keep container tightly closed. Store in original container.

Packaging materials : Store always product in container of same material as original container.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure and biological limit values

barium sulphate, natural (7727-43-7)	
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	10 mg/m³ (Inhalable dust); 4 mg/m³ (Respirable dust)
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) (67762-90-7)	
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	6 mg/m³ inhalable dust; 2.4 mg/m³ respirable dust

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station, ventilate curing ovens to prevent emissions in the workplace. Ensure there is adequate ventilation.

Personal protection equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Personal protective equipment symbol(s):

Eye and face protection

Eye protection	: Chemical goggles. Wear eye protection

Skin protection

Skin and body protection	: Wear suitable protective clothing
Hand protection	: Protective gloves. Chemically resistant protective gloves. Nitrile rubber gloves. VITON gloves. Vinyl. Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.

Respiratory protection

Respiratory protection	: In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls

Environmental exposure controls	: Avoid release to the environment.
Other information	: The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Beige.
Odor	: Mild odor.
Odour threshold	: Not available
Melting point	: Not applicable
Freezing point	: Not available
Boiling point	: Not available
Flammability	: Non flammable.
Lower explosion limit	: Not available
Upper explosion limit	: Not available
Flash point	: Not available
Auto-ignition temperature	: Not available
Decomposition temperature	: Not available
pH	: Not available
Viscosity	: Not available
Solubility	: Not available
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available

Density	: Not available
Relative density	: 1.69
Relative vapour density at 20°C	: Not available
Particle characteristics	: Not applicable

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7). Keep away from heat.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Harmful in contact with skin.
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)

barium sulphate, natural (7727-43-7)	
LD50 oral rat	> 5000 mg/kg (Equivalent or similar to OECD 401, Rat, Male, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, Rat, Read-across, Dermal)
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) (67762-90-7)	
LD50 oral rat	> 5000 mg/kg (Rat, Oral)
LD50 dermal rat	> 2000 mg/kg (Rat, Dermal)
1,4-bis(2,3-epoxypropoxy)butane (2425-79-8)	
LD50 dermal rat	> 2150 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 420 (Acute Oral Toxicity - Fixed Dose Method)
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal))
Skin corrosion/irritation	Causes skin irritation

barium sulphate, natural (7727-43-7)	
pH	No data available in the literature
Serious eye damage/irritation	Causes serious eye damage.
barium sulphate, natural (7727-43-7)	
pH	No data available in the literature
Respiratory or skin sensitisation Germ cell mutagenicity Carcinogenicity	May cause an allergic skin reaction. Not classified (Based on available data, the classification criteria are not met) Not classified (Based on available data, the classification criteria are not met)
bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)	
IARC group	3 - Not classifiable
barium sulphate, natural (7727-43-7)	
NOAEL (chronic, oral, animal/male, 2 years)	60 mg/kg bodyweight Animal: rat, Animal sex: male, Remarks on results: other:Effect type: carcinogenicity (migrated information)
NOAEL (chronic, oral, animal/female, 2 years)	75 mg/kg bodyweight Animal: rat, Animal sex: female, Remarks on results: other:Effect type: carcinogenicity (migrated information)
bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-	
NOAEL (chronic, oral, animal/male, 2 years)	15 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies), Guideline: EPA OPPTS 870.4300 (Combined Chronic Toxicity / Carcinogenicity), Guideline: other:, Remarks on results: other:
NOAEL (chronic, oral, animal/female, 2 years)	100 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies), Guideline: EPA OPPTS 870.4300 (Combined Chronic Toxicity / Carcinogenicity), Guideline: other:, Remarks on results: other:
Reproductive toxicity STOT-single exposure STOT-repeated exposure	Not classified (Based on available data, the classification criteria are not met) Not classified (Based on available data, the classification criteria are not met) Not classified (Based on available data, the classification criteria are not met)
1,4-bis(2,3-epoxypropoxy)butane (2425-79-8)	
NOAEL (oral, rat, 90 days)	200 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity in Rodents), Guideline: other:OPPTS Guideline 870.3050
bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)	
NOAEL (oral, rat, 90 days)	50 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents), Guideline: EPA OPPTS 870.3100 (90-Day Oral Toxicity in Rodents), Guideline: EU Method B.26 (Sub-Chronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents), Guideline: other:
Aspiration hazard	Not classified (Based on available data, the classification criteria are not met)
1,4-bis(2,3-epoxypropoxy)butane (2425-79-8)	
Viscosity	15.2 mm²/s Temp.: '20°C' Parameter: 'kinematic viscosity (in mm²/s)'

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.

