Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the REACH Regulation (1907/2006), as amended for GB.

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

1.1. Product identifier
3M™ Scotch-Weld™ Epoxy Adhesive EC-2214

Product Identification Numbers
62-2214-6540-4 98-0404-0456-2

7100083322 7100402368

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

Identified uses
Product

1.3. Details of the supplier of the safety data sheet

Address: 3M United Kingdom PLC, 3M Centre, Cain Road, Bracknell, Berkshire, RG12 8HT.
Telephone: +44 (0)1344 858 000
E Mail: ner-productstewardship@mmm.com
Website: www.3M.com/uk

1.4. Emergency telephone number
+44 (0)1344 858 000

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
The retained CLP Regulation (EU) No 1272/2008 as amended for Great Britain

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
Carcinogenicity, Category 2 - Carc. 2; H351
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
The retained CLP Regulation (EU) No 1272/2008 as amended for Great Britain

SIGNAL WORD
WARNING.

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

Pictograms

Ingredient	CAS Nbr	EC No.	% by Wt
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	216-823-5	30 - 60
monuron (ISO)	150-68-5	205-766-1	< 2.5
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	< 1

HAZARD STATEMENTS:

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H411	Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P273	Avoid release to the environment.
P280E	Wear protective gloves.

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.

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], as amended for GB
bis-[4-(2,3-epoxipropoxi)phenyl]propane	(CAS-No.) 1675-54-3 (EC-No.) 216-823-5	30 - 60	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411
Aluminium	(CAS-No.) 7429-90-5 (EC-No.) 231-072-3	15 - 40	Flam. Sol. 1, H228 Water-react. 2, H261 Nota T
2,2'-[Oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bisoxirane	(CAS-No.) 41638-13-5	1 - 5	Eye Irrit. 2, H319 Skin Sens. 1B, H317 STOT SE 3, H335 Aquatic Chronic 3, H412
Synthetic Elastomer	Trade Secret	1 - 5	Substance not classified as hazardous
Dicyandiamide	(CAS-No.) 461-58-5 (EC-No.) 207-312-8	1 - 5	Substance not classified as hazardous
Siloxanes and Silicones, di-Me, reaction products with silica	(CAS-No.) 67762-90-7	1 - 5	Substance with a national occupational exposure limit
monuron (ISO)	(CAS-No.) 150-68-5 (EC-No.) 205-766-1	< 2.5	Acute Tox. 4, H302 Carc. 2, H351 Aquatic Acute 1, H400,M=10 Aquatic Chronic 1, H410,M=10
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	< 1	Acute Tox. 4, H302 Skin Irrit. 2, H315 Skin Sens. 1, H317 Muta. 2, H341 Aquatic Chronic 3, H412

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

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
Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, 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 GB 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
Closed containers exposed to heat from fire may build pressure and explode.

Hazardous Decomposition or By-Products

Substance	Condition
Aldehydes.	During combustion.
Chlorine	During combustion.
Carbon monoxide	During combustion.
Carbon dioxide.	During combustion.
Hydrogen Chloride	During combustion.
Hydrogen cyanide.	During combustion.
Ammonia	During combustion.
Oxides of nitrogen.	During combustion.

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
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. Evacuate area. Ventilate the area with fresh air.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. 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
For industrial/occupational use only. Not for consumer sale or use. Do not use in a confined area with minimal air exchange. Avoid breathing 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.)

7.2. Conditions for safe storage including any incompatibilities
Keep container tightly closed. Keep cool. Protect from sunlight. Store away from heat. Store away from acids. Store away from strong bases. Store away from oxidising agents. Store away from amines.

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
monuron (ISO)	150-68-5	Manufacturer determined	TWA(Inhalable aerosol)(8 hours):1 mg/m3	
Silica, amorphous, inhalable dust	67762-90-7	UK HSE	TWA(as respirable dust):2.4 mg/m3;TWA(as inhalable dust):6 mg/m3	
Aluminium	7429-90-5	UK HSE	TWA(as respirable dust):4 mg/m3;TWA(as inhalable	

dust):10 mg/m3

UK HSE : UK Health and Safety Commission
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.

