Safety Data Sheet

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Document group:	33-5983-3	**Version number:**	7.00
Revision date:	13/10/2026	**Supersedes date:**	27/02/2026
Transportation version number:			

This Safety Data Sheet has been prepared in accordance with the REACH Regulation (1907/2006) as amended by Regulation (EU) 2020/878

IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier
3M™ Impact Resistant Structural Adhesive PNs 07333, 57333

Product Identification Numbers
60-4550-8333-1 60-4551-1451-6

7100050351 7100273723

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

Identified uses
Automotive.

1.3. Details of the supplier of the safety data sheet

Address: 3M Ireland Limited, 70 SIR JOHN ROGERSON'S QUAY, D02R296 DUBLIN 2
Telephone: +353 1 280 3555
E Mail: ner-productstewardship@mmm.com

Website: www.3M.com

1.4. Emergency telephone number
Emergency medical information: 8am-10pm (seven days) contact National Poisons Information Centre, Beaumont Hospital, Dublin 9 DOV2NO, Ireland. Telephone Number: +353 (0)1 809 2166

This product is a kit or a multipart product which consists of multiple, independently packaged components. A Safety Data Sheet for each of these components is included. Please do not separate the component Safety Data Sheets from this cover page. The document numbers of the MSDSs for components of this product are:

33-5984-1, 33-5988-2

TRANSPORTATION INFORMATION

Refer to section 14 of the kit components for transport information.

KIT LABEL

2.1. Classification of the substance or mixture
CLP REGULATION (EC) No 1272/2008

CLASSIFICATION:
Acute Toxicity, Category 4 - Acute Tox. 4; H302
Skin Corrosion/Irritation, Category 1B - Skin Corr. 1B; H314
Serious Eye Damage/Eye Irritation, Category 1 - Eye Dam. 1; H318
Skin Sensitization, Category 1 - Skin Sens. 1; H317
Germ Cell Mutagenicity, Category 2 - Muta. 2; H341
Hazardous to the Aquatic Environment (Chronic), Category 2 - Aquatic Chronic 2; H411

For full text of H phrases, see Section 16.

2.2. Label elements
CLP REGULATION (EC) No 1272/2008

SIGNAL WORD
DANGER.

Symbols
GHS05 (Corrosion) |GHS07 (Exclamation mark) |GHS08 (Health Hazard) |GHS09 (Environment) |

Pictograms



Contains:
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated; 3,3'-Oxybis(ethyleneoxy)bis(propylamine); bis-[4-(2,3-epoxipropoxi)phenyl]propane; Cyclohexanamine, 4,4'-methylenebis- ; 1-chloro

HAZARD STATEMENTS:

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H341	Suspected of causing genetic defects.
H411	Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS
General:

P102	Keep out of reach of children.

Prevention:

P260A	Do not breathe vapours.
P273	Avoid release to the environment.
P280D	Wear protective gloves, protective clothing, and eye/face protection.

Response:

P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
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 CENTRE or doctor/physician.

Disposal:

P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

Refer to Safety Data Sheet for component % unknown values (www.3M.com/msds).

Revision information:
Label: CLP Ingredients - kit components information was modified.
Label: CLP Precautionary - Prevention information was modified.
Label: Graphic information was modified.

Safety Data Sheet

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Document group:	33-5984-1	**Version number:**	8.00
Revision date:	07/09/2026	**Supersedes date:**	01/08/2026

This Safety Data Sheet has been prepared in accordance with the REACH Regulation (1907/2006) as amended by Regulation (EU) 2020/878

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

1.1. Product identifier
3M™ Impact Resistant Structural Adhesive Part A, PNs 07333, 57333

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

Identified uses
Automotive.

1.3. Details of the supplier of the safety data sheet
Address: 3M Ireland Limited, 70 SIR JOHN ROGERSON'S QUAY, D02R296 DUBLIN 2
Telephone: +353 1 280 3555
E Mail: ner-productstewardship@mmm.com
Website: www.3M.com

1.4. Emergency telephone number
Emergency medical information: 8am-10pm (seven days) contact National Poisons Information Centre, Beaumont Hospital, Dublin 9 DOV2NO, Ireland. Telephone Number: +353 (0)1 809 2166

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
CLP REGULATION (EC) No 1272/2008

The health and environmental classifications of this material have been derived using the calculation method, except in cases where test data are available or the physical form impacts classification. Classification(s) based on test data or physical form are noted below, if applicable.

CLASSIFICATION:
Acute Toxicity, Category 4 - Acute Tox. 4; H302
Skin Corrosion/Irritation, Category 1B - Skin Corr. 1B; H314
Serious Eye Damage/Eye Irritation, Category 1 - Eye Dam. 1; H318
Skin Sensitization, Category 1 - Skin Sens. 1; H317

For full text of H phrases, see Section 16.

2.2. Label elements
CLP REGULATION (EC) No 1272/2008

SIGNAL WORD
DANGER.

Symbols
GHS05 (Corrosion) |GHS07 (Exclamation mark) |

Pictograms



Ingredients:

Ingredient	Identifier(s)	EC No.	% by Wt
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	224-207-2	15 - 40
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	68683-29-4		5 - 10
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	217-168-8	5 - 9
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	202-013-9	< 3
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88-2	603-894-6	< 2
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	216-032-5	< 2
2-piperazin-1-ylethylamine	140-31-8	205-411-0	< 0.25
1-chloro-2,3-epoxypropane	106-89-8	203-439-8	< 0.03

HAZARD STATEMENTS:

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.

PRECAUTIONARY STATEMENTS

Prevention:

P260A	Do not breathe vapours.
P280D	Wear protective gloves, protective clothing, and eye/face protection.

Response:

P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
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 CENTRE or doctor/physician.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

37% of the mixture consists of components of unknown acute oral toxicity.
37% of the mixture consists of components of unknown acute dermal toxicity.

Contains 31% of components with unknown hazards to the aquatic environment.

2.3. Other hazards

Persons previously sensitised to amines may develop a cross-sensitisation reaction to certain other amines.
This material does not contain any substances that are assessed to be a PBT or vPvB

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

Ingredient	Identifier(s)	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	(CAS-No.) 4246-51-9 (EC-No.) 224-207-2 (REACH-No.) 01-2119963377-26	15 - 40	Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317
Epoxy Copolymer (NJTS Reg No. 04499600-7155)	Trade Secret	10 - 30	Substance not classified as hazardous
Acrylic copolymer	Trade Secret	5 - 15	Substance not classified as hazardous
Aluminium	(CAS-No.) 7429-90-5 (EC-No.) 231-072-3 (REACH-No.) 01-2119529243-45	5 - 10	Flam. Sol. 1, H228 Water-react. 2, H261 Nota T
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	(CAS-No.) 68683-29-4	5 - 10	Skin Irrit. 2, H315 Skin Sens. 1A, H317
4,4'-Methylenebis(cyclohexylamine)	(CAS-No.) 1761-71-3 (EC-No.) 217-168-8	5 - 9	Acute Tox. 4, H302 Skin Corr. 1B, H314 Skin Sens. 1, H317 STOT SE 3, H335 STOT RE 2, H373
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Trade Secret	3 - 7	Substance not classified as hazardous
Mineral Filler (NJTS Reg No. 04499600-7156)	Trade Secret	1 - 5	Substance not classified as hazardous
Treated Filler (NJTS Reg No. 04499600-7152)	Trade Secret	1 - 5	Substance with a national occupational exposure limit
Inorganic Filler (NJTS Reg No. 04499600-7153)	Trade Secret	1 - 5	Substance with a national occupational exposure limit
2,4,6-tris(dimethylaminomethyl)phenol	(CAS-No.) 90-72-2 (EC-No.) 202-013-9 (REACH-No.) 01-2119560597-27	< 3	Acute Tox. 4, H302 Skin Corr. 1C, H314 Eye Dam. 1, H318
m-Xylene-.alpha.alpha'.-diamine	(CAS-No.) 1477-55-0 (EC-No.) 216-032-5	< 2	EUH071 Acute Tox. 4, H332 Acute Tox. 4, H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1A, H317

			Aquatic Chronic 3, H412
Formaldehyde, polymer with benzenamine, hydrogenated	(CAS-No.) 135108-88-2 (EC-No.) 603-894-6	< 2	Acute Tox. 3, H301 Skin Corr. 1C, H314 Skin Sens. 1, H317 STOT RE 2, H373 Aquatic Chronic 3, H412
2-piperazin-1-ylethylamine	(CAS-No.) 140-31-8 (EC-No.) 205-411-0	< 0.25	Acute Tox. 3, H311 Acute Tox. 4, H302 Skin Corr. 1B, H314 Skin Sens. 1B, H317 Aquatic Chronic 3, H412 Repr. 2, H361d STOT RE 1, H372
Quartz	(CAS-No.) 14808-60-7 (EC-No.) 238-878-4	< 0.2	STOT RE 1, H372
1-chloro-2,3-epoxypropane	(CAS-No.) 106-89-8 (EC-No.) 203-439-8	< 0.03	Flam. Liq. 3, H226 Acute Tox. 3, H331 Acute Tox. 3, H311 Acute Tox. 3, H301 Skin Corr. 1B, H314 Skin Sens. 1, H317 Carc. 1B, H350 Repr. 2, H361f

Any entry in the Identifier(s) column that begins with the numbers 6, 7, 8, or 9 are a Provisional List Number provided by ECHA pending publication of the official EC Inventory Number for the substance.
Please see section 16 for the full text of any H statements referred to in this section

For information on ingredient occupational exposure limits or PBT or vPvB status, see sections 8 and 12 of this SDS

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Remove person to fresh air. Get immediate medical attention.

Skin contact
Immediately flush with large amounts of water for at least 15 minutes. Remove contaminated clothing. Get immediate medical attention. Wash clothing before reuse.

Eye contact
Immediately flush with large amounts of water for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately get medical attention.

