Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the Malaysia Occupational Safety and Health (Chemical Classification, Labelling and Safety Data Sheets) Regulations 2013.

SECTION 1: Identification

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

Product Identification Numbers
62-2214-2930-1 62-2214-6530-5 62-2214-8530-3 H0-0021-5153-0

1.2. Recommended use and restrictions on use

Recommended use
Adhesive

1.3. Supplier's details
ADDRESS: 3M Malaysia Sdn. Bhd., Level 8, Block F, Oasis Square, No.2, Jalan PJU 1A/7A, Ara Damansara 47301 Petaling, Jaya, Selangor
Telephone: 03-7884 2888
E Mail: 3mmyehsr@mmm.com
Website: www.3M.com.my

1.4. Emergency telephone number
+60 03-7884 2888

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
Serious Eye Damage/Irritation: Category 2.
Skin Sensitizer: Category 1.
Chronic Aquatic Toxicity: Category 1.

2.2. Label elements
Signal word
Warning

Symbols
Exclamation mark |Environment |

Pictograms

Hazard Statements:

H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H410	Very 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.

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	C.A.S. No.	% by Wt
Epoxy Resin 1	25068-38-6	30 - 60
Aluminum Pigments	7429-90-5	15 - 40
Amorphous Silica	67762-90-7	1 - 5
Dicyandiamide	461-58-5	1 - 5
Epoxy Resin 2	41638-13-5	1 - 5
Synthetic Elastomer	Trade Secret	1 - 5
p-Chlorophenyl-Dimethylurea	150-68-5	< 2.5
1,4-bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	< 1
Copper	7440-50-8	< 0.002

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

Allergic skin reaction (redness, swelling, blistering, and itching).

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
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. 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. 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 use in a confined area with minimal air exchange. Avoid breathing dust/fume/gas/mist/vapors/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 oxidizing 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 oxidizing agents. Store in a dry place. Store away from amines.

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	C.A.S. No.	Agency	Limit type	Additional Comments
p-Chlorophenyl-Dimethylurea	150-68-5	Manufacturer determined	TWA(Inhalable aerosol)(8 hours):1 mg/m3	
Aluminum Pigments	7429-90-5	ACGIH	TWA(respirable fraction):1 mg/m3	A4: Not class. as human carcin
Aluminum Pigments	7429-90-5	Malaysia OELs	TWA(as dust)(8 hours):10 mg/m3;TWA(Al, welding fume)(8 hours):5 mg/m3;TWA(as Al pyrophoric powder)(8 hours):5 mg/m3	
DUST, INERT OR NUISANCE	7429-90-5	Malaysia OELs	TWA (proposed)(respirable particles)(8 hours):3 mg/m3;TWA (proposed)(Inhalable particulate)(8 hours):10 mg/m3	
Copper	7440-50-8	Malaysia OELs	TWA(as fume)(8 hours):0.2 mg/m3;TWA(as Cu dust or mist)(8 hours):1 mg/m3	
COPPER, DUSTS AND MISTS, AS CU	7440-50-8	ACGIH	TWA(as Cu dust or mist):1 mg/m3	
COPPER, FUME AS CU	7440-50-8	ACGIH	TWA(as Cu, fume):0.2 mg/m3	

ACGIH : American Conference of Governmental Industrial Hygienists
CMRG : Chemical Manufacturer's Recommended Guidelines
Malaysia OELs : Malaysia. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations
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/vapors/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

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 vapors 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
Color	Gray
Odor	Epoxy
Odor threshold	*No Data Available*
pH	*Not Applicable*
Melting point/Freezing point	*Not Applicable*
Boiling point/Initial boiling point/Boiling range	>=260 ºC
Flash Point	248.9 ºC [*Test Method:*Closed Cup]
Evaporation rate	Negligible
Flammability (solid, gas)	Not Classified
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	*No Data Available*
Vapor Density and/or Relative Vapor Density	*No Data Available*
Density	1.44 g/ml [*Ref Std:*WATER=1]
Relative Density	1.44 [*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/Kinematic Viscosity	>= 1,000,000 mPa-s [@ 23 ºC]
Volatile Organic Compounds	*No Data Available*

Percent volatile	*No Data Available*
VOC Less H2O & Exempt Solvents	0 g/l [*Test Method:*calculated SCAQMD rule 443.1]
VOC Less H2O & Exempt Solvents	0 % [*Test Method:*calculated per CARB title 2]
Molecular weight	*No Data Available*

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 polymerization 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 oxidizing 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 labeling, 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:
Mild Skin Irritation: Signs/symptoms may include localized 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 diarrhea.