8.2. Exposure controls

8.2.1. Engineering controls
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. Provide appropriate local exhaust when product is heated.

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 166

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

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: filter types A & P

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid.
Specific Physical Form:	Paste
Colour	Grey
Odor	Faint Epoxy
Odour threshold	*No data available.*
Melting point/freezing point	*Not applicable.*
Boiling point/boiling range	>=260 ºC
Flammability	Not applicable.
Flammable Limits(LEL)	*No data available.*
Flammable Limits(UEL)	*No data available.*
Flash point	248.9 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	694,444 mm²/sec
Water solubility	Nil
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Vapour pressure	*No data available.*
Density	1.44 g/ml [*Ref Std:*WATER=1]
Relative density	1.44 [*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	Negligible
Molecular weight	*No data available.*
Percent volatile	<=5 % 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 may occur.

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

Avoid curing large quantities of material to prevent a premature reaction (exotherm) with production of intense heat and smoke.

10.5 Incompatible materials
Strong oxidising agents.
Strong acids.
Strong bases.
Amines.

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 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 3M assessments.

11.1. Information on hazard classes as defined in the retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain.

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
Moderate eye irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Ingestion
Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea.

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
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
Dicyandiamide	Dermal	Rabbit	LD50 > 10,000 mg/kg
2,2'-[Oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bisoxirane	Dermal	Rabbit	LD50 > 2,000 mg/kg
Dicyandiamide	Ingestion	Rat	LD50 > 30,000 mg/kg
2,2'-[Oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bisoxirane	Ingestion	Rat	LD50 > 2,000 mg/kg
Synthetic Elastomer	Dermal	Rabbit	LD50 > 15,000 mg/kg
Synthetic Elastomer	Ingestion	Rat	LD50 > 30,000 mg/kg
monuron (ISO)	Dermal	Rabbit	LD50 > 2,500 mg/kg
monuron (ISO)	Ingestion	Rat	LD50 1,480 mg/kg
Siloxanes and Silicones, di-Me, reaction products with silica	Dermal	Rabbit	LD50 > 5,000 mg/kg
Siloxanes and Silicones, di-Me, reaction products with silica	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Rat	LD50 > 5,110 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

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Rabbit	Mild irritant
Aluminium	Rabbit	No significant irritation
Dicyandiamide	Human and animal	Minimal irritation
2,2'-[Oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bisoxirane	Rabbit	No significant irritation
Synthetic Elastomer	Professional judgement	No significant irritation
monuron (ISO)	similar compounds	Mild irritant
Siloxanes and Silicones, di-Me, reaction products with silica	Rabbit	No significant irritation
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

Serious Eye Damage/Irritation

Name	Species	Value
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Rabbit	Moderate irritant
Aluminium	Rabbit	No significant irritation
Dicyandiamide	Professional judgement	Mild irritant
2,2'-[Oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bisoxirane	Rabbit	Moderate irritant
Synthetic Elastomer	Professional judgement	No significant irritation
monuron (ISO)	similar compounds	Moderate irritant
Siloxanes and Silicones, di-Me, reaction products with silica	Rabbit	No significant irritation
Rxn mass: 2-(\{[1-chloro-3-(\{4-[methoxy(oxiran-2-yl)methyl]cyclohexyl\}methoxy)propan-2-yl]oxy\}methyl)oxirane & 2,2'-[cis-	In vitro data	No significant irritation

cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane		

Skin Sensitisation

Name	Species	Value
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Human and animal	Sensitising
Aluminium	Guinea pig	Not classified
Dicyandiamide	Guinea pig	Not classified
2,2'-[Oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bisoxirane	Guinea pig	Sensitising
Siloxanes and Silicones, di-Me, reaction products with silica	Human and animal	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