If swallowed
Rinse mouth. Do not induce vomiting. Get immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed
The most important symptoms and effects based on the CLP classification include:
Skin burns (localized redness, swelling, itching, intense pain, blistering, and tissue destruction). Allergic skin reaction (redness, swelling, blistering, and itching). Serious damage to the eyes (corneal cloudiness, severe pain, tearing, ulcerations, and significantly impaired or loss of vision). Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

5.3. Advice for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapours, in accordance with good industrial hygiene practice. Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to sections 2 and 11 of the SDS.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dykes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorised person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and Safety Data Sheet. Seal the container. Dispose of collected material as soon as possible.

6.4. Reference to other sections
Refer to Section 8 and Section 13 for more information

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Keep out of reach of children. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (eg. gloves, respirators…) as required.

7.2. Conditions for safe storage including any incompatibilities
Store in a well-ventilated place. Keep container tightly closed. Store away from heat. Store away from acids. Store away from oxidising agents.

7.3. Specific end use(s)
See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	Identifier(s)	Agency	Limit type	Additional comments
1-chloro-2,3-epoxypropane	106-89-8	Ireland OELs	TWA(8 hours):1.9 mg/m3;TWA(8 hours):1.9 mg/m3	Presumed carc potential humans, Resp/Dermal sensitizer, SKIN, SKIN; Resp+Dermal sensitizer
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Ireland OELs	TWA(8 hours):0.1 mg/m3	
Silica, crystalline, respirable dust (Cristobalite, Quartz, Tridymite, Tripoli)	14808-60-7	Ireland OELs	TWA(as respirable dust)(8 hours):0.1 mg/m3	
Aluminium	7429-90-5	Ireland OELs	TWA(respirable fraction)(8 hours):1 mg/m3	
Inorganic Filler (NJTS Reg No. 04499600-7153)	Trade Secret	Manufacturer determined	TWA(as non-fibrous, respirable)(8 hours):3 mg/m3;TWA(as non-fibrous, inhalable fraction)(8 hours):10 mg/m3	
Inorganic Filler (NJTS Reg No. 04499600-7153)	Trade Secret	Ireland OELs	TWA(8 hours):5 mg/m3	
Inorganic Filler (NJTS Reg No. 04499600-7153)	Trade Secret	Ireland OELs	TWA(Total inhalable dust)(8 hours):10 mg/m3;TWA(as respirable dust)(8 hours):4 mg/m3	
Treated Filler (NJTS Reg No. 04499600-7152)	Trade Secret	Ireland OELs	TWA(Total inhalable dust)(8 hours):10 mg/m3;TWA(as respirable dust)(8 hours):4 mg/m3	

Ireland OELs : Ireland. OELs
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

Biological limit values
No biological limit values exist for any of the components listed in Section 3 of this safety data sheet.

Recommended monitoring procedures: Information on recommended monitoring procedures can be obtained from Indust. Inspect./Ministry (IE)

8.2. Exposure controls

8.2.1. Engineering controls
Provide ventilated enclosure for heat curing. Curing enclosures must be exhausted to outdoors or to a suitable emission control device. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapours/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Full face shield.
Indirect vented goggles.

Applicable Norms/Standards
Use eye/face protection conforming to EN 16321

Skin/hand protection
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. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.
Gloves made from the following material(s) are recommended:

Material	Thickness (mm)	Breakthrough Time
Polymer laminate	No data available	No data available

Applicable Norms/Standards
Use gloves tested to EN 374

If this product is used in a manner that presents a higher potential for exposure (e.g., spraying, high splash potential, etc.), then use of a protective apron may be necessary. See recommended glove material(s) for determining appropriate apron material(s). If a glove material is not available as an apron, polymer laminate is a suitable option.

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapours and particulates
Half facepiece or full facepiece supplied-air respirator

For questions about suitability for a specific application, consult with your respirator manufacturer.

Applicable Norms/Standards
Use a respirator conforming to EN 140 or EN 136
Use a respirator conforming to EN 140 or EN 136: filter types A & P

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Specific Physical Form:	Paste
Colour	Silver-Gray
Odor	Slight Amine
Odour threshold	*No data available.*
Melting point/freezing point	*No data available.*
Boiling point/boiling range	*No data available.*

Flammability	Not applicable.
Flammable Limits(LEL)	*No data available.*
Flammable Limits(UEL)	*No data available.*
Flash point	103.9 ºC [*Test Method:*Closed Cup]
Autoignition temperature	*No data available.*
Decomposition temperature	*No data available.*
pH	*substance/mixture is non-soluble (in water)*
Kinematic Viscosity	46,610 mm²/sec
Water solubility	*No data available.*
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Vapour pressure	666.6 Pa
Density	1.18 g/ml
Relative density	1.18 [*Ref Std:*WATER=1]
Relative Vapour Density	*No data available.*
Particle Characteristics	*Not applicable.*

9.2. Other information

9.2.2 Other safety characteristics

EU Volatile Organic Compounds	*No data available.*
Evaporation rate	*No data available.*
Molecular weight	*No data available.*
Percent volatile	0.3 % weight

SECTION 10: Stability and reactivity

10.1 Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section

10.2 Chemical stability
Stable.

10.3 Possibility of hazardous reactions
Hazardous polymerisation will not occur.

10.4 Conditions to avoid
Heat.
Sparks and/or flames.

10.5 Incompatible materials
Strong acids.
Strong oxidising agents.

10.6 Hazardous decomposition products

Substance	Condition
Aldehydes.	Not specified.
Carbon monoxide	Not specified.
Carbon dioxide.	Not specified.

SECTION 11: Toxicological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 11 are based on UN GHS calculation rules and classifications derived from internal hazard assessments.

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

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation
Respiratory tract corrosion: Signs/symptoms may include nasal discharge, severe nose and throat pain, chest tightness and pain, coughing up blood, wheezing, and breathlessness, possibly progressing to respiratory failure. May cause additional health effects (see below).

Skin contact
May be harmful in contact with skin. Corrosive (skin burns): Signs/symptoms may include localised redness, swelling, itching, intense pain, blistering, ulceration, and tissue destruction. Allergic skin reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye contact
Corrosive (eye burns): Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision.

Ingestion
Harmful if swallowed.
Gastrointestinal corrosion: Signs/symptoms may include severe mouth, throat and abdominal pain, nausea, vomiting, and diarrhea; blood in the faeces and/or vomitus may also be seen. May cause additional health effects (see below).

Additional Health Effects:

Prolonged or repeated exposure may cause target organ effects:
Liver effects: Signs/symptoms may include loss of appetite, weight loss, fatigue, weakness, abdominal tenderness and jaundice. Muscular effects: Signs/symptoms may include generalised muscle weakness, paralysis and atrophy. Kidney/Bladder effects: Signs/symptoms may include changes in urine production, abdominal or lower back pain, increased protein in urine, increased blood urea nitrogen (BUN), blood in urine, and painful urination.

Reproductive/Developmental Toxicity:
Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Carcinogenicity:
Contains a chemical or chemicals which can cause cancer.

Additional information:
Persons previously sensitised to amines may develop a cross-sensitisation reaction to certain other amines.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value

Overall product	Dermal		No data available; calculated ATE >2,000 - =5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE >300 - =2,000 mg/kg
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Dermal	Rabbit	LD50 2,525 mg/kg
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Ingestion	Rat	LD50 2,850 mg/kg
Aluminium	Dermal		LD50 estimated to be > 5,000 mg/kg
Aluminium	Ingestion		LD50 estimated to be > 5,000 mg/kg
Aluminium	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.888 mg/l
4,4'-Methylenebis(cyclohexylamine)	Dermal	Rabbit	LD50 2,110 mg/kg
4,4'-Methylenebis(cyclohexylamine)	Ingestion	Rat	LD50 350 mg/kg
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	Dermal	Rabbit	LD50 > 3,000 mg/kg
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	Ingestion	Rat	LD50 > 15,300 mg/kg
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Dermal	Rabbit	LD50 > 5,000 mg/kg
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Ingestion	Rat	LD50 > 5,110 mg/kg
Treated Filler (NJTS Reg No. 04499600-7152)	Dermal	Rat	LD50 > 2,000 mg/kg
Treated Filler (NJTS Reg No. 04499600-7152)	Inhalation-Dust/Mist (4 hours)	Rat	LC50 3 mg/l
Treated Filler (NJTS Reg No. 04499600-7152)	Ingestion	Rat	LD50 6,450 mg/kg
Mineral Filler (NJTS Reg No. 04499600-7156)	Ingestion	Rat	LD50 > 5,000 mg/kg
Mineral Filler (NJTS Reg No. 04499600-7156)	Dermal	similar compounds	LD50 > 5,000 mg/kg
Mineral Filler (NJTS Reg No. 04499600-7156)	Inhalation-Dust/Mist (4 hours)	similar compounds	LC50 > 2.08 mg/l
2,4,6-tris(dimethylaminomethyl)phenol	Dermal	Rat	LD50 1,280 mg/kg
2,4,6-tris(dimethylaminomethyl)phenol	Ingestion	Rat	LD50 1,000 mg/kg
m-Xylene-.alpha.alpha'.-diamine	Dermal	Rabbit	LD50 > 2,000 mg/kg
m-Xylene-.alpha.alpha'.-diamine	Inhalation-Dust/Mist (4 hours)	Rat	LC50 1.2 mg/l
m-Xylene-.alpha.alpha'.-diamine	Ingestion	Rat	LD50 980 mg/kg
Formaldehyde, polymer with benzenamine, hydrogenated	Dermal	Rat	LD50 > 700 mg/kg
Formaldehyde, polymer with benzenamine, hydrogenated	Ingestion	Rat	LD50 300 mg/kg
Inorganic Filler (NJTS Reg No. 04499600-7153)	Dermal		LD50 estimated to be > 5,000 mg/kg
Inorganic Filler (NJTS Reg No. 04499600-7153)	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
2-piperazin-1-ylethylamine	Dermal	Rabbit	LD50 865 mg/kg
2-piperazin-1-ylethylamine	Ingestion	Rat	LD50 1,470 mg/kg
Quartz	Dermal		LD50 estimated to be > 5,000 mg/kg
Quartz	Ingestion		LD50 estimated to be > 5,000 mg/kg
1-chloro-2,3-epoxypropane	Dermal	Rabbit	LD50 755 mg/kg
1-chloro-2,3-epoxypropane	Inhalation-Vapour (4 hours)	Rat	LC50 1.7 mg/l
1-chloro-2,3-epoxypropane	Ingestion	Rat	LD50 260 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Rabbit	Corrosive
Aluminium	Rabbit	No significant irritation
4,4'-Methylenebis(cyclohexylamine)	Rabbit	Corrosive