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
Epoxy Resin 1	Dermal	Rat	LD50 > 1,600 mg/kg
Epoxy Resin 1	Ingestion	Rat	LD50 > 1,000 mg/kg
Aluminum Pigments	Dermal		LD50 estimated to be > 5,000 mg/kg
Aluminum Pigments	Ingestion		LD50 estimated to be > 5,000 mg/kg
Aluminum Pigments	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.888 mg/l
Dicyandiamide	Dermal	Rabbit	LD50 > 10,000 mg/kg
Epoxy Resin 2	Dermal	Rabbit	LD50 > 2,000 mg/kg
Dicyandiamide	Ingestion	Rat	LD50 > 30,000 mg/kg
Epoxy Resin 2	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
p-Chlorophenyl-Dimethylurea	Dermal	Rabbit	LD50 > 2,500 mg/kg
p-Chlorophenyl-Dimethylurea	Ingestion	Rat	LD50 1,480 mg/kg
Amorphous Silica	Dermal	Rabbit	LD50 > 5,000 mg/kg
Amorphous Silica	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Amorphous Silica	Ingestion	Rat	LD50 > 5,110 mg/kg
1,4-bis[(2,3-epoxypropoxy)methyl]cyclohexane	Ingestion	Rat	LD50 1,000 mg/kg
Copper	Dermal	Rat	LD50 > 2,000 mg/kg
Copper	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.11 mg/l
Copper	Ingestion	Rat	LD50 > 2,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Epoxy Resin 1	Rabbit	Mild irritant
Aluminum Pigments	Rabbit	No significant irritation
Dicyandiamide	Human and animal	Minimal irritation
Epoxy Resin 2	Rabbit	No significant irritation
Synthetic Elastomer	Professional judgement	No significant irritation
p-Chlorophenyl-Dimethylurea	similar compounds	Mild irritant
Amorphous Silica	Rabbit	No significant irritation
1,4-bis[(2,3-epoxypropoxy)methyl]cyclohexane	In vitro data	Irritant
Copper	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Epoxy Resin 1	Rabbit	Moderate irritant
Aluminum Pigments	Rabbit	No significant irritation
Dicyandiamide	Professional judgement	Mild irritant
Epoxy Resin 2	Rabbit	Moderate irritant
Synthetic Elastomer	Professional judgement	No significant irritation
p-Chlorophenyl-Dimethylurea	similar compounds	Moderate irritant
Amorphous Silica	Rabbit	No significant irritation
1,4-bis[(2,3-epoxypropoxy)methyl]cyclohexane	In vitro data	No significant irritation
Copper	Rabbit	Mild irritant

Sensitization:

Skin Sensitization

Name	Species	Value
Epoxy Resin 1	Human and animal	Sensitizing
Aluminum Pigments	Guinea pig	Not classified
Dicyandiamide	Guinea pig	Not classified
Epoxy Resin 2	Guinea pig	Sensitizing
Amorphous Silica	Human and animal	Not classified
1,4-bis[(2,3-epoxypropoxy)methyl]cyclohexane	similar compounds	Sensitizing

Respiratory Sensitization

Name	Species	Value
Epoxy Resin 1	Human	Not classified
Aluminum Pigments	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
Epoxy Resin 1	In vivo	Not mutagenic
Epoxy Resin 1	In Vitro	Some positive data exist, but the data are not sufficient for classification
Aluminum Pigments	In Vitro	Not mutagenic
Dicyandiamide	In Vitro	Not mutagenic
Epoxy Resin 2	In Vitro	Some positive data exist, but the data are not sufficient for classification
p-Chlorophenyl-Dimethylurea	In Vitro	Some positive data exist, but the data are not sufficient for classification
p-Chlorophenyl-Dimethylurea	In vivo	Some positive data exist, but the data are not sufficient for classification
Amorphous Silica	In Vitro	Not mutagenic

