



Safety Data Sheet

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Document group:	10-3174-9	Version number:	7.00
Issue Date:	13/11/2023	Supersedes date:	20/08/2018

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™ Epoxy Adhesive 2216 Gray Part A

Product Identification Numbers

62-2217-8530-6

1.2. Recommended use and restrictions on use

Recommended use

Structural adhesive.

NPEL priemerná (respirabilná frakcia)(8 hodín): 1 mg/m³; NPEL krátkodobá (respirabilná frakcia) (15 minút): 4 mg/m³

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.
Skin Corrosion/Irritation: Category 2.
Serious Eye Damage/Irritation: Category 2A
Skin Sensitizer: Category 1A.
Reproductive Toxicity: Category 1B.
Specific Target Organ Toxicity (single exposure): Category 3.
Acute Aquatic Toxicity: Category 1.
Chronic Aquatic Toxicity: Category 1.

2.2. Label elements

Signal word

Danger

Symbols

Exclamation mark |Health Hazard |Environment |

Pictograms



HAZARD STATEMENTS:

- H303 May be harmful if swallowed.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H317 May cause an allergic skin reaction.
- H360 May damage fertility or the unborn child.
- H336 May cause drowsiness or dizziness.

- H410 Very toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

- P201 Obtain special instructions before use.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P273 Avoid release to the environment.
- P280K Wear protective gloves and respiratory protection.

Response:

- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308 + P313 IF exposed or concerned: Get medical advice/attention.
- P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
- P391 Collect spillage.

2.3. Other hazards

Persons previously sensitised to amines may develop a cross-sensitisation reaction to certain other amines. Although titanium dioxide is classified as a carcinogen, exposures associated with this health effect are not expected during normal, intended use of this product. Eye damage/irritation class. based on test data /principle dilution The principle of dilution was used to bridge test results for eye damage/irritation. The test results are reflected in the assigned classification.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Wt
ALIPHATIC POLYMER DIAMINE	68911-25-1	30 - 70
Kaolin	1332-58-7	30 - 60
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	< 10
Titanium dioxide	13463-67-7	< 1
Toluene	108-88-3	< 0.5

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation

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

Skin contact

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

Eye contact

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

If swallowed

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

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

Allergic skin reaction (redness, swelling, blistering, and itching). Central nervous system depression (headache, dizziness, drowsiness, incoordination, nausea, slurred speech, giddiness, and unconsciousness).

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

<u>Substance</u>	<u>Condition</u>
Amine compounds.	During combustion.
Carbon monoxide.	During combustion.
Carbon dioxide.	During combustion.
Oxides of nitrogen.	During combustion.
Toxic vapour, gas, particulate.	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. For larger spills, cover drains and build dykes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up

Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorised person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and Safety Data Sheet. Seal the container. Dispose of collected material as soon as possible 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 handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Use personal protective equipment (eg. gloves, respirators...) as required.

7.2. Conditions for safe storage including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed.

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
Toluene	108-88-3	ACGIH	TWA:20 ppm	A4: Not class. as human carcin, Ototoxicant
Toluene	108-88-3	South Africa RELs	TWA(8 hours):40 ppm	SKIN
Silicon Carbide	1332-58-7	South Africa RELs	TWA(as total dust)(8 hours):10 mg/m3;TWA(as respirable dust)(8 hours):5 mg/m3	
Kaolin	1332-58-7	ACGIH	TWA(respirable fraction):2 mg/m3	A4: Not class. as human carcin
Particles (insoluble or poorly soluble) not otherwise specified, inhalable particles	1332-58-7	South Africa RELs	TWA(respirable fraction)(8 hours):5 mg/m3	
Particles (insoluble or poorly soluble) not otherwise specified, respirable particles	1332-58-7	South Africa RELs	TWA(8 hours):10 mg/m3	
Silicon Carbide	13463-67-7	South Africa RELs	TWA(as total dust)(8 hours):10 mg/m3;TWA(as respirable dust)(8 hours):5 mg/m3	
Particles (insoluble or poorly soluble) not otherwise specified, inhalable particles	13463-67-7	South Africa RELs	TWA(respirable fraction)(8 hours):5 mg/m3	
Particles (insoluble or poorly soluble) not otherwise specified, respirable particles	13463-67-7	South Africa RELs	TWA(8 hours):10 mg/m3	