2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	Rabbit	Irritant
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Rabbit	No significant irritation
Treated Filler (NJTS Reg No. 04499600-7152)	Rabbit	No significant irritation
Mineral Filler (NJTS Reg No. 04499600-7156)	similar compounds	No significant irritation
2,4,6-tris(dimethylaminomethyl)phenol	Rabbit	Corrosive
m-Xylene-.alpha.alpha'.-diamine	Rat	Corrosive
Formaldehyde, polymer with benzenamine, hydrogenated	In vitro data	Corrosive
Inorganic Filler (NJTS Reg No. 04499600-7153)	Professional judgement	No significant irritation
2-piperazin-1-ylethylamine	Rabbit	Corrosive
Quartz	Professional judgement	No significant irritation
1-chloro-2,3-epoxypropane	Human and animal	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Rabbit	Corrosive
Aluminium	Rabbit	No significant irritation
4,4'-Methylenebis(cyclohexylamine)	Rabbit	Corrosive
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	Rabbit	Mild irritant
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Rabbit	No significant irritation
Treated Filler (NJTS Reg No. 04499600-7152)	Rabbit	No significant irritation
Mineral Filler (NJTS Reg No. 04499600-7156)	similar compounds	Mild irritant
2,4,6-tris(dimethylaminomethyl)phenol	Rabbit	Corrosive
m-Xylene-.alpha.alpha'.-diamine	Rabbit	Corrosive
Formaldehyde, polymer with benzenamine, hydrogenated	similar health hazards	Corrosive
Inorganic Filler (NJTS Reg No. 04499600-7153)	Professional judgement	No significant irritation
2-piperazin-1-ylethylamine	Rabbit	Corrosive
1-chloro-2,3-epoxypropane	Rabbit	Corrosive

Skin Sensitisation

Name	Species	Value
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Professional judgement	Sensitising
Aluminium	Guinea pig	Not classified
4,4'-Methylenebis(cyclohexylamine)	Guinea pig	Sensitising
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	Guinea pig	Sensitising
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Human and animal	Not classified

Mineral Filler (NJTS Reg No. 04499600-7156)	Human	Not classified
2,4,6-tris(dimethylaminomethyl)phenol	Guinea pig	Not classified
m-Xylene-.alpha.alpha'.-diamine	Guinea pig	Sensitising
Formaldehyde, polymer with benzenamine, hydrogenated	Professional judgement	Sensitising
2-piperazin-1-ylethylamine	Guinea pig	Sensitising
1-chloro-2,3-epoxypropane	Human and animal	Sensitising

Respiratory Sensitisation

Name	Species	Value
Aluminium	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	In Vitro	Not mutagenic
Aluminium	In Vitro	Not mutagenic
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	In Vitro	Not mutagenic
Mineral Filler (NJTS Reg No. 04499600-7156)	In Vitro	Not mutagenic
Mineral Filler (NJTS Reg No. 04499600-7156)	In vivo	Not mutagenic
2,4,6-tris(dimethylaminomethyl)phenol	In Vitro	Not mutagenic
m-Xylene-.alpha.alpha'.-diamine	In Vitro	Not mutagenic
m-Xylene-.alpha.alpha'.-diamine	In vivo	Not mutagenic
Formaldehyde, polymer with benzenamine, hydrogenated	In Vitro	Not mutagenic
Inorganic Filler (NJTS Reg No. 04499600-7153)	In Vitro	Some positive data exist, but the data are not sufficient for classification
2-piperazin-1-ylethylamine	In vivo	Not mutagenic
2-piperazin-1-ylethylamine	In Vitro	Some positive data exist, but the data are not sufficient for classification
Quartz	In Vitro	Some positive data exist, but the data are not sufficient for classification
Quartz	In vivo	Some positive data exist, but the data are not sufficient for classification
1-chloro-2,3-epoxypropane	In Vitro	Some positive data exist, but the data are not sufficient for classification
1-chloro-2,3-epoxypropane	In vivo	Mutagenic

Carcinogenicity

Name	Route	Species	Value
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Not specified.	Mouse	Some positive data exist, but the data are not sufficient for classification
Inorganic Filler (NJTS Reg No. 04499600-7153)	Inhalation	Multiple animal species	Some positive data exist, but the data are not sufficient for classification
Quartz	Inhalation	Human and animal	Carcinogenic.
1-chloro-2,3-epoxypropane	Dermal	Mouse	Not carcinogenic
1-chloro-2,3-epoxypropane	Ingestion	Rat	Carcinogenic.
1-chloro-2,3-epoxypropane	Inhalation	Rat	Carcinogenic.

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure

					Duration
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Ingestion	Not classified for female reproduction	Rat	NOAEL 600 mg/kg/day	premating into lactation
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Ingestion	Not classified for male reproduction	Rat	NOAEL 600 mg/kg/day	59 days
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Ingestion	Not classified for development	Rat	NOAEL 600 mg/kg/day	premating into lactation
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
Treated Filler (NJTS Reg No. 04499600-7152)	Ingestion	Not classified for development	Rat	NOAEL 625 mg/kg/day	premating & during gestation
Mineral Filler (NJTS Reg No. 04499600-7156)	Ingestion	Not classified for development	Multiple animal species	NOAEL 1,600 mg/kg/day	during organogenesis
2,4,6-tris(dimethylaminomethyl)phenol	Ingestion	Not classified for male reproduction	Rat	NOAEL 150 mg/kg/day	2 generation
2,4,6-tris(dimethylaminomethyl)phenol	Ingestion	Not classified for female reproduction	Rat	NOAEL 50 mg/kg/day	2 generation
2,4,6-tris(dimethylaminomethyl)phenol	Ingestion	Not classified for development	Rabbit	NOAEL 15 mg/kg/day	during gestation
m-Xylene-.alpha.alpha'.-diamine	Ingestion	Not classified for female reproduction	Rat	NOAEL 450 mg/kg/day	premating into lactation
m-Xylene-.alpha.alpha'.-diamine	Ingestion	Not classified for male reproduction	Rat	NOAEL 450 mg/kg/day	48 days
m-Xylene-.alpha.alpha'.-diamine	Ingestion	Not classified for development	Rat	NOAEL 450 mg/kg/day	premating into lactation
Formaldehyde, polymer with benzenamine, hydrogenated	Ingestion	Not classified for female reproduction	Rat	NOAEL 140 mg/kg/day	premating into lactation
Formaldehyde, polymer with benzenamine, hydrogenated	Ingestion	Not classified for male reproduction	Rat	NOAEL 140 mg/kg/day	28 days
Formaldehyde, polymer with benzenamine, hydrogenated	Ingestion	Not classified for development	Rat	NOAEL 280 mg/kg/day	during gestation
2-piperazin-1-ylethylamine	Ingestion	Not classified for female reproduction	Rat	NOAEL 598 mg/kg/day	premating & during gestation
2-piperazin-1-ylethylamine	Ingestion	Not classified for male reproduction	Rat	NOAEL 409 mg/kg/day	32 days
2-piperazin-1-ylethylamine	Ingestion	Toxic to development	Rabbit	NOAEL 75 mg/kg/day	during gestation
1-chloro-2,3-epoxypropane	Inhalation	Not classified for female reproduction	Rat	NOAEL 0.2 mg/l	10 weeks
1-chloro-2,3-epoxypropane	Inhalation	Not classified for development	Multiple animal species	NOAEL 0.09 mg/l	during organogenesis
1-chloro-2,3-epoxypropane	Ingestion	Not classified for development	Multiple animal species	NOAEL 160 mg/kg/day	during gestation
1-chloro-2,3-epoxypropane	Ingestion	Toxic to male reproduction	Rat	LOAEL 6.25 mg/kg/day	23 days
1-chloro-2,3-epoxypropane	Inhalation	Toxic to male reproduction	Rat	NOAEL 0.02 mg/l	10 weeks

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	

4,4'-Methylenebis(cyclohexylamine)	Inhalation	respiratory irritation	May cause respiratory irritation	similar health hazards	NOAEL Not available	
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL not available	
Treated Filler (NJTS Reg No. 04499600-7152)	Inhalation	respiratory system	Not classified	Rat	NOAEL 0.812 mg/l	90 minutes
2,4,6-tris(dimethylaminomethyl) phenol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
m-Xylene-.alpha.alpha'.-diamine	Inhalation	respiratory irritation	May cause respiratory irritation	similar health hazards	NOAEL Not avaliable	
Formaldehyde, polymer with benzenamine, hydrogenated	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
2-piperazin-1-ylethylamine	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
1-chloro-2,3-epoxypropane	Inhalation	respiratory irritation	May cause respiratory irritation	Human	NOAEL not available	occupational exposure