1,4-bis[(2,3-epoxypropoxy)methyl]cyclohexane	In Vitro	Mutagenic; structurally related to germ cell mutagens

Carcinogenicity

Name	Route	Species	Value
Epoxy Resin 1	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Dicyandiamide	Ingestion	Rat	Not carcinogenic
p-Chlorophenyl-Dimethylurea	Ingestion	Rat	Some positive data exist, but the data are not sufficient for classification
Amorphous 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
Epoxy Resin 1	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin 1	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin 1	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
Epoxy Resin 1	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
p-Chlorophenyl-Dimethylurea	Ingestion	Not classified for development	Mouse	LOAEL 215 mg/kg/day	during gestation
Amorphous Silica	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Amorphous Silica	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Amorphous 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
Epoxy Resin 2	Inhalation	respiratory irritation	May cause respiratory irritation	Rat	NOAEL not available	
p-Chlorophenyl-Dimethylurea	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar compounds	NOAEL Not available	
p-Chlorophenyl-Dimethylurea	Ingestion	methemoglobinemia	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	not applicable
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	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure

						Duration
Epoxy Resin 1	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Epoxy Resin 1	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Epoxy Resin 1	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
Aluminum Pigments	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
p-Chlorophenyl-Dimethylurea	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Mouse	LOAEL 800 mg/kg/day	103 weeks
p-Chlorophenyl-Dimethylurea	Ingestion	kidney and/or bladder	Not classified	Rat	LOAEL 65 mg/kg/day	103 weeks
p-Chlorophenyl-Dimethylurea	Ingestion	immune system	Not classified	Rat	LOAEL 520 mg/kg/day	13 weeks
Amorphous 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 labeling, 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 2: Toxic to aquatic life.

Chronic aquatic hazard:
GHS Chronic 1: Very toxic to aquatic life with long lasting effects.

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
Epoxy Resin 1	25068-38-6	Activated sludge	Estimated	3 hours	IC50	>100 mg/l
Epoxy Resin 1	25068-38-6	Green algae	Estimated	72 hours	EC50	>11 mg/l
Epoxy Resin 1	25068-38-6	Rainbow Trout	Estimated	96 hours	LC50	2 mg/l
Epoxy Resin 1	25068-38-6	Water flea	Estimated	48 hours	EC50	1.8 mg/l
Epoxy Resin 1	25068-38-6	Green algae	Estimated	72 hours	NOEC	4.2 mg/l
Epoxy Resin 1	25068-38-6	Water flea	Estimated	21 days	NOEC	0.3 mg/l
Aluminum	7429-90-5	Fish	Experimental	96 hours	No tox obs at lmt	>100 mg/l

Pigments					of water sol	
Aluminum Pigments	7429-90-5	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminum Pigments	7429-90-5	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminum Pigments	7429-90-5	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	100 mg/l
Aluminum Pigments	7429-90-5	Water flea	Experimental	21 days	NOEC	0.076 mg/l
Amorphous Silica	67762-90-7	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
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)
Epoxy Resin 2	41638-13-5	Golden Orfe	Experimental	96 hours	LC50	67 mg/l
Epoxy Resin 2	41638-13-5	Water flea	Experimental	48 hours	EC50	90 mg/l
Synthetic Elastomer	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
p-Chlorophenyl-Dimethylurea	150-68-5	Algae or other aquatic plants	Experimental	24 hours	EC50	0.079 mg/l
p-Chlorophenyl-Dimethylurea	150-68-5	Fish	Experimental	96 hours	LC50	3.3 mg/l
p-Chlorophenyl-Dimethylurea	150-68-5	Water flea	Experimental	26 hours	EC50	106 mg/l
p-Chlorophenyl-Dimethylurea	150-68-5	Green algae	Experimental	96 hours	NOEC	0.01 mg/l
1,4-bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	Bacteria	Estimated	18 hours	EC50	10,264 mg/l
1,4-bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	N/A	Experimental	72 hours	EC50	38 mg/l
1,4-bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	Water flea	Experimental	48 hours	EC50	71 mg/l
1,4-bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	N/A	Experimental	72 hours	EC10	18 mg/l
Copper	7440-50-8	Green algae	Analogous Compound	72 hours	ErC50	0.1049 mg/l
Copper	7440-50-8	Water flea	Analogous Compound	48 hours	EC50	0.0126 mg/l
Copper	7440-50-8	Zebra Fish	Analogous Compound	96 hours	LC50	0.0117 mg/l
Copper	7440-50-8	Fathead Minnow	Analogous Compound	32 days	EC10	0.0059 mg/l
Copper	7440-50-8	Green algae	Analogous Compound	N/A	NOEC	0.022 mg/l
Copper	7440-50-8	Water flea	Analogous Compound	7 days	NOEC	0.004 mg/l
Copper	7440-50-8	Activated sludge	Analogous Compound	N/A	EC50	7 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Epoxy Resin 1	25068-38-6	Estimated	28 days	Biological Oxygen	5 %BOD/COD	OECD 301F - Manometric