Ecology - water : Toxic to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short–term (acute) : Not classified (Based on available data, the classification criteria are not met)

Hazardous to the aquatic environment, long–term (chronic) : Toxic to aquatic life with long lasting effects.

barium sulphate, natural (7727-43-7)	
LC50 - Fish [1]	> 174 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Static system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	> 58.8 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 1.15 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	> 30.07 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
ErC50 algae	> 100 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) (67762-90-7)	
LC50 - Fish [1]	> 10000 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Brachydanio rerio, Literature)
EC50 - Crustacea [1]	> 1000 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 24 h, Daphnia magna, Literature)
ErC50 algae	> 10000 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Scenedesmus subspicatus, Literature)
1,4-bis(2,3-epoxypropoxy)butane (2425-79-8)	
LC50 - Fish [1]	24 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)	
LC50 - Fish [1]	1.2 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 72h - Algae [1]	9.4 mg/l Test organisms (species): Scenedesmus capricornutum
EC50 72h - Algae [2]	> 11 mg/l Test organisms (species): Scenedesmus capricornutum
LOEC (chronic)	1 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC (chronic)	0.3 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

12.2. Persistence and degradability

MC001838 RESIN	
Persistence and degradability	Not rapidly degradable
barium sulphate, natural (7727-43-7)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)

Siloxanes and Silicones, di-Me, reaction products with silica (Dust) (67762-90-7)	
Persistence and degradability	Biodegradability in soil: no data available.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable
1,4-bis(2,3-epoxypropoxy)butane (2425-79-8)	
Persistence and degradability	Not rapidly degradable
bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)	
Persistence and degradability	Not rapidly degradable

12.3. Bioaccumulative potential

barium sulphate, natural (7727-43-7)	
BCF - Fish [1]	1.2 – 74.4 l/kg (Lepomis macrochirus, Fresh water, Experimental value)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) (67762-90-7)	
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

barium sulphate, natural (7727-43-7)	
Surface tension	No data available in the literature
Ecology - soil	No (test)data on mobility of the substance available.
Siloxanes and Silicones, di-Me, reaction products with silica (Dust) (67762-90-7)	
Ecology - soil	No (test)data on mobility of the substance available.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation : Disposal must be done according to official regulations.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

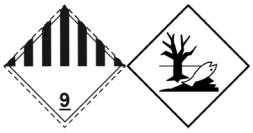
Sewage disposal recommendations : Disposal must be done according to official regulations.

Product/Packaging disposal recommendations : Disposal must be done according to official regulations.

Additional information : Do not re-use empty containers.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 3082	UN 3082	UN 3082	UN 3082	UN 3082
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXY RESIN)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXY RESIN)	Environmentally hazardous substance, liquid, n.o.s. (EPOXY RESIN)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXY RESIN)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXY RESIN)
Transport document description				
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXY RESIN), 9, III, (-)	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXY RESIN), 9, III, MARINE POLLUTANT	UN 3082 Environmentally hazardous substance, liquid, n.o.s. (EPOXY RESIN), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXY RESIN), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXY RESIN), 9, III
14.3. Transport hazard class(es)				
9	9	9	9	9
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes EmS-No. (Fire): F-A EmS-No. (Spillage): S-B	Dangerous for the environment: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR) : M6
Special provisions (ADR) : 274, 335, 375, 601
Limited quantities (ADR) : 5l
Excepted quantities (ADR) : E1
Packing instructions (ADR) : P001, IBC03, LP01, R001
Special packing provisions (ADR) : PP1
Mixed packing provisions (ADR) : MP19
Portable tank and bulk container instructions (ADR) : T4

Portable tank and bulk container special provisions (ADR)	: TP1, TP29
Tank code (ADR)	: LGBV
Vehicle for tank carriage	: AT
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V12
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV13
Hazard identification number (Kemler No.)	: 60
Orange plates	: 
Tunnel restriction code (ADR)	: -
EAC code	: •3Z

Transport by sea

Special provisions (IMDG)	: 274, 335, 969
Limited quantities (IMDG)	: 5 L
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: LP01, P001
Special packing provisions (IMDG)	: PP1
IBC packing instructions (IMDG)	: IBC03
Tank instructions (IMDG)	: T4
Tank special provisions (IMDG)	: TP1, TP29
Stowage category (IMDG)	: A

Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y964
PCA limited quantity max net quantity (IATA)	: 30kgG
PCA packing instructions (IATA)	: 964
PCA max net quantity (IATA)	: 450L
CAO packing instructions (IATA)	: 964
CAO max net quantity (IATA)	: 450L
Special provisions (IATA)	: A97, A158, A197, A215
ERG code (IATA)	: 9L

Inland waterway transport

Classification code (ADN)	: M6
Special provisions (ADN)	: 274, 335, 375, 601
Limited quantities (ADN)	: 5 L
Excepted quantities (ADN)	: E1
Carriage permitted (ADN)	: T
Equipment required (ADN)	: PP
Number of blue cones/lights (ADN)	: 0

Rail transport

Classification code (RID)	: M6
Special provisions (RID)	: 274, 335, 375, 601
Limited quantities (RID)	: 5L
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P001, IBC03, LP01, R001

Special packing provisions (RID)	: PP1
Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T4
Portable tank and bulk container special provisions (RID)	: TP1, TP29
Tank codes for RID tanks (RID)	: LGBV
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W12
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW31
Colis express (express parcels) (RID)	: CE8
Hazard identification number (RID)	: 90

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)	
Reference code	**Applicable on**
3(b)	MC001838 RESIN ; 1,4-bis(2,3-epoxypropoxy)butane ; bis-[4-(2,3-epoxipropoxi)phenyl]propane
3(c)	MC001838 RESIN ; 1,4-bis(2,3-epoxypropoxy)butane ; bis-[4-(2,3-epoxipropoxi)phenyl]propane

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disruptor

Full text of H- and EUH-statements:

Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4

Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
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.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1

Part Number
MC001838