Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the South African National Standard SANS 10234:2008.

SECTION 1: Identification

1.1. Product identifier
3M Scotch-Weld Structural Adhesive EC-3448

Product Identification Numbers
62-3448-2801-7

1.2. Recommended use and restrictions on use

Recommended use
Adhesive

1.3. Supplier's details
Address: 3M South Africa (Pty) Ltd, Private Bag X926, Rivonia 2128
Telephone: 011 806 2000
E Mail: Not available.
Website: www.3m.co.za

1.4. Emergency telephone number
011 806 2000

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
Acute Toxicity (oral): Category 5.
Serious Eye Damage/Irritation: Category 1.
Skin Corrosion/Irritation: Category 2.
Skin Sensitizer: Category 1.
Specific Target Organ Toxicity (single exposure): Category 1.
Acute Aquatic Toxicity: Category 1.
Chronic Aquatic Toxicity: Category 2.

2.2. Label elements

Signal word
DANGER!

Symbols

Corrosion | Exclamation mark | Health Hazard |Environment |

Pictograms

HAZARD STATEMENTS:

H303	May be harmful if swallowed.
H318	Causes serious eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H370	Causes damage to organs: nervous system
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280B	Wear protective gloves and eye/face protection.
P273	Avoid release to the environment.

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.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P310	Immediately call a POISON CENTER or doctor/physician.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P308 + P311	IF exposed or concerned: Call a POISON CENTER or doctor/physician.

Disposal:

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

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Wt
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	40 - 70
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	10 - 30
1,3-Benzenediol	108-46-3	7 - 13

Non-Volatile Amide	Trade Secret	7 - 13
4-Aminobutan-1-ol, diether with polytetramethylene glycol	27417-83-0	5 - 10
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	1 - 5
N,N''-(4-Methyl-m-phenylene)bis[N',N'-dimethylurea]	17526-94-2	0.1 - 1

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 for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately 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
See Section 11.1 Information on toxicological effects

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

SECTION 5: Fire-fighting measures

5.1. Suitable 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. Special protective actions 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 vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

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 in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
For industrial/occupational use only. Not for consumer sale or use. 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.)

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

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
1,3-Benzenediol	108-46-3	ACGIH	TWA:10 ppm;STEL:20 ppm	A4: Not class. as human carcin
1,3-Benzenediol	108-46-3	South Africa RELs	TWA(8 hours):45 mg/m3(10 ppm);STEL(15 minutes):90 mg/m3(20 ppm)	

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
South Africa CLs : South Africa. Control Limits. Regulations for Hazardous Chemical Substances, Table 1
South Africa RELs : South Africa. Recommended Exposure Limits (RELs) Regulations for Hazardous Chemical Substances, Table 2
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

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.

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.

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: Polymer laminate

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - polymer laminate

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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid.
Specific Physical Form:	Paste
Appearance/Odour	Light tan, epoxy odour.
Odour threshold	*No data available.*
pH	*Not applicable.*
Melting point/Freezing point	*No data available.*
Boiling point/Initial boiling point/Boiling range	>=260 ºC
Flash point	>=248,9 ºC [*Test Method:*Closed Cup]
Evaporation rate	*Not applicable.*
Flammability (solid, gas)	Not classified
Flammable Limits(LEL)	*No data available.*
Flammable Limits(UEL)	*No data available.*
Vapour pressure	*Not applicable.*
Vapour density	*Not applicable.*
Density	1 g/ml
Relative density	1 [*Ref Std:*WATER=1]
Water solubility	Nil
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Autoignition temperature	*No data available.*
Decomposition temperature	*No data available.*
Viscosity	350 000 mPa-s [@ 23 ºC]
Volatile organic compounds (VOC)	< 105 g/l [*Test Method:*calculated SCAQMD rule 443.1]
VOC less H2O & exempt solvents	< 105 g/l [*Test Method:*calculated SCAQMD rule 443.1]

SECTION 10: Stability and reactivity

10.1 Reactivity
This material is considered to be non reactive under normal use conditions

10.2 Chemical stability
Stable.

10.3 Possibility of hazardous reactions
Hazardous polymerisation will not occur.

10.4 Conditions to avoid
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.

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 be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labelling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1 Information on Toxicological effects

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
Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain.
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
May be harmful if swallowed.
Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea.
May cause additional health effects (see below).