		Biodegradation		Demand		Respiro
Epoxy Resin 1	25068-38-6	Estimated Hydrolysis		Hydrolytic half-life	117 hours (t 1/2)	
Aluminum Pigments	7429-90-5	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Amorphous Silica	67762-90-7	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	Carbon dioxide evolution	1.1 %CO2 evolution/THCO2 evolution	OECD 309 Aero Sim Biod Water
Epoxy Resin 2	41638-13-5	Experimental Biodegradation	28 days	Carbon dioxide evolution	27 %CO2 evolution/THCO2 evolution	OECD 301B - Mod. Sturm or CO2
Synthetic Elastomer	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
p-Chlorophenyl-Dimethylurea	150-68-5	Modeled Biodegradation	28 days	Biological Oxygen Demand	2.1 %BOD/ThOD	OECD 301C - MITI (I)
1,4-bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	Experimental Biodegradation	28 days	Carbon dioxide evolution	1.3 %CO2 evolution/THCO2 evolution	OECD 301B - Mod. Sturm or CO2
Copper	7440-50-8	Data not availbl-insufficient	N/A	N/A	N/A	N/A

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Epoxy Resin 1	25068-38-6	Estimated Bioconcentration		Log of Octanol/H2O part. coeff	3.242	
Aluminum Pigments	7429-90-5	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Amorphous Silica	67762-90-7	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 of Octanol/H2O part. coeff	-0.52	OECD 107 log Kow shke flsk mtd
Epoxy Resin 2	41638-13-5	Estimated Bioconcentration		Bioaccumulation Factor	2	
Synthetic Elastomer	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
p-Chlorophenyl-Dimethylurea	150-68-5	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	1.94	Catalogic™
1,4-bis[(2,3-epoxypropoxy)methyl]cyclohexane	14228-73-0	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	2.05	
Copper	7440-50-8	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

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

According to the Environmental Quality (Scheduled Wastes) Regulations 2005, scheduled waste has to be sent to a prescribed premise for recycling, treatment or disposal. Please approach Kualiti Alam for proper schedule waste classification and disposal.

SECTION 14: Transport Information

Marine Transport (IMDG)
Forbidden:3M division policy

Air Transport (IATA)

UN Number:UN1845
Proper Shipping Name: Carbon Dioxide, Solid
Technical Name:(p-Chlorophenyl-Dimethylurea)
Hazard Class/Division:9
Subsidiary Risk: None assigned.
Packing Group: None assigned.
Limited Quantity: None assigned.
Marine Pollutant: None assigned.
Marine Pollutant Technical Name: None assigned.
Other Dangerous Goods Descriptions:
None assigned.

Transportation classifications are provided as a customer service. As for shipping, YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. 3M's transportation classifications are based on product formulation, packaging, 3M policies and 3M's understanding of applicable current regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and not the packaging, labeling or marking requirements. The above information is only for reference. If you are shipping by air or ocean, YOU are advised to check & meet applicable regulatory requirements.

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. 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.

SECTION 16: Other information

DISCLAIMER: The information in this Safety Data Sheet (SDS) 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 SDS or use of the product in

combination with other materials. For these reasons, it is important that customers carry out their own evaluation 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 Malaysia, you are responsible for all applicable regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration/notification.

3M Malaysia SDSs are available at www.3M.com.my