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Ingestion	gastrointestinal tract | heart | endocrine system | bone, teeth, nails, and/or hair | hematopoietic system | liver | immune system | muscles | nervous system | eyes | kidney and/or bladder | respiratory system | vascular system	Not classified	Rat	NOAEL 600 mg/kg/day	59 days
Aluminium	Inhalation	nervous system | respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
4,4'-Methylenebis(cyclohexylamine)	Ingestion	liver | muscles	May cause damage to organs though prolonged or repeated exposure	Rat	NOAEL 15 mg/kg/day	36 days
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure
Treated Filler (NJTS Reg No. 04499600-7152)	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
Mineral Filler (NJTS Reg No. 04499600-7156)	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
Mineral Filler (NJTS Reg No. 04499600-7156)	Inhalation	pulmonary fibrosis	Not classified	Human and animal	NOAEL Not available	
Mineral Filler (NJTS Reg No. 04499600-7156)	Ingestion	liver | kidney and/or bladder | hematopoietic system	Not classified	Rat	NOAEL 2,500 mg/kg/day	2 years
2,4,6-tris(dimethylaminomethyl) phenol	Dermal	skin	Not classified	Rat	NOAEL 25 mg/kg/day	4 weeks
2,4,6-tris(dimethylaminomethyl) phenol	Dermal	liver | nervous system | auditory system | hematopoietic	Not classified	Rat	NOAEL 125 mg/kg/day	4 weeks

		system | eyes				
2,4,6-tris(dimethylaminomethyl) phenol	Ingestion	heart | endocrine system | hematopoietic system | liver | muscles | nervous system | kidney and/or bladder | respiratory system | vascular system | auditory system | skin | gastrointestinal tract | bone, teeth, nails, and/or hair | immune system | eyes	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
m-Xylene-.alpha.alpha'.-diamine	Inhalation	respiratory system	Not classified	Rat	NOAEL 0.005 mg/l	13 weeks
m-Xylene-.alpha.alpha'.-diamine	Inhalation	heart | skin | endocrine system | gastrointestinal tract | bone, teeth, nails, and/or hair | hematopoietic system | liver | immune system | muscles | nervous system | eyes | kidney and/or bladder | vascular system	Not classified	Rat	NOAEL 0.03 mg/l	13 weeks
m-Xylene-.alpha.alpha'.-diamine	Ingestion	endocrine system | hematopoietic system	Not classified	Rat	NOAEL 600 mg/kg/day	28 days
m-Xylene-.alpha.alpha'.-diamine	Ingestion	gastrointestinal tract	Not classified	Rat	NOAEL 150 mg/kg/day	28 days
m-Xylene-.alpha.alpha'.-diamine	Ingestion	heart | liver | immune system | kidney and/or bladder	Not classified	Rat	NOAEL 600 mg/kg/day	28 days
Formaldehyde, polymer with benzenamine, hydrogenated	Ingestion	kidney and/or bladder	May cause damage to organs though prolonged or repeated exposure	Rat	NOAEL 15 mg/kg/day	28 days
Formaldehyde, polymer with benzenamine, hydrogenated	Ingestion	endocrine system | hematopoietic system | liver | nervous system	Not classified	Rat	NOAEL 300 mg/kg/day	28 days
Inorganic Filler (NJTS Reg No. 04499600-7153)	Inhalation	respiratory system	Not classified	Human	NOAEL not available	occupational exposure
2-piperazin-1-ylethylamine	Dermal	skin	Not classified	Rat	NOAEL 100 mg/kg/day	29 days
2-piperazin-1-ylethylamine	Dermal	hematopoietic system | nervous system | kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	29 days
2-piperazin-1-ylethylamine	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	NOAEL 0.2 mg/m³	13 weeks
2-piperazin-1-ylethylamine	Inhalation	hematopoietic system | eyes | kidney and/or bladder	Not classified	Rat	NOAEL 53.8 mg/m³	13 weeks
2-piperazin-1-ylethylamine	Ingestion	heart | endocrine system | hematopoietic system | liver | nervous system | kidney and/or bladder	Not classified	Rat	NOAEL 598 mg/kg/day	28 days

Quartz	Inhalation	silicosis	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	occupational exposure
1-chloro-2,3-epoxypropane	Inhalation	endocrine system | liver | kidney and/or bladder	Not classified	Rat	NOAEL 1.9 mg/l	87 days
1-chloro-2,3-epoxypropane	Inhalation	respiratory system	Not classified	Rat	NOAEL 0.19 mg/l	87 days
1-chloro-2,3-epoxypropane	Inhalation	heart | skin | gastrointestinal tract | bone, teeth, nails, and/or hair | hematopoietic system | immune system | nervous system | eyes | vascular system	Not classified	Rat	NOAEL 1.9 mg/l	87 days
1-chloro-2,3-epoxypropane	Ingestion	hematopoietic system | liver | kidney and/or bladder	Not classified	Rat	NOAEL 25 mg/kg/day	90 days
1-chloro-2,3-epoxypropane	Ingestion	gastrointestinal tract	Not classified	Rat	NOAEL 1 mg/kg/day	90 days
1-chloro-2,3-epoxypropane	Ingestion	heart | endocrine system | immune system | nervous system | eyes	Not classified	Rat	NOAEL 25 mg/kg/day	90 days

Aspiration Hazard
For the component/components, either no data is currently available or the data is not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

11.2. Information on other hazards

This material does not contain any substances that are assessed to be an endocrine disruptor for human health.

SECTION 12: Ecological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 12 are based on UN GHS calculation rules and classifications derived from 3M assessments.

12.1. Toxicity

No product test data available.

Material	Identifier(s)	Organism	Type	Exposure	Test endpoint	Test result
3,3'-Oxybis(ethyleneoxy)bis (propylamine)	4246-51-9	Bacteria	Experimental	17 hours	EC50	4,000 mg/l
3,3'-Oxybis(ethyleneoxy)bis (propylamine)	4246-51-9	Golden Orfe	Experimental	96 hours	LC50	>1,000 mg/l
3,3'-Oxybis(ethyleneoxy)bis (propylamine)	4246-51-9	Green algae	Experimental	72 hours	EC50	>500 mg/l
3,3'-Oxybis(ethyleneoxy)bis (propylamine)	4246-51-9	Water flea	Experimental	48 hours	EC50	218.16 mg/l

3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Green algae	Experimental	72 hours	EC10	5.4 mg/l
Epoxy Copolymer (NJTS Reg No. 04499600-7155)	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Acrylic copolymer	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	68683-29-4	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Aluminium	7429-90-5	Brown trout	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminium	7429-90-5	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminium	7429-90-5	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminium	7429-90-5	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	>100 mg/l
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Golden Orfe	Experimental	96 hours	LC50	>100 mg/l
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Green algae	Experimental	72 hours	EC50	140 mg/l
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Water flea	Experimental	48 hours	EC50	7.07 mg/l
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Water flea	Analogous Compound	21 days	NOEC	4 mg/l
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Green algae	Experimental	72 hours	EC10	100 mg/l
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Redworm	Analogous Compound	56 days	EC10	228 mg/kg (Dry Weight)
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Soil microbes	Analogous Compound	28 days	EC10	>1,000 mg/kg (Dry Weight)
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Bacteria	Experimental	30 minutes	EC50	156 mg/l
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Inorganic Filler (NJTS Reg No. 04499600-7153)	Trade Secret	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
Inorganic Filler (NJTS Reg No. 04499600-7153)	Trade Secret	Water flea	Experimental	72 hours	EC50	>1,000 mg/l
Inorganic Filler (NJTS Reg No. 04499600-7153)	Trade Secret	Zebra Fish	Experimental	96 hours	LC50	>1,000 mg/l
Inorganic Filler (NJTS Reg No. 04499600-7153)	Trade Secret	Green algae	Experimental	72 hours	NOEC	>=1,000 mg/l
Mineral Filler (NJTS Reg No. 04499600-7156)	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Treated Filler (NJTS Reg No. 04499600-7152)	Trade Secret	Green algae	Estimated	72 hours	EC50	>100 mg/l

Treated Filler (NJTS Reg No. 04499600-7152)	Trade Secret	Rainbow trout	Estimated	96 hours	LC50	>100 mg/l
Treated Filler (NJTS Reg No. 04499600-7152)	Trade Secret	Water flea	Estimated	48 hours	EC50	>100 mg/l
Treated Filler (NJTS Reg No. 04499600-7152)	Trade Secret	Green algae	Estimated	72 hours	EC10	>100 mg/l
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	N/A	Experimental	96 hours	LC50	718 mg/l
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	Common Carp	Experimental	96 hours	LC50	>100 mg/l
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	Green algae	Experimental	72 hours	EC50	46.7 mg/l
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	Water flea	Experimental	48 hours	EC50	>100 mg/l
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	Green algae	Experimental	72 hours	NOEC	6.44 mg/l
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88-2	Activated sludge	Experimental	3 hours	EC50	186.7 mg/l
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88-2	Green algae	Experimental	72 hours	EC50	43.94 mg/l
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88-2	Guppy	Experimental	96 hours	LC50	63 mg/l
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88-2	Water flea	Experimental	48 hours	EC50	15.4 mg/l
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88-2	Green algae	Experimental	72 hours	EC10	1.2 mg/l
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Activated sludge	Experimental	30 minutes	EC50	>1,000 mg/l
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Bacteria	Experimental	16 hours	EC10	24 mg/l
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Green algae	Experimental	72 hours	ErC50	28 mg/l
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Medaka	Experimental	96 hours	LC50	87.6 mg/l
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Water flea	Experimental	48 hours	EC50	15.2 mg/l
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Green algae	Experimental	72 hours	NOEC	9.8 mg/l
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Water flea	Experimental	21 days	NOEC	4.7 mg/l
2-piperazin-1-ylethylamine	140-31-8	Bacteria	Experimental	17 hours	EC10	100 mg/l
2-piperazin-1-ylethylamine	140-31-8	Golden Orfe	Experimental	96 hours	LC50	368 mg/l
2-piperazin-1-ylethylamine	140-31-8	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
2-piperazin-1-ylethylamine	140-31-8	Water flea	Experimental	48 hours	EC50	58 mg/l