Additional Health Effects:

Single exposure may cause target organ effects:
Neurological effects: Signs/symptoms may include personality changes, lack of coordination, sensory loss, tingling or numbness of the extremities, weakness, tremors, and changes in blood pressure and heart rate.

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 ATE2 000 - 5 000 mg/kg
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Dermal	Rat	LD50 > 1 600 mg/kg
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Ingestion	Rat	LD50 > 1 000 mg/kg
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Dermal	Rabbit	LD50 > 2 000 mg/kg
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5,19 mg/l
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Ingestion	Rat	LD50 1 098 mg/kg
Non-Volatile Amide	Dermal		LD50 estimated to be > 5 000 mg/kg
Non-Volatile Amide	Ingestion	Rat	LD50 > 5 000 mg/kg
1,3-Benzenediol	Dermal	Rabbit	LD50 3 360 mg/kg
1,3-Benzenediol	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 1,95 mg/l
1,3-Benzenediol	Ingestion	Rat	LD50 489 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
N,N''-(4-Methyl-m-phenylene)bis[N',N'-dimethylurea]	Dermal	Rat	LD50 > 2 000 mg/kg
N,N''-(4-Methyl-m-phenylene)bis[N',N'-dimethylurea]	Ingestion	Rat	LD50 > 2 000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Rabbit	Mild irritant
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	In vitro data	Irritant
Non-Volatile Amide	Rabbit	No significant irritation
1,3-Benzenediol	Rabbit	Minimal irritation
Siloxanes and Silicones, di-Me, reaction products with silica	Rabbit	No significant irritation
N,N''-(4-Methyl-m-phenylene)bis[N',N'-dimethylurea]	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Rabbit	Moderate irritant
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	In vitro data	No significant irritation
Non-Volatile Amide	Rabbit	Mild irritant
1,3-Benzenediol	Rabbit	Corrosive
Siloxanes and Silicones, di-Me, reaction products with silica	Rabbit	No significant irritation

N,N''-(4-Methyl-m-phenylene)bis[N',N'-dimethylurea]	Rabbit	No significant irritation

Skin Sensitisation

Name	Species	Value
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Human and animal	Sensitising
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Mouse	Sensitising
1,3-Benzenediol	Multiple animal species	Sensitising
Siloxanes and Silicones, di-Me, reaction products with silica	Human and animal	Not classified

Respiratory Sensitisation

Name	Species	Value
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	In vivo	Not mutagenic
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	In Vitro	Some positive data exist, but the data are not sufficient for classification
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	In vivo	Not mutagenic
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	In Vitro	Some positive data exist, but the data are not sufficient for classification
Non-Volatile Amide	In Vitro	Some positive data exist, but the data are not sufficient for classification
1,3-Benzenediol	In vivo	Not mutagenic
1,3-Benzenediol	In Vitro	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

Carcinogenicity

Name	Route	Species	Value
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
1,3-Benzenediol	Ingestion	Multiple animal species	Not carcinogenic
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
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
4,4'-ISOPROPYLIDENEDIPHENOL-	Ingestion	Not classified for development	Rat	NOAEL 750	2 generation