Titanium dioxide	13463-67-7	ACGIH	TWA(Respirable nanoscale particles):0.2 mg/m3;TWA(Respirable finescale particles):2.5 mg/m3	A3: Confirmed animal carcin.
Titanium dioxide	13463-67-7	South Africa RELs	STEL(15 minutes):10 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:

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

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	Liquid.
Specific Physical Form:	Viscous.
Colour	Gray
Odor	Pungent Odor
Odour threshold	<i>No data available.</i>
pH	<i>Not applicable.</i>

Melting point/Freezing point	<i>Not applicable.</i>
Boiling point/Initial boiling point/Boiling range	<i>No data available.</i>
Flash point	$\geq 93,9$ °C [<i>Test Method: Closed Cup</i>]
Evaporation rate	<i>Not applicable.</i>
Flammability (solid, gas)	Not applicable.
Flammable Limits(LEL)	<i>Not applicable.</i>
Flammable Limits(UEL)	<i>Not applicable.</i>
Vapour pressure	$\leq 13,3$ Pa [<i>@ 25 °C</i>]
Vapor Density and/or Relative Vapor Density	<i>Not applicable.</i>
Density	1,26 g/ml [<i>@ 20 °C</i>]
Relative density	1,26 [<i>@ 20 °C</i>] [<i>Ref Std: WATER=1</i>]
Water solubility	Nil
Solubility- non-water	<i>No data available.</i>
Partition coefficient: n-octanol/water	<i>No data available.</i>
Autoignition temperature	<i>No data available.</i>
Decomposition temperature	<i>No data available.</i>
Viscosity/Kinematic Viscosity	40 000 - 80 000 mPa-s [<i>@ 20 °C</i>] [<i>Test Method: Brookfield</i>]
Volatile organic compounds (VOC)	<i>No data available.</i>
Percent volatile	<i>No data available.</i>
VOC less H ₂ O & exempt solvents	3,7 g/l [<i>Test Method: calculated SCAQMD rule 443.1</i>] [<i>Details: when used as intended with Part B</i>]
VOC less H ₂ O & exempt solvents	$< 0,5$ % [<i>Test Method: calculated SCAQMD rule 443.1</i>] [<i>Details: when used as intended with Part B</i>]
VOC less H ₂ O & exempt solvents	6,12 g/l [<i>Test Method: calculated SCAQMD rule 443.1</i>] [<i>Details: as supplied</i>]
Molecular weight	<i>No data available.</i>

SECTION 10: Stability and reactivity

10.1 Reactivity

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

10.2 Chemical stability

Stable.

10.3 Possibility of hazardous reactions

Hazardous polymerisation will not occur.

10.4 Conditions to avoid

Heat is generated during cure. Do not cure a mass larger than 50 grams in a confined space to prevent a premature exothermic reaction with production of intense heat and smoke.

10.5 Incompatible materials

None known.

10.6 Hazardous decomposition products

Substance

None known.

Condition

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. May cause additional health effects (see below).

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

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

Central nervous system (CNS) depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Reproductive/Developmental Toxicity:

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Additional information:

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

Toxicological Data

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

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5 000 mg/kg
Overall product	Ingestion		No data available; calculated ATE >2 000 - =5 000 mg/kg
ALIPHATIC POLYMER DIAMINE	Dermal	Rat	LD50 > 2 000 mg/kg
ALIPHATIC POLYMER DIAMINE	Ingestion	Rat	LD50 > 2 000 mg/kg
Kaolin	Dermal		LD50 estimated to be > 5 000 mg/kg
Kaolin	Ingestion	Human	LD50 > 15 000 mg/kg
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Dermal	Rabbit	LD50 2 525 mg/kg
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Ingestion	Rat	LD50 2 850 mg/kg
Titanium dioxide	Dermal	Rabbit	LD50 > 10 000 mg/kg

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Titanium dioxide	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 6,82 mg/l
Titanium dioxide	Ingestion	Rat	LD50 > 10 000 mg/kg
Toluene	Dermal	Rat	LD50 12 000 mg/kg
Toluene	Inhalation-Vapor (4 hours)	Rat	LC50 30 mg/l
Toluene	Ingestion	Rat	LD50 5 550 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
ALIPHATIC POLYMER DIAMINE	Rat	Irritant
Kaolin	Professional judgement	No significant irritation
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Rabbit	Corrosive
Titanium dioxide	Rabbit	No significant irritation
Toluene	Rabbit	Irritant