2-piperazin-1-ylethylamine	140-31-8	Green algae	Experimental	72 hours	NOEC	31 mg/l
Quartz	14808-60-7	Green algae	Estimated	72 hours	EC50	440 mg/l
Quartz	14808-60-7	Water flea	Estimated	48 hours	EC50	7,600 mg/l
Quartz	14808-60-7	Zebra Fish	Estimated	96 hours	LC50	5,000 mg/l
Quartz	14808-60-7	Green algae	Estimated	72 hours	NOEC	60 mg/l
1-chloro-2,3-epoxypropane	106-89-8	Fathead minnow	Experimental	96 hours	LC50	10.6 mg/l
1-chloro-2,3-epoxypropane	106-89-8	Green algae	Experimental	72 hours	ErC50	15 mg/l
1-chloro-2,3-epoxypropane	106-89-8	Water flea	Experimental	48 hours	EC50	23.9 mg/l
1-chloro-2,3-epoxypropane	106-89-8	Green algae	Experimental	72 hours	NOEC	1.7 mg/l
1-chloro-2,3-epoxypropane	106-89-8	Bacteria	Experimental	16 hours	LOEC	55 mg/l

12.2. Persistence and degradability

Material	Identifier(s)	Test type	Duration	Study Type	Test result	Protocol
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Experimental Biodegradation	25 days	CO2 evolution	-8 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Estimated Photolysis		Photolytic half-life (in air)	2.96 hours (t 1/2)	
Epoxy Copolymer (NJTS Reg No. 04499600-7155)	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Acrylic copolymer	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	68683-29-4	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Aluminium	7429-90-5	Data not availbl-insufficient	N/A	N/A	N/A	N/A
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Analogous Compound Biodegradation	28 days	BOD	0 %BOD/ThOD	OECD 301C - MITI test (I)
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Analogous Compound Aquatic Inherent Biodegrad.	28 days	Percent degraded	<1 %removal of DOC	OECD 302B Zahn-Wellens/EVPA
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Inorganic Filler (NJTS Reg No. 04499600-7153)	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Mineral Filler (NJTS Reg No. 04499600-7156)	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Treated Filler (NJTS Reg No. 04499600-7152)	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	Experimental Biodegradation	28 days	BOD	4 %BOD/ThOD	OECD 301D - Closed bottle test
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88-2	Experimental Biodegradation	28 days	BOD	0 %BOD/ThOD	
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Experimental Biodegradation	28 days	CO2 evolution	49 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2

m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Experimental Aquatic Inherent Biodegrad.	28 days	BOD	22 %BOD/ThOD	OECD 302C - Modified MITI (II)
2-piperazin-1-ylethylamine	140-31-8	Experimental Biodegradation	28 days	BOD	0 %BOD/ThOD	OECD 301C - MITI test (I)
Quartz	14808-60-7	Data not availbl-insufficient	N/A	N/A	N/A	N/A
1-chloro-2,3-epoxypropane	106-89-8	Hydrolysis product Biodegradation	28 days	BOD	77.1 %BOD/ThOD	OECD 301B - Modified sturm or CO2
1-chloro-2,3-epoxypropane	106-89-8	Experimental Photolysis		Photolytic half-life (in air)	73 days (t 1/2)	
1-chloro-2,3-epoxypropane	106-89-8	Experimental Hydrolysis		Hydrolytic half-life	3.9 days (t 1/2)	OECD 111 Hydrolysis func of pH

12.3 : Bioaccumulative potential

Material	Identifier(s)	Test type	Duration	Study Type	Test result	Protocol
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Experimental Bioconcentration		Log Kow	-1.25	
Epoxy Copolymer (NJTS Reg No. 04499600-7155)	Trade Secret	Estimated Bioconcentration		Bioaccumulation factor	2.9	
Acrylic copolymer	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	68683-29-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Aluminium	7429-90-5	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Analogous Compound BCF - Fish		Bioaccumulation factor	<60	OECD305-Bioconcentration
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Experimental Bioconcentration		Log Kow	2.03	OECD 107 log Kow shke flsk mtd
Treated Inorganic Filler (NJTS Reg No. 04499600-7204)	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Inorganic Filler (NJTS Reg No. 04499600-7153)	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Mineral Filler (NJTS Reg No. 04499600-7156)	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Treated Filler (NJTS Reg No. 04499600-7152)	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	Experimental Bioconcentration		Log Kow	-0.66	830.7550 Part.Coef Shake Flask
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88-2	Experimental BCF - Fish	56 days	Bioaccumulation factor	≤ 219	OECD305-Bioconcentration
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88-2	Experimental Bioconcentration		Log Kow	2.68	EC A.8 Partition Coefficient
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Experimental BCF - Fish	42 days	Bioaccumulation factor	<2.7	OECD305-Bioconcentration
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Extrapolated Bioconcentration		Log Kow	0.18	OECD 107 log Kow shke flsk mtd
2-piperazin-1-ylethylamine	140-31-8	Experimental Bioconcentration		Log Kow	0.3	

Quartz	14808-60-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
1-chloro-2,3-epoxypropane	106-89-8	Experimental Bioconcentration		Log Kow	0.45	

12.4. Mobility in soil

Material	Identifier(s)	Test type	Study Type	Test result	Protocol
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Modeled Mobility in Soil	Koc	1 l/kg	ACD/Labs ChemSketch™
4,4'-Methylenebis(cyclohexylamine)	1761-71-3	Modeled Mobility in Soil	Koc	1 l/kg	ACD/Labs ChemSketch™
m-Xylene-.alpha.alpha'.-diamine	1477-55-0	Modeled Mobility in Soil	Koc	<1 l/kg	ACD/Labs ChemSketch™
1-chloro-2,3-epoxypropane	106-89-8	Modeled Mobility in Soil	Koc	12 l/kg	Episuite™

12.5. Results of the PBT and vPvB assessment

This material does not contain any substances that are assessed to be a PBT or vPvB

12.6. Endocrine disrupting properties

This material does not contain any substances that are assessed to be an endocrine disruptor for environmental effects

12.7. Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of completely cured (or polymerized) material in a permitted industrial waste facility. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

The coding of a waste stream is based on the application of the product by the consumer. Since this is out of the control of 3M, no waste code(s) for products after use will be provided. Please refer to the European Waste Code (EWC - 2000/532/EC and amendments) to assign the correct waste code to your waste stream. Ensure national and/or regional regulations are complied with and always use a licensed waste contractor.

EU waste code (product as sold)
08 04 09* Waste adhesives and sealants containing organic solvents or other dangerous substances
20 01 27* Paint, inks, adhesives and resins containing dangerous substances

SECTION 14: Transportation information

	Ground Transport (ADR)	Air Transport (IATA)	Marine Transport (IMDG)

14.1 - UN Number or ID number	UN2735	UN2735	UN2735
14.2 UN proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S.(BIS(3-AMINOPROPYL) ETHER OF DIETHYLENE GLYCOL)	AMINES, LIQUID, CORROSIVE, N.O.S.(BIS(3-AMINOPROPYL) ETHER OF DIETHYLENE GLYCOL)	AMINES, LIQUID, CORROSIVE, N.O.S.(BIS(3-AMINOPROPYL) ETHER OF DIETHYLENE GLYCOL;ALUMINUM)
14.3 Transport hazard class(es)	8	8	8
14.4 Packing group	II	II	II
14.5 Environmental hazards	Environmentally Hazardous	Not applicable.	Marine Pollutant
14.6 Special precautions for user	Please refer to the other sections of the SDS for further information.	Please refer to the other sections of the SDS for further information.	Please refer to the other sections of the SDS for further information.
14.7 Marine Transport in bulk according to IMO instruments	No data available.	No data available.	No data available.
Control Temperature	No data available.	No data available.	No data available.
Emergency Temperature	No data available.	No data available.	No data available.
ADR Classification Code	C7	Not applicable.	Not applicable.
IMDG Segregation Code	Not applicable.	Not applicable.	18 - ALKALIS

Please contact the address or phone number listed on the first page of the SDS for additional information on the transport/shipment of the material by rail (RID) or inland waterways (ADN).

SECTION 15: Regulatory information

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

Carcinogenicity

Ingredient	Identifier(s)	Classification	Regulation
1-chloro-2,3-epoxypropane	106-89-8	Carc. 1B	Regulation (EC) No. 1272/2008, Table 3.1
1-chloro-2,3-epoxypropane	106-89-8	Grp. 2A: Probable human carc.	International Agency for Research on Cancer
Mineral Filler (NJTS Reg No. 04499600-7156)	Trade Secret	Gr. 3: Not classifiable	International Agency for Research on Cancer
Quartz	14808-60-7	Grp. 1: Carcinogenic to humans	International Agency for Research on Cancer

Global inventory status
Contact 3M for more information. The components of this material are in compliance with the provisions of the Korea Chemical Control Act. Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the new substance notification requirements of CEPA. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

DIRECTIVE 2012/18/EU
Seveso hazard categories, Annex 1, Part 1
None

Seveso named dangerous substances, Annex 1, Part 2
None

Regulation (EU) No 649/2012
No chemicals listed

15.2. Chemical Safety Assessment
A chemical safety assessment has not been carried out for this mixture. Chemical safety assessments for the contained substances may have been carried out by the registrants of the substances in accordance with Regulation (EC) No 1907/2006, as amended.

SECTION 16: Other information

List of relevant H statements

EUH071	Corrosive to the respiratory tract.
H226	Flammable liquid and vapour.
H228	Flammable solid.
H261	In contact with water releases flammable gas.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H311	Toxic 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.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H350	May cause cancer.
H361d	Suspected of damaging the unborn child.
H361f	Suspected of damaging fertility.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

List of Relevant Notas

Nota T	This substance may be marketed in a form which does not have the physical hazards as indicated by the classification in the entry in Part 3. If the results of the relevant method or methods in accordance with Part 2 of Annex I of this Regulation show that the specific form of substance marketed does not exhibit this physical property or these physical hazards, the substance shall be classified in accordance with the result or results of this test or these tests. Relevant information, including reference to the relevant test method(s) shall be included in the safety data sheet.