Respiratory Sensitisation

Name	Species	Value
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Human	Not classified
Aluminium	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
Aluminium	In Vitro	Not mutagenic
Dicyandiamide	In Vitro	Not mutagenic
2,2'-[Oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bisoxirane	In Vitro	Some positive data exist, but the data are not sufficient for classification
monuron (ISO)	In Vitro	Some positive data exist, but the data are not sufficient for classification
monuron (ISO)	In vivo	Some positive data exist, but the data are not sufficient for classification
Siloxanes and Silicones, di-Me, reaction products with silica	In Vitro	Not mutagenic
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

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
Dicyandiamide	Ingestion	Rat	Not carcinogenic
monuron (ISO)	Ingestion	Rat	Some positive data exist, but the data are not sufficient for classification
Siloxanes and Silicones, di-Me, reaction products with silica	Not specified.	Mouse	Some positive data exist, but the data are not sufficient for classification

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
Dicyandiamide	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	premating & during gestation
Dicyandiamide	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	44 days
Dicyandiamide	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	premating & during gestation
monuron (ISO)	Ingestion	Not classified for development	Mouse	LOAEL 215 mg/kg/day	during gestation
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
2,2'-[Oxybis[(methyl-2,1-ethanediyl)oxymethylene]] bisoxirane	Inhalation	respiratory irritation	May cause respiratory irritation	Rat	NOAEL not available	
monuron (ISO)	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar compounds	NOAEL Not available	
monuron (ISO)	Ingestion	methemoglobinemia	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	not applicable
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	

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]prop	Ingestion	auditory system | heart | endocrine	Not classified	Rat	NOAEL 1,000	28 days

ane		system | hematopoietic system | liver | eyes | kidney and/or bladder			mg/kg/day	
Aluminium	Inhalation	nervous system | respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
Dicyandiamide	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 6,822 mg/kg/day	13 weeks
monuron (ISO)	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Mouse	LOAEL 800 mg/kg/day	103 weeks
monuron (ISO)	Ingestion	kidney and/or bladder	Not classified	Rat	LOAEL 65 mg/kg/day	103 weeks
monuron (ISO)	Ingestion	immune system	Not classified	Rat	LOAEL 520 mg/kg/day	13 weeks
Siloxanes and Silicones, di-Me, reaction products with silica	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure

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 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
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
Dicyandiamide	461-58-5	Bluegill	Experimental	96 hours	LC50	>1,000 mg/l
Dicyandiamide	461-58-5	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
Dicyandiamide	461-58-5	Water flea	Experimental	48 hours	EC50	3,177 mg/l
Dicyandiamide	461-58-5	Green algae	Experimental	72 hours	NOEC	310 mg/l
Dicyandiamide	461-58-5	Water flea	Experimental	21 days	NOEC	25 mg/l
Dicyandiamide	461-58-5	Redworm	Experimental	14 days	LC50	>3,200 mg/kg (Dry Weight)
2,2'-[Oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bisoxirane	41638-13-5	Golden Orfe	Experimental	96 hours	LC50	67 mg/l
2,2'-[Oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bisoxirane	41638-13-5	Water flea	Experimental	48 hours	EC50	90 mg/l
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Synthetic Elastomer	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
monuron (ISO)	150-68-5	Algae or other aquatic plants	Experimental	24 hours	EC50	0.079 mg/l
monuron (ISO)	150-68-5	Fish	Experimental	96 hours	LC50	3.3 mg/l
monuron (ISO)	150-68-5	Water flea	Experimental	26 hours	EC50	106 mg/l
monuron (ISO)	150-68-5	Green algae	Experimental	96 hours	NOEC	0.01 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	EC50	38 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-	946-427-4	Water flea	Experimental	72 hours	EC50	71 mg/l

cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-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	Green algae	Experimental	72 hours	EC10	18 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
Aluminium	7429-90-5	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Dicyandiamide	461-58-5	Experimental Biodegradation	28 days	Dissolv. Organic Carbon Deplet	0 %removal of DOC	OECD 301E - Modif. OECD Screen
Dicyandiamide	461-58-5	Experimental Aquatic Inherent Biodegrad.	14 days	Dissolv. Organic Carbon Deplet	0 %removal of DOC	OECD 302B Zahn-Wellens/EVPA
Dicyandiamide	461-58-5	Experimental Biodegradation	61 days	CO2 evolution	1.1 %CO2 evolution/THCO2 evolution	OECD 309 Aero Sim Biod Water
2,2'-[Oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bisoxirane	41638-13-5	Experimental Biodegradation	28 days	CO2 evolution	27 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Synthetic Elastomer	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
monuron (ISO)	150-68-5	Modeled Biodegradation	28 days	BOD	2.1 %BOD/ThOD	OECD 301C - MITI test (I)
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-	946-427-4	Experimental Biodegradation	28 days	CO2 evolution	1.3 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2

diylbis(methyleneoxymethylene)]bisoxirane & 2,2'-[trans-cyclohexane-1,4-diylbis(methyleneoxymethylene)]bisoxirane						

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
Aluminium	7429-90-5	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Dicyandiamide	461-58-5	Experimental BCF - Fish	42 days	Bioaccumulation factor	<=3.1	OECD305-Bioconcentration
Dicyandiamide	461-58-5	Experimental Bioconcentration		Log Kow	-0.52	OECD 107 log Kow shke flsk mtd
2,2'-[Oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bisoxirane	41638-13-5	Estimated Bioconcentration		Bioaccumulation factor	2	
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Synthetic Elastomer	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
monuron (ISO)	150-68-5	Experimental Bioconcentration		Log Kow	1.94	Catalogic™
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	

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™
Dicyandiamide	461-58-5	Modeled Mobility in Soil	Koc	9 l/kg	Episuite™
monuron (ISO)	150-68-5	Modeled Mobility in Soil	Koc	240 l/kg	ACD/Labs ChemSketch™

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. Other adverse effects

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

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	UN3077	UN3077	UN3077
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(ALUMINUM; 3-(P-CHLOROPHENYL)-1,1-DIMETHYLUREA)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(ALUMINUM; 3-(P-CHLOROPHENYL)-1,1-DIMETHYLUREA)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(ALUMINUM; 3-(P-CHLOROPHENYL)-1,1-DIMETHYLUREA; EPOXY RESIN)
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 Transport in bulk	No data available.	No data available.	No data available.

according to Annex II of Marpol 73/78 and IBC Code			
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	M7	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
monuron (ISO)	150-68-5	Carc. 2	The retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain, UK Mandatory Classification and Labelling list
monuron (ISO)	150-68-5	Gr. 3: Not classifiable	International Agency for Research on Cancer
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Gr. 3: Not classifiable	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 to Annex XVII of regulation (EC) 1907/2006, as amended for GB, with regard to restrictions on the manufacture, placing on the market and use when present in certain dangerous conditions. 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 UK REACH Annex XVII
Restricted uses: See Annex XVII to Regulation (EC) No 1907/2006 as amended for Great Britain for Conditions of Restriction

Global inventory status
Contact 3M for more 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 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.

COMAH Regulation, SI 2015/483
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, as amended for GB

Chemical	Identifier(s)	Annex I
monuron (ISO)	150-68-5	Part 1

15.2. Chemical Safety Assessment
A chemical safety assessment has not been carried out for this substance/mixture in accordance with Regulation (EC) No 1907/2006, as amended for GB.

SECTION 16: Other information

List of relevant H statements

H228	Flammable solid.
H261	In contact with water releases flammable gas.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Revision information:
Section 3: Composition/ Information of ingredients 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 14 Proper Shipping Name 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 SDSs for Great Britain are available at www.3M.com/uk
For Northern Ireland documents, please contact your 3M representative to obtain a copy.