Serious Eye Damage/Irritation

Name	Species	Value
ALIPHATIC POLYMER DIAMINE	In vitro data	Severe irritant
Kaolin	Professional judgement	No significant irritation
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Rabbit	Corrosive
Titanium dioxide	Rabbit	No significant irritation
Toluene	Rabbit	Moderate irritant

Sensitization:**Skin Sensitisation**

Name	Species	Value
ALIPHATIC POLYMER DIAMINE	Guinea pig	Sensitising
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Professional judgement	Sensitising
Titanium dioxide	Human and animal	Not classified
Toluene	Guinea pig	Not classified

Respiratory Sensitisation

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

Germ Cell Mutagenicity

Name	Route	Value
ALIPHATIC POLYMER DIAMINE	In Vitro	Not mutagenic
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	In Vitro	Not mutagenic
Titanium dioxide	In Vitro	Not mutagenic
Titanium dioxide	In vivo	Not mutagenic

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Toluene	In Vitro	Not mutagenic
Toluene	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
Kaolin	Inhalation	Multiple animal species	Not carcinogenic
Titanium dioxide	Ingestion	Multiple animal species	Not carcinogenic
Titanium dioxide	Inhalation	Rat	Carcinogenic.
Toluene	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Toluene	Ingestion	Rat	Some positive data exist, but the data are not sufficient for classification
Toluene	Inhalation	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
ALIPHATIC POLYMER DIAMINE	Ingestion	Not classified for female reproduction	Rat	NOAEL 1 000 mg/kg/day	premating into lactation
ALIPHATIC POLYMER DIAMINE	Ingestion	Not classified for male reproduction	Rat	NOAEL 1 000 mg/kg/day	29 days
ALIPHATIC POLYMER DIAMINE	Ingestion	Not classified for development	Rat	NOAEL 1 000 mg/kg/day	premating into lactation
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Ingestion	Not classified for female reproduction	Rat	NOAEL 600 mg/kg/day	premating into lactation
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Ingestion	Not classified for male reproduction	Rat	NOAEL 600 mg/kg/day	59 days
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Ingestion	Not classified for development	Rat	NOAEL 600 mg/kg/day	premating into lactation
Toluene	Inhalation	Not classified for female reproduction	Human	NOAEL Not available	occupational exposure
Toluene	Inhalation	Not classified for male reproduction	Rat	NOAEL 2,3 mg/l	1 generation
Toluene	Ingestion	Toxic to development	Rat	LOAEL 520 mg/kg/day	during gestation
Toluene	Inhalation	Toxic to development	Human	NOAEL Not available	poisoning and/or abuse

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
ALIPHATIC POLYMER DIAMINE	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	Irritation Positive	
ALIPHATIC POLYMER DIAMINE	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Rat	NOAEL Not available	
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
Toluene	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Toluene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for	Human	NOAEL Not available	

			classification			
Toluene	Inhalation	immune system	Not classified	Mouse	NOAEL 0,004 mg/l	3 hours
Toluene	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
ALIPHATIC POLYMER DIAMINE	Ingestion	heart skin endocrine system gastrointestinal tract bone, teeth, nails, and/or hair hematopoietic system liver immune system muscles nervous system eyes kidney and/or bladder respiratory system vascular system	Not classified	Rat	NOAEL 1 000 mg/kg/day	29 days
Kaolin	Inhalation	pneumoconiosis	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL NA	occupational exposure
Kaolin	Inhalation	pulmonary fibrosis	Not classified	Rat	NOAEL Not available	
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	Ingestion	gastrointestinal tract heart endocrine system bone, teeth, nails, and/or hair hematopoietic system liver immune system muscles nervous system eyes kidney and/or bladder respiratory system vascular system	Not classified	Rat	NOAEL 600 mg/kg/day	59 days
Titanium dioxide	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 0,01 mg/l	2 years
Titanium dioxide	Inhalation	pulmonary fibrosis	Not classified	Human	NOAEL Not available	occupational exposure
Toluene	Inhalation	auditory system nervous system eyes olfactory system	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	poisoning and/or abuse
Toluene	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 2,3 mg/l	15 months
Toluene	Inhalation	heart liver kidney and/or bladder	Not classified	Rat	NOAEL 11,3 mg/l	15 weeks
Toluene	Inhalation	endocrine system	Not classified	Rat	NOAEL 1,1 mg/l	4 weeks
Toluene	Inhalation	immune system	Not classified	Mouse	NOAEL Not available	20 days
Toluene	Inhalation	bone, teeth, nails, and/or hair	Not classified	Mouse	NOAEL 1,1 mg/l	8 weeks
Toluene	Inhalation	hematopoietic system vascular system	Not classified	Human	NOAEL Not available	occupational exposure
Toluene	Inhalation	gastrointestinal tract	Not classified	Multiple animal species	NOAEL 11,3 mg/l	15 weeks
Toluene	Ingestion	nervous system	Some positive data exist, but the data are not sufficient for	Rat	NOAEL 625 mg/kg/day	13 weeks