Revision information:
CLP: Ingredient table information was modified.
Section 3: Composition/ Information of ingredients table information was modified.
Section 8: Occupational exposure limit table information was modified.
Section 12: Component ecotoxicity information information was modified.
Section 12: Mobility in soil information information was modified.
Section 12: Persistence and Degradability information information was modified.
Section 12:Bioccumulative potential information information was modified.

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications. In addition, this SDS is being provided to convey health and safety information. If you are the importer of record of this product into the European Union, you are responsible for all regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration.

3M Ireland MSDSs are available at www.3M.com

Safety Data Sheet

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Document group:	33-5988-2	**Version number:**	8.00
Revision date:	17/04/2026	**Supersedes date:**	15/05/2023

This Safety Data Sheet has been prepared in accordance with the REACH Regulation (1907/2006) as amended by Regulation (EU) 2020/878

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

1.1. Product identifier
3M™ Impact Resistant Structural Adhesive (Part B) PNs 07333, 57333

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

Identified uses
Automotive.

1.3. Details of the supplier of the safety data sheet
Address: 3M Ireland Limited, 70 SIR JOHN ROGERSON'S QUAY, D02R296 DUBLIN 2
Telephone: +353 1 280 3555
E Mail: ner-productstewardship@mmm.com
Website: www.3M.com

1.4. Emergency telephone number
Emergency medical information: 8am-10pm (seven days) contact National Poisons Information Centre, Beaumont Hospital, Dublin 9 DOV2NO, Ireland. Telephone Number: +353 (0)1 809 2166

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
CLP REGULATION (EC) No 1272/2008

The health and environmental classifications of this material have been derived using the calculation method, except in cases where test data are available or the physical form impacts classification. Classification(s) based on test data or physical form are noted below, if applicable.

CLASSIFICATION:
Skin Corrosion/Irritation, Category 2 - Skin Irrit. 2; H315
Serious Eye Damage/Eye Irritation, Category 2 - Eye Irrit. 2; H319
Skin Sensitization, Category 1 - Skin Sens. 1; H317
Germ Cell Mutagenicity, Category 2 - Muta. 2; H341
Hazardous to the Aquatic Environment (Chronic), Category 2 - Aquatic Chronic 2; H411

For full text of H phrases, see Section 16.

2.2. Label elements
CLP REGULATION (EC) No 1272/2008

SIGNAL WORD
WARNING.

Symbols
GHS07 (Exclamation mark) |GHS08 (Health Hazard) |GHS09 (Environment) |

Pictograms



Ingredients:

Ingredient	CAS Nbr	EC No.	% by Wt
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	216-823-5	70 - 89
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane		946-427-4	0.5 - 1.5

HAZARD STATEMENTS:

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H341	Suspected of causing genetic defects.
H411	Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P273	Avoid release to the environment.
P280	Wear protective gloves and eye protection.

Response:

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P391	Collect spillage.

18% of the mixture consists of components of unknown acute oral toxicity.

Contains 2% of components with unknown hazards to the aquatic environment.

2.3. Other hazards

None known.
This material does not contain any substances that are assessed to be a PBT or vPvB

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

Ingredient	Identifier(s)	%	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	70 - 89	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411
Synthetic Rubber	Trade Secret	4 - 20	Substance not classified as hazardous
Treated Filler	Trade Secret	1 - 5	Substance with a national occupational exposure limit
Benzoic Acid, C9-C11-Branched Alkyl Esters	(CAS-No.) 131298-44-7 (EC-No.) ELINCS 421-090-1	1 - 5	Substance not classified as hazardous
Inorganic Filler	(CAS-No.) 7631-86-9 (EC-No.) 231-545-4	1 - 5	Substance with a national occupational exposure limit
Treated Inorganic Filler	Trade Secret	1 - 5	Substance not classified as hazardous
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	(CAS-No.) 2530-83-8 (EC-No.) 219-784-2 (REACH-No.) 01-2119513212-58	< 2	Eye Dam. 1, H318 Aquatic Chronic 3, H412
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane	(EC-No.) 946-427-4	0.5 - 1.5	Acute Tox. 4, H302 Skin Irrit. 2, H315 Skin Sens. 1, H317 Muta. 2, H341 Aquatic Chronic 3, H412
phenolphthalein	(CAS-No.) 77-09-8 (EC-No.) 201-004-7	< 0.4	Muta. 2, H341 Carc. 1B, H350 Repr. 2, H361f Skin Irrit. 2, H315 Repr. 2, H361d Aquatic Chronic 2, H411

Any entry in the Identifier(s) column that begins with the numbers 6, 7, 8, or 9 are a Provisional List Number provided by ECHA pending publication of the official EC Inventory Number for the substance.
Please see section 16 for the full text of any H statements referred to in this section

Specific Concentration Limits

Ingredient	Identifier(s)	Specific Concentration Limits
bis-[4-(2,3-epoxipropoxi)phenyl]propane	(CAS-No.) 1675-54-3 (EC-No.) 216-823-5	(C >= 5%) Skin Irrit. 2, H315 (C >= 5%) Eye Irrit. 2, H319
phenolphthalein	(CAS-No.) 77-09-8 (EC-No.) 201-004-7	(C >= 1%) Carc. 1B, H350

For information on ingredient occupational exposure limits or PBT or vPvB status, see sections 8 and 12 of this SDS

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Remove person to fresh air. If you feel unwell, get medical attention.

Skin contact
Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

Eye contact
Immediately flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. Get medical attention.

If swallowed
Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed
The most important symptoms and effects based on the CLP classification include:
Irritation to the skin (localized redness, swelling, itching, and dryness). Allergic skin reaction (redness, swelling, blistering, and itching). Serious irritation to the eyes (significant redness, swelling, pain, tearing, and impaired vision).

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

Hazardous Decomposition or By-Products

Substance	Condition
Aldehydes.	During combustion.
Carbon monoxide	During combustion.
Carbon dioxide.	During combustion.
Hydrogen Chloride	During combustion.

5.3. Advice for fire-fighters

When fire fighting conditions are severe and total thermal decomposition of the product is possible, wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus,tunic and trousers (leggings),bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapours, in accordance with good industrial hygiene practice. Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to sections 2 and 11 of the SDS.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dykes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorised person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and Safety Data Sheet. Seal the container. Dispose of collected material as soon as possible.

6.4. Reference to other sections
Refer to Section 8 and Section 13 for more information

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Keep out of reach of children. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (eg. gloves, respirators…) as required.

7.2. Conditions for safe storage including any incompatibilities
Store away from heat. Store away from acids. Store away from oxidising agents.

7.3. Specific end use(s)
See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	CAS Nbr	Agency	Limit type	Additional comments
Inorganic Filler	7631-86-9	Ireland OELs	TWA(Total inhalable dust)(8 hours):6 mg/m3;TWA(as respirable dust)(8 hours):2.4 mg/m3	
Treated Filler	Trade Secret	Ireland OELs	TWA(Total inhalable dust)(8 hours):10 mg/m3;TWA(as respirable dust)(8 hours):4 mg/m3	

Ireland OELs : Ireland. OELs
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

Biological limit values
No biological limit values exist for any of the components listed in Section 3 of this safety data sheet.

Recommended monitoring procedures: Information on recommended monitoring procedures can be obtained from Indust. Inspect./Ministry (IE)

8.2. Exposure controls

8.2.1. Engineering controls
Provide ventilated enclosure for heat curing. Curing enclosures must be exhausted to outdoors or to a suitable emission control device. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapours/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Safety glasses with side shields.
Indirect vented goggles.

Applicable Norms/Standards
Use eye protection conforming to EN 16321

Skin/hand protection
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. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.
Gloves made from the following material(s) are recommended:

Material	Thickness (mm)	Breakthrough Time
Polymer laminate	No data available	No data available

Applicable Norms/Standards
Use gloves tested to EN 374

If this product is used in a manner that presents a higher potential for exposure (e.g., spraying, high splash potential, etc.), then use of a protective apron may be necessary. See recommended glove material(s) for determining appropriate apron material(s). If a glove material is not available as an apron, polymer laminate is a suitable option.

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapours and particulates
Half facepiece or full facepiece supplied-air respirator

For questions about suitability for a specific application, consult with your respirator manufacturer.

Applicable Norms/Standards
Use a respirator conforming to EN 140 or EN 136
Use a respirator conforming to EN 140 or EN 136: filter types A & P

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Colour	Silver-Gray
Odor	Slight Epoxy
Odour threshold	*No data available.*
Melting point/freezing point	*No data available.*
Boiling point/boiling range	>=120 ºC [*Test Method:*Estimated]
Flammability	Not applicable.
Flammable Limits(LEL)	*No data available.*
Flammable Limits(UEL)	*No data available.*
Flash point	103.9 ºC [*Test Method:*Closed Cup]
Autoignition temperature	*No data available.*
Decomposition temperature	*No data available.*
pH	*substance/mixture is non-soluble (in water)*
Kinematic Viscosity	441,696 mm²/sec
Water solubility	*No data available.*
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Vapour pressure	5 mm Hg
Density	1.132 g/ml
Relative density	1.132 [*Ref Std:*WATER=1]
Relative Vapour Density	*No data available.*
Particle Characteristics	*Not applicable.*

9.2. Other information

9.2.2 Other safety characteristics

EU Volatile Organic Compounds	*No data available.*
Evaporation rate	*No data available.*
Molecular weight	*No data available.*
Percent volatile	0.1 % weight

SECTION 10: Stability and reactivity

10.1 Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section

10.2 Chemical stability
Stable.

10.3 Possibility of hazardous reactions
Hazardous polymerisation will not occur.

10.4 Conditions to avoid
Heat.
Sparks and/or flames.

10.5 Incompatible materials
Strong acids.
Strong oxidising agents.

10.6 Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 11 are based on UN GHS calculation rules and classifications derived from internal hazard assessments.