EPICHLOROHYDRIN POLYMER (MW unknown or <=700)				mg/kg/day	
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Ingestion	Not classified for female reproduction	Rat	NOAEL 300 mg/kg/day	premating into lactation
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Ingestion	Not classified for male reproduction	Rat	NOAEL 300 mg/kg/day	33 days
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Ingestion	Not classified for development	Rat	NOAEL 300 mg/kg/day	premating into lactation
1,3-Benzenediol	Ingestion	Not classified for female reproduction	Rat	NOAEL 304 mg/kg/day	2 generation
1,3-Benzenediol	Ingestion	Not classified for male reproduction	Rat	NOAEL 223 mg/kg/day	2 generation
1,3-Benzenediol	Ingestion	Not classified for development	Rat	NOAEL 250 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
1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
1,3-Benzenediol	Dermal	heart | endocrine system | blood | methemoglobinemia | liver | nervous system | kidney and/or bladder | respiratory system	Not classified	Human	NOAEL Not available	
1,3-Benzenediol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
1,3-Benzenediol	Ingestion	nervous system	Causes damage to organs	Rat	NOAEL 27,5 mg/kg	
1,3-Benzenediol	Ingestion	methemoglobinemia	Not classified	Human	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Dermal	liver	Not classified	Rat	NOAEL 1 000 mg/kg/day	2 years
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	Dermal	nervous system	Not classified	Rat	NOAEL 1 000 mg/kg/day	13 weeks
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	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

1,4-Bis[(2,3-epoxypropoxy)methyl]cyclohexane	Ingestion	endocrine system | gastrointestinal tract | liver | heart | hematopoietic system | immune system | nervous system | kidney and/or bladder	Not classified	Rat	NOAEL 300 mg/kg/day	33 days
1,3-Benzenediol	Inhalation	respiratory system	Not classified	Rat	NOAEL 1 mg/l	14 days
1,3-Benzenediol	Ingestion	heart | skin | 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 250 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 are currently available or the data are 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.

SECTION 12: Ecological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labelling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:
GHS Acute 1: Very toxic to aquatic life.

Chronic aquatic hazard:
GHS Chronic 2: Toxic to aquatic life with long lasting effects.

No product test data available.

Material	CAS Nbr	Organism	Type	Exposure	Test endpoint	Test result
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown	25068-38-6	Water flea	Estimated	48 hours	LC50	0,95 mg/l

or <=700)						
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Green Algae	Experimental	72 hours	EC50	>11 mg/l
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Rainbow trout	Experimental	96 hours	LC50	1,2 mg/l
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Green Algae	Experimental	72 hours	NOEC	4,2 mg/l
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Water flea	Experimental	21 days	NOEC	0,3 mg/l
1,4-Bis[(2,3-epoxypropoxy) methyl]cyclohexane	14228-73-0	Green algae	Estimated	72 hours	EC50	26,7 mg/l
1,4-Bis[(2,3-epoxypropoxy) methyl]cyclohexane	14228-73-0	Rainbow trout	Estimated	96 hours	LC50	10,1 mg/l
1,4-Bis[(2,3-epoxypropoxy) methyl]cyclohexane	14228-73-0	Water flea	Estimated	48 hours	EC50	16,3 mg/l
1,4-Bis[(2,3-epoxypropoxy) methyl]cyclohexane	14228-73-0	Green algae	Estimated	72 hours	Effect Concentration 10%	21,4 mg/l
1,4-Bis[(2,3-epoxypropoxy)	14228-73-0	Water flea	Estimated	21 days	NOEC	11,7 mg/l

methyl]cyclohexane						
1,3-Benzenediol	108-46-3	Fathead minnow	Experimental	96 hours	LC50	26,8 mg/l
1,3-Benzenediol	108-46-3	Grass Shrimp	Experimental	96 hours	LC50	42,2 mg/l
1,3-Benzenediol	108-46-3	Green algae	Experimental	72 hours	EC50	>97 mg/l
1,3-Benzenediol	108-46-3	Water flea	Experimental	48 hours	EC50	1 mg/l
1,3-Benzenediol	108-46-3	Green algae	Experimental	72 hours	NOEC	97 mg/l
1,3-Benzenediol	108-46-3	Water flea	Experimental	21 days	NOEC	0,172 mg/l
Non-Volatile Amide	Trade Secret		Data not available or insufficient for classification			
4-Aminobutan-1-ol, diether with polytetramethylene glycol	27417-83-0	Water flea	Experimental	48 hours	EC50	0,65 mg/l
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7		Data not available or insufficient for classification			
N,N''-(4-Methyl-m-phenylene)bis[N',N'-dimethylurea]	17526-94-2	Common Carp	Experimental	96 hours	LC50	>100 mg/l
N,N''-(4-Methyl-m-phenylene)bis[N',N'-dimethylurea]	17526-94-2	Green Algae	Experimental	72 hours	EC50	>100 mg/l
N,N''-(4-Methyl-m-phenylene)bis[N',N'-dimethylurea]	17526-94-2	Water flea	Experimental	48 hours	EC50	>100 mg/l
N,N''-(4-Methyl-m-phenylene)bis[N',N'-dimethylurea]	17526-94-2	Green Algae	Experimental	72 hours	NOEC	100 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
4,4'-ISOPROPYLIDENEDIPHEN	25068-38-6	Estimated Hydrolysis		Hydrolytic half-life	<2 days (t 1/2)	Other methods