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			classification			
Toluene	Ingestion	heart	Not classified	Rat	NOAEL 2 500 mg/kg/day	13 weeks
Toluene	Ingestion	liver kidney and/or bladder	Not classified	Multiple animal species	NOAEL 2 500 mg/kg/day	13 weeks
Toluene	Ingestion	hematopoietic system	Not classified	Mouse	NOAEL 600 mg/kg/day	14 days
Toluene	Ingestion	endocrine system	Not classified	Mouse	NOAEL 105 mg/kg/day	28 days
Toluene	Ingestion	immune system	Not classified	Mouse	NOAEL 105 mg/kg/day	4 weeks

Aspiration Hazard

Name	Value
Toluene	Aspiration hazard

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

No product test data available.

Material	CAS Nbr	Organism	Type	Exposure	Test endpoint	Test result
ALIPHATIC POLYMER DIAMINE	68911-25-1	Fathead minnow	Experimental	96 hours	LL50	2,16 mg/l
ALIPHATIC POLYMER DIAMINE	68911-25-1	Green algae	Experimental	72 hours	EL50	0,43 mg/l
ALIPHATIC POLYMER DIAMINE	68911-25-1	Water flea	Experimental	48 hours	EL50	0,57 mg/l
ALIPHATIC POLYMER DIAMINE	68911-25-1	Green algae	Experimental	72 hours	NOEL	0,28 mg/l
ALIPHATIC POLYMER DIAMINE	68911-25-1	Activated sludge	Experimental	3 hours	EC50	410,3 mg/l
Kaolin	1332-58-7	Water flea	Experimental	48 hours	LC50	>1 100 mg/l
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Golden Orfe	Experimental	96 hours	LC50	>1 000 mg/l
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Green algae	Experimental	72 hours	ErC50	>500 mg/l

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3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Water flea	Experimental	48 hours	EC50	218,16 mg/l
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Green algae	Experimental	72 hours	ErC10	5,4 mg/l
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Bacteria	Experimental	17 hours	EC50	4 000 mg/l
Titanium dioxide	13463-67-7	Activated sludge	Experimental	3 hours	NOEC	>=1 000 mg/l
Titanium dioxide	13463-67-7	Diatom	Experimental	72 hours	EC50	>10 000 mg/l
Titanium dioxide	13463-67-7	Fathead minnow	Experimental	96 hours	LC50	>100 mg/l
Titanium dioxide	13463-67-7	Water flea	Experimental	48 hours	EC50	>100 mg/l
Titanium dioxide	13463-67-7	Diatom	Experimental	72 hours	NOEC	5 600 mg/l
Toluene	108-88-3	Coho Salmon	Experimental	96 hours	LC50	5,5 mg/l
Toluene	108-88-3	Grass Shrimp	Experimental	96 hours	LC50	9,5 mg/l
Toluene	108-88-3	Green algae	Experimental	72 hours	EC50	12,5 mg/l
Toluene	108-88-3	Leopard frog	Experimental	9 days	LC50	0,39 mg/l
Toluene	108-88-3	Pink Salmon	Experimental	96 hours	LC50	6,41 mg/l
Toluene	108-88-3	Water flea	Experimental	48 hours	EC50	3,78 mg/l
Toluene	108-88-3	Coho Salmon	Experimental	40 days	NOEC	1,39 mg/l
Toluene	108-88-3	Diatom	Experimental	72 hours	NOEC	10 mg/l
Toluene	108-88-3	Water flea	Experimental	7 days	NOEC	0,74 mg/l
Toluene	108-88-3	Activated sludge	Experimental	12 hours	IC50	292 mg/l
Toluene	108-88-3	Bacteria	Experimental	16 hours	NOEC	29 mg/l
Toluene	108-88-3	Bacteria	Experimental	24 hours	EC50	84 mg/l
Toluene	108-88-3	Redworm	Experimental	28 days	LC50	>150 mg per kg of bodyweight
Toluene	108-88-3	Soil microbes	Experimental	28 days	NOEC	<26 mg/kg (Dry Weight)