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

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation
Respiratory tract irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Skin contact
Mild Skin Irritation: Signs/symptoms may include localised redness, swelling, itching, and dryness. Allergic skin reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye contact
Severe eye irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Ingestion
Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea. May cause additional health effects (see below).

Additional Health Effects:

Reproductive/Developmental Toxicity:
Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Genotoxicity:
Genotoxicity and Mutagenicity: May interact with genetic material and possibly alter gene expression.

Carcinogenicity:
Contains a chemical or chemicals which can cause cancer.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Dermal	Rat	LD50 > 1,600 mg/kg
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Ingestion	Rat	LD50 > 1,000 mg/kg
Treated Filler	Dermal	Rat	LD50 > 2,000 mg/kg
Treated Filler	Inhalation-Dust/Mist (4 hours)	Rat	LC50 3 mg/l
Treated Filler	Ingestion	Rat	LD50 6,450 mg/kg
Benzoic Acid, C9-C11-Branched Alkyl Esters	Dermal	Rabbit	LD50 > 2,000 mg/kg
Benzoic Acid, C9-C11-Branched Alkyl Esters	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.5 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	Ingestion	Rat	LD50 > 5,000 mg/kg
Treated Inorganic Filler	Dermal	Rabbit	LD50 > 5,000 mg/kg
Treated Inorganic Filler	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Treated Inorganic Filler	Ingestion	Rat	LD50 > 5,110 mg/kg
Inorganic Filler	Dermal	Rabbit	LD50 > 5,000 mg/kg
Inorganic Filler	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Inorganic Filler	Ingestion	Rat	LD50 > 5,110 mg/kg
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Dermal	Rabbit	LD50 4,000 mg/kg
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.3 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	Rat	LD50 7,010 mg/kg
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane	Ingestion	Rat	LD50 1,000 mg/kg
phenolphthalein	Ingestion	Rat	LD50 > 10,500 mg/kg
phenolphthalein	Dermal	similar health hazards	LD50 estimated to be > 5,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Rabbit	Mild irritant

Treated Filler	Rabbit	No significant irritation
Benzoic Acid, C9-C11-Branched Alkyl Esters	Rabbit	Minimal irritation
Treated Inorganic Filler	Rabbit	No significant irritation
Inorganic Filler	Rabbit	No significant irritation
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Rabbit	Mild irritant
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane	In vitro data	Irritant
phenolphthalein	In vitro data	Irritant

Serious Eye Damage/Irritation

Name	Species	Value
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Rabbit	Moderate irritant
Treated Filler	Rabbit	No significant irritation
Benzoic Acid, C9-C11-Branched Alkyl Esters	Rabbit	Mild irritant
Treated Inorganic Filler	Rabbit	No significant irritation
Inorganic Filler	Rabbit	No significant irritation
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Rabbit	Corrosive
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane	In vitro data	No significant irritation
phenolphthalein	In vitro data	No significant irritation

Skin Sensitisation

Name	Species	Value
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Human and animal	Sensitising
Benzoic Acid, C9-C11-Branched Alkyl Esters	Guinea pig	Not classified
Treated Inorganic Filler	Human and animal	Not classified
Inorganic Filler	Human and animal	Not classified
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Guinea pig	Not classified
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane	similar compounds	Sensitising
phenolphthalein	Mouse	Not classified

Respiratory Sensitisation

Name	Species	Value
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
bis-[4-(2,3-epoxipropoxi)phenyl]propane	In vivo	Not mutagenic
bis-[4-(2,3-epoxipropoxi)phenyl]propane	In Vitro	Some positive data exist, but the data are not sufficient for classification
Benzoic Acid, C9-C11-Branched Alkyl Esters	In Vitro	Not mutagenic
Benzoic Acid, C9-C11-Branched Alkyl Esters	In vivo	Not mutagenic

Treated Inorganic Filler	In Vitro	Not mutagenic
Inorganic Filler	In Vitro	Not mutagenic
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	In Vitro	Some positive data exist, but the data are not sufficient for classification
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	In vivo	Some positive data exist, but the data are not sufficient for classification
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane	In Vitro	Mutagenic; structurally related to germ cell mutagens
phenolphthalein	In Vitro	Some positive data exist, but the data are not sufficient for classification
phenolphthalein	In vivo	Mutagenic

Carcinogenicity

Name	Route	Species	Value
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Treated Inorganic Filler	Not specified.	Mouse	Some positive data exist, but the data are not sufficient for classification
Inorganic Filler	Not specified.	Mouse	Some positive data exist, but the data are not sufficient for classification
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Dermal	Mouse	Not carcinogenic
phenolphthalein	Ingestion	Multiple animal species	Carcinogenic.

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
Treated Filler	Ingestion	Not classified for development	Rat	NOAEL 625 mg/kg/day	premating & during gestation
Benzoic Acid, C9-C11-Branched Alkyl Esters	Ingestion	Not classified for female reproduction	Rat	NOAEL 641 mg/kg/day	2 generation
Benzoic Acid, C9-C11-Branched Alkyl Esters	Ingestion	Not classified for male reproduction	Rat	NOAEL 676 mg/kg/day	2 generation
Benzoic Acid, C9-C11-Branched Alkyl Esters	Ingestion	Not classified for development	Rat	NOAEL 191 mg/kg/day	2 generation
Treated Inorganic Filler	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Treated Inorganic Filler	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Treated Inorganic Filler	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
Inorganic Filler	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Inorganic Filler	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Inorganic Filler	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	1 generation

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	1 generation
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	Not classified for development	Rat	NOAEL 3,000 mg/kg/day	during organogenesis
phenolphthalein	Ingestion	Toxic to female reproduction	Mouse	NOAEL 150 mg/kg/day	1 generation
phenolphthalein	Ingestion	Toxic to male reproduction	Mouse	NOAEL 150 mg/kg/day	1 generation
phenolphthalein	Ingestion	Toxic to development	Mouse	NOAEL 150 mg/kg/day	1 generation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
Treated Filler	Inhalation	respiratory system	Not classified	Rat	NOAEL 0.812 mg/l	90 minutes
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
phenolphthalein	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Ingestion	auditory system | heart | endocrine system | hematopoietic system | liver | eyes | kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Treated Filler	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
Benzoic Acid, C9-C11-Branched Alkyl Esters	Ingestion	heart | skin | endocrine system | gastrointestinal tract | bone, teeth, nails, and/or hair | hematopoietic system | liver | immune system | muscles | nervous system | eyes | kidney and/or	Not classified	Rat	NOAEL 619 mg/kg/day	91 days

		bladder | respiratory system | vascular system				
Treated Inorganic Filler	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure
Inorganic Filler	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Ingestion	heart | endocrine system | bone, teeth, nails, and/or hair | hematopoietic system | liver | immune system | nervous system | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
phenolphthalein	Ingestion	liver | heart | skin | endocrine system | gastrointestinal tract | bone, teeth, nails, and/or hair | hematopoietic system | immune system | nervous system | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 3,500 mg/kg/day	13 weeks

Aspiration Hazard
For the component/components, either no data is currently available or the data is not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

11.2. Information on other hazards

This material does not contain any substances that are assessed to be an endocrine disruptor for human health.

SECTION 12: Ecological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 12 are based on UN GHS calculation rules and classifications derived from 3M assessments.

12.1. Toxicity

No product test data available.

Material	CAS #	Organism	Type	Exposure	Test endpoint	Test result
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Activated sludge	Analogous Compound	3 hours	IC50	>100 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Rainbow trout	Estimated	96 hours	LC50	2 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Water flea	Estimated	48 hours	EC50	1.8 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Green algae	Experimental	72 hours	ErC50	>11 mg/l

bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Green algae	Experimental	72 hours	NOEC	4.2 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Water flea	Experimental	21 days	NOEC	0.3 mg/l
Synthetic Rubber	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Green algae	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Rainbow trout	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Fathead minnow	Experimental	33 days	No tox obs at lmt of water sol	>100 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Green algae	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Midge	Experimental	28 days	NOEC	64.7 mg/kg (Dry Weight)
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Water flea	Experimental	21 days	No tox obs at lmt of water sol	>100 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Activated sludge	Experimental	3 hours	EC50	>100 mg/l
Inorganic Filler	7631-86-9	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Treated Filler	Trade Secret	Green algae	Estimated	72 hours	EC50	>100 mg/l
Treated Filler	Trade Secret	Rainbow trout	Estimated	96 hours	LC50	>100 mg/l
Treated Filler	Trade Secret	Water flea	Estimated	48 hours	EC50	>100 mg/l
Treated Filler	Trade Secret	Green algae	Estimated	72 hours	EC10	>100 mg/l
Treated Inorganic Filler	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Common Carp	Experimental	96 hours	LC50	55 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Green algae	Experimental	96 hours	ErC50	350 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Invertebrate	Experimental	48 hours	LC50	324 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Green algae	Experimental	96 hours	NOEC	130 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Water flea	Experimental	21 days	NOEC	100 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Activated sludge	Experimental	3 hours	EC50	>100 mg/l
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-	946-427-4	Green algae	Experimental	72 hours	EC50	38 mg/l

cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane						
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane	946-427-4	Water flea	Experimental	72 hours	EC50	71 mg/l
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane	946-427-4	Green algae	Experimental	72 hours	EC10	18 mg/l
phenolphthalein	77-09-8	Green algae	Experimental	72 hours	ErC50	>3.33 mg/l
phenolphthalein	77-09-8	Water flea	Experimental	48 hours	EC50	6.72 mg/l
phenolphthalein	77-09-8	Green algae	Experimental	72 hours	ErC10	0.74 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Experimental Biodegradation	28 days	BOD	5 %BOD/COD	OECD 301F - Manometric respirometry
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Experimental Hydrolysis		Hydrolytic half-life (pH 7)	117 hours (t 1/2)	OECD 111 Hydrolysis func of pH
Synthetic Rubber	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Experimental Biodegradation	28 days	BOD	77.7 %BOD/ThOD	OECD 301F - Manometric respirometry
Inorganic Filler	7631-86-9	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Treated Filler	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Treated Inorganic Filler	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Experimental Biodegradation	28 days	Dissolv. Organic Carbon Deplet	37 %removal of DOC	EC C.4.A. DOC Die-Away Test
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Experimental Hydrolysis		Hydrolytic half-life (pH 7)	6.5 hours (t 1/2)	OECD 111 Hydrolysis func of pH
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-	946-427-4	Experimental Biodegradation	28 days	CO2 evolution	1.3 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2

yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane						
phenolphthalein	77-09-8	Experimental Biodegradation	28 days	BOD	76 %BOD/ThOD	OECD 301F - Manometric respirometry