OL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)						
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Experimental Biodegradation	28 days	BOD	0 % BOD/ThBOD	OECD 301C - MITI test (I)
1,4-Bis[(2,3-epoxypropoxy) methyl]cyclohexane	14228-73-0	Estimated Biodegradation	28 days	Dissolv. Organic Carbon Deplet	16.6 %removal of DOC	OECD 301F - Manometric respirometry
1,3-Benzenediol	108-46-3	Experimental Biodegradation	14 days	BOD	66.7 % BOD/ThBOD	OECD 301C - MITI test (I)
Non-Volatile Amide	Trade Secret	Estimated Biodegradation	28 days	CO2 evolution	95 % weight	OECD 301B - Modified sturm or CO2
4-Aminobutan-1-ol, diether with polytetramethylene glycol	27417-83-0	Experimental Biodegradation	28 days	CO2 evolution	60 % weight	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,N''-(4-Methyl-m-phenylene)bis[N',N'-dimethylurea]	17526-94-2	Estimated Biodegradation	28 days	BOD	3 % BOD/ThBOD	OECD 301C - MITI test (I)

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
4,4'-ISOPROPYLIDENEDIPHENOL-EPICHLOROHYDRIN POLYMER (MW unknown or <=700)	25068-38-6	Experimental BCF-Carp	28 days	Bioaccumulation factor	<=42	OECD 305E - Bioaccumulation flow-through fish test
1,4-Bis[(2,3-epoxypropoxy) methyl]cyclohexane	14228-73-0	Estimated Bioconcentration		Bioaccumulation factor	3	Estimated: Bioconcentration factor

1,3-Benzenediol	108-46-3	Experimental Bioconcentration		Log Kow	0.8	Other methods
Non-Volatile Amide	Trade Secret	Estimated Bioconcentration		Bioaccumulation factor	2	Estimated: Bioconcentration factor
4-Aminobutan-1-ol, diether with polytetramethylene glycol	27417-83-0	Estimated Bioconcentration		Log Kow	1.4	Estimated: Octanol-water partition coefficient
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
N,N''-(4-Methyl-m-phenylene)bis[N',N'-dimethylurea]	17526-94-2	Estimated Bioconcentration		Bioaccumulation factor	4.3	Estimated: Bioconcentration factor

12.4. Mobility in soil
Please contact manufacturer for more details

12.5 Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1. Disposal methods
Product must only be disposed of by an authorized/permitted waste disposal contractor or incinerated in an industrial or commercial facility in the presence of a combustible material.

SECTION 14: Transport Information

Compliance is required to South African Transport Information Road Traffic Act & Regulations and Railroad regulations, IATA Standards for airfreight and Maritime standards for ocean freight.

SECTION 15: Regulatory information

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

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. The components of this product are in compliance with the chemical notification requirements of TSCA. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory.

SECTION 16: Other information

Revision information:
Label: GHS Classification information was modified.
Label: GHS Precautionary - Response information was modified.
Section 7: Precautions safe handling information information was modified.
Section 11: Acute Toxicity table information was modified.
Section 11: Germ Cell Mutagenicity Table information was modified.
Section 11: Health Effects - Skin 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.

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.

3M South Africa SDSs are available at www.3m.co.za