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
ALIPHATIC POLYMER DIAMINE	68911-25-1	Experimental Biodegradation	28 days	BOD	0 %BOD/ThOD	OECD 301F - Manometric respirometry
Kaolin	1332-58-7	Data not available/insufficient	N/A	N/A	N/A	N/A
3,3'-Oxybis(ethyleneoxy)bis(propylamine)	4246-51-9	Experimental Biodegradation	25 days	CO2 evolution	-8 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
Titanium dioxide	13463-67-7	Data not available/insufficient	N/A	N/A	N/A	N/A
Toluene	108-88-3	Experimental Biodegradation	20 days	BOD	80 %BOD/ThOD	APHA Std Meth Water/Wastewater
Toluene	108-88-3	Experimental Photolysis		Photolytic half-life (in air)	5.2 days (t 1/2)	

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
ALIPHATIC POLYMER DIAMINE	68911-25-1	Modeled Bioconcentration		Bioaccumulation factor	42	Catalogic™
ALIPHATIC POLYMER DIAMINE	68911-25-1	Modeled Bioconcentration		Log Kow	11.7	Episuite™
Kaolin	1332-58-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
3,3'-	4246-51-9	Experimental		Log Kow	-1.25	

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Oxybis(ethyleneoxy)bis(propylamine)		Bioconcentration				
Titanium dioxide	13463-67-7	Experimental BCF - Fish	42 days	Bioaccumulation factor	9.6	
Toluene	108-88-3	Experimental BCF - Other	72 hours	Bioaccumulation factor	90	
Toluene	108-88-3	Experimental Bioconcentration		Log Kow	2.73	

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

SECTION 16: Other information

Revision information:

US Section 01 Product Use - Recommended Use information was modified.

Section 2: Hazard - Other information was modified.

Label: GHS Classification information was modified.

Label: GHS Environmental Hazard Statements information was added.

Label: GHS Precautionary - Prevention information was modified.

Label: GHS Precautionary - Response information was modified.

Label: Graphic information was modified.

Label: Signal Word information was modified.

Label: Symbol information was modified.
Section 2: Ingredient table information was modified.
Section 04: First Aid - Symptoms and Effects (GHS) information was added.
Section 4: First aid for eye contact information information was modified.
Section 04: Information on toxicological effects information was deleted.
Section 7: Conditions safe storage information was modified.
Section 7: Precautions safe handling information information was modified.
Section 8: Eye/face protection information information was modified.
Section 8: Occupational exposure limit table information was modified.
Section 09: Color information was added.
Section 09: Odor information was added.
Sections 3 and 9: Odour, colour, grade information information was deleted.
Section 09: Percent Volatile information was added.
Section 9: Property description for optional properties information was added.
Section 9: Property description for optional properties information was deleted.
Section 09: Vapor Density Value information was added.
Section 9: Vapour density value information was deleted.
Section 9: Viscosity information information was deleted.
Section 09: Viscosity information was added.
Section 09: VOC Less H2O & Exempt Solvents information was added.
Section 09: Volatile Organic Compounds information was added.
Section 11: Acute Toxicity table information was modified.
Section 11: Carcinogenicity Table information was modified.
Section 11: Germ Cell Mutagenicity Table information was modified.
Section 11: Health Effects - Eye information information was modified.
Section 11: Health Effects - Ingestion information information was modified.
Section 11: Reproductive Toxicity Table information was modified.
Section 11: Serious Eye Damage/Irritation Table information was modified.
Section 11: Single exposure may cause standard phrases information was added.
Section 11: Skin Corrosion/Irritation Table information was modified.
Section 11: Skin Sensitization Table information was modified.
Section 11: Target Organs - Repeated Table information was modified.
Section 11: Target Organs - Single Table information was modified.
Section 12: Acute aquatic hazard information information was modified.
Section 12: Chronic aquatic hazard information information was modified.
Section 12: Component ecotoxicity information information was modified.
Section 12: Persistence and Degradability information information was modified.
Section 12: Biocumulative potential information information was modified.
Section 16: UK disclaimer information was deleted.

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