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Experimental Bioconcentration		Log Kow	3.242	OECD 117 log Kow HPLC method
Synthetic Rubber	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Modeled Bioconcentration		Bioaccumulation factor	288	Catalogic™
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Experimental Bioconcentration		Log Kow	4.61	EC A.8 Partition Coefficient
Inorganic Filler	7631-86-9	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Treated Filler	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Treated Inorganic Filler	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Experimental Bioconcentration		Log Kow	0.5	Episuite™
Rxn mass: 2-({[1-chloro-3-({4-[methoxy(oxiran-2-yl)methyl]cyclohexyl}methoxy)propan-2-yl]oxy}methyl)oxirane & 2,2'-[cis-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane	946-427-4	Experimental Bioconcentration		Log Kow	2.05	
phenolphthalein	77-09-8	Experimental Bioconcentration		Log Kow	0.9	EC A.8 Partition Coefficient

12.4. Mobility in soil

Material	Cas No.	Test type	Study Type	Test result	Protocol
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Modeled Mobility in Soil	Koc	450 l/kg	Episuite™
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Modeled Mobility in Soil	Koc	2,600 l/kg	Episuite™
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	Modeled Mobility in Soil	Koc	10 l/kg	Episuite™
phenolphthalein	77-09-8	Modeled Mobility in Soil	Koc	340 l/kg	Episuite™

12.5. Results of the PBT and vPvB assessment

This material does not contain any substances that are assessed to be a PBT or vPvB

12.6. Endocrine disrupting properties

This material does not contain any substances that are assessed to be an endocrine disruptor for environmental effects

12.7. Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of completely cured (or polymerized) material in a permitted industrial waste facility. As a disposal alternative, incinerate uncured product in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include halogen acid (HCl/HF/HBr). Facility must be capable of handling halogenated materials. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

The coding of a waste stream is based on the application of the product by the consumer. Since this is out of the control of 3M, no waste code(s) for products after use will be provided. Please refer to the European Waste Code (EWC - 2000/532/EC and amendments) to assign the correct waste code to your waste stream. Ensure national and/or regional regulations are complied with and always use a licensed waste contractor.

EU waste code (product as sold)

08 04 09*	Waste adhesives and sealants containing organic solvents or other dangerous substances
20 01 27*	Paint, inks, adhesives and resins containing dangerous substances

SECTION 14: Transportation information

	Ground Transport (ADR)	Air Transport (IATA)	Marine Transport (IMDG)
14.1 - UN Number or ID number	UN3082	UN3082	UN3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER)
14.3 Transport hazard class(es)	9	9	9
14.4 Packing group	III	III	III

14.5 Environmental hazards	Environmentally Hazardous	Not applicable.	Marine Pollutant
14.6 Special precautions for user	Please refer to the other sections of the SDS for further information.	Please refer to the other sections of the SDS for further information.	Please refer to the other sections of the SDS for further information.
14.7 Marine Transport in bulk according to IMO instruments	No data available.	No data available.	No data available.
Control Temperature	No data available.	No data available.	No data available.
Emergency Temperature	No data available.	No data available.	No data available.
ADR Classification Code	M6	Not applicable.	Not applicable.
IMDG Segregation Code	Not applicable.	Not applicable.	NONE

Please contact the address or phone number listed on the first page of the SDS for additional information on the transport/shipment of the material by rail (RID) or inland waterways (ADN).

SECTION 15: Regulatory information

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

Carcinogenicity

Ingredient	CAS Nbr	Classification	Regulation
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Gr. 3: Not classifiable	International Agency for Research on Cancer
Inorganic Filler	7631-86-9	Gr. 3: Not classifiable	International Agency for Research on Cancer
phenolphthalein	77-09-8	Carc. 1B	Regulation (EC) No. 1272/2008, Table 3.1
phenolphthalein	77-09-8	Grp. 2B: Possible human carc.	International Agency for Research on Cancer

Restrictions on the manufacture, placing on the market and use:
The following substance(s) contained in this product is/are subject through Annex XVII of REACH regulation to restrictions on the manufacture, placing on the market and use when present in certain dangerous substances, mixtures and articles. Users of this product are required to comply with the restrictions placed upon it by the aforementioned provision.

Ingredient	CAS Nbr
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3

Restriction status: listed in REACH Annex XVII
Restricted uses: See Annex XVII to Regulation (EC) No 1907/2006 for Conditions of Restriction

Authorization status under REACH:
The following substance/s contained in this product might be or is/are subject to authorization in accordance with REACH:

Ingredient	CAS Nbr
phenolphthalein	77-09-8

Authorization status: listed in the Candidate List of Substances of Very High Concern for Authorization

Global inventory status
Contact 3M for more information. The components of this material are in compliance with the provisions of the Korea Chemical Control Act. Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of Japan Industrial Safety and Health Law. Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the new substance notification requirements of CEPA. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

DIRECTIVE 2012/18/EU
Seveso hazard categories, Annex 1, Part 1

Hazard Categories	Qualifying quantity (tonnes) for the application of	
	Lower-tier requirements	Upper-tier requirements
E2 Hazardous to the Aquatic environment	200	500

Seveso named dangerous substances, Annex 1, Part 2
None

Regulation (EU) No 649/2012
No chemicals listed

15.2. Chemical Safety Assessment
A chemical safety assessment has not been carried out for this mixture. Chemical safety assessments for the contained substances may have been carried out by the registrants of the substances in accordance with Regulation (EC) No 1907/2006, as amended.

SECTION 16: Other information

List of relevant H statements

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H361df	Suspected of damaging fertility. Suspected of damaging the unborn child.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Revision information:
EU Section 14 - Table Data information was added.
EU Section 14 - Table Headers information was added.

Section 1: Address information was modified.
Section 1: E-mail address information was modified.
CLP: Ingredient table information was modified.
Label: CLP Percent Unknown information was modified.
Label: CLP Precautionary - Prevention information was modified.
Label: Graphic information was modified.
Section 3: Composition/ Information of ingredients table information was modified.
Section 6: Accidental release personal information information was modified.
Section 7: Conditions safe storage information was modified.
Section 7: Precautions safe handling information information was modified.
Section 8: Occupational exposure limit table information was modified.
Section 08: Personal Protection - Apron Statement information was added.
Section 8: Personal Protection - Skin/body information information was deleted.
Section 8: Respiratory protection - recommended respirators information information was modified.
Section 8: Skin protection - protective clothing information information was deleted.
Section 9: Boiling point information information was modified.
Section 9: Flammability (solid, gas) information information was deleted.
Section 09: Flammability information information was added.
Section 09: Odor information was modified.
Section 09: Particle Characteristics N/A information was added.
Section 9: Vapour pressure value information was modified.
Section 11: Acute Toxicity table information was modified.
Section 11: Carcinogenicity Table information was modified.
Section 11: Germ Cell Mutagenicity Table information was modified.
Section 11: Health Effects - Inhalation information information was modified.
Section 11: Reproductive Toxicity Table information was modified.
Section 11: Serious Eye Damage/Irritation Table information was modified.
Section 11: Skin Corrosion/Irritation Table information was modified.
Section 11: Skin Sensitization Table information was modified.
Section 11: Target Organs - Repeated Table information was modified.
Section 11: Target Organs - Single Table information was modified.
Section 12: Component ecotoxicity information information was modified.
Section 12: Mobility in soil information information was modified.
Section 12: Persistence and Degradability information information was modified.
Section 12:Bioccumulative potential information information was modified.
Section 13: Standard Phrase Category Waste GHS information was modified.
Section 14 Classification Code – Main Heading information was deleted.
Section 14 Classification Code – Regulation Data information was deleted.
Section 14 Control Temperature – Main Heading information was deleted.
Section 14 Control Temperature – Regulation Data information was deleted.
Section 14 Emergency Temperature – Main Heading information was deleted.
Section 14 Emergency Temperature – Regulation Data information was deleted.
Section 14 Hazard Class + Sub Risk – Main Heading information was deleted.
Section 14 Hazard Class + Sub Risk – Regulation Data information was deleted.
Section 14 Other Dangerous Goods – Main Heading information was deleted.
Section 14 Other Dangerous Goods – Regulation Data information was deleted.
Section 14 Packing Group – Main Heading information was deleted.
Section 14 Packing Group – Regulation Data information was deleted.
Section 14 Proper Shipping Name information was deleted.
Section 14 Regulations – Main Headings information was deleted.
Section 14 Segregation – Regulation Data information was deleted.
Section 14 Segregation Code – Main Heading information was deleted.
Section 14 Special Precautions – Main Heading information was deleted.
Section 14 Special Precautions – Regulation Data information was deleted.
Section 14 Transport in bulk – Regulation Data information was deleted.
Section 14 Marine transport in bulk according to IMO instruments – Main Heading information was deleted.

Section 14 UN Number Column data information was deleted.
Section 14 UN Number information was deleted.
Section 15: Carcinogenicity information information was modified.
Two-column table displaying the unique list of H Codes and statements (std phrases) for all components of the given material. information was modified.

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications. In addition, this SDS is being provided to convey health and safety information. If you are the importer of record of this product into the European Union, you are responsible for all regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration.

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