



Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the SS586 Specification for Hazard Communication for Hazardous Chemicals and Dangerous Goods.

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SECTION 1: Identification

1.1. Product identifier

3M™ Marine Adhesive Sealant Fast Cure 4000 UV, White

1.2. Recommended use and restrictions on use

Recommended use

Adhesive

1.3. Supplier's details

Address: 3M Technologies (S) Pte Ltd, 10 Ang Mo Kio Street 65, Singapore 569059
Telephone: +65 6450 8888
Website: www.3m.com.sg

1.4. Emergency telephone number

+65 6591 6601 (8.15am - 5.00pm, Monday - Friday)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Reproductive Toxicity: Category 1B.

Chronic Aquatic Toxicity: Category 2.

2.2. Label elements

SIGNAL WORD

DANGER!

Symbols

Health Hazard | Environment |

Pictograms



HAZARD STATEMENTS

H360 May damage fertility or the unborn child.
 H411 Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P201 Obtain special instructions before use.
 P273 Avoid release to the environment.
 P280E Wear protective gloves.

Response:

P308 + P313 IF exposed or concerned: Get medical advice/attention.
 P391 Collect spillage.

Storage:

P405 Store locked up.

Disposal:

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

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.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Wt
Calcium Carbonate	471-34-1	30 - 60
Polyether	Trade Secret	15 - 40
Diisodecyl Phthalate	68515-49-1	5 - 20
Titanium dioxide	13463-67-7	< 10
Vinyltrimethoxysilane	2768-02-7	< 1
Polyamide	None	< 1
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	1760-24-3	< 1
Hindered Amine	63843-89-0	< 1
Tin, dioctylbis(2,4-pentanedionato-O,O')	54068-28-9	< 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

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

DO NOT USE WATER In case of fire: Use a carbon dioxide or dry chemical extinguisher to extinguish.

5.2. Special hazards arising from the substance or mixture

None inherent in this product.

Hazardous Decomposition or By-Products

Substance

Carbon monoxide.

Carbon dioxide.

Irritant vapours or gases.

Condition

During combustion.

During combustion.

During combustion.

5.3. Special protective actions for fire-fighters

No special protective actions for fire-fighters are anticipated.

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

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

Keep out of reach of children. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

Avoid release to the environment. Wash contaminated clothing before reuse. Use personal protective equipment (eg. gloves, respirators...) as required.

7.2. Conditions for safe storage including any incompatibilities

Keep container tightly closed to prevent contamination with water or air. If contamination is suspected, do not reseal container. Store away from heat. 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	CAS Nbr	Agency	Limit type	Additional comments
Titanium dioxide	13463-67-7	ACGIH	TWA(Respirable nanoscale particles):0.2 mg/m ³ ;TWA(Respirable finescale particles):2.5 mg/m ³	A3: Confirmed animal carcin.
Titanium dioxide	13463-67-7	Singapore PELs	TWA(8 hours):10 mg/m ³	
DUST, INERT OR NUISANCE	471-34-1	Singapore PELs	TWA(as particulate)(8 hours):10 mg/m ³	
Particles (insoluble or poorly soluble) not otherwise specified, inhalable particles	471-34-1	ACGIH	TWA(inhalable particulates):10 mg/m ³	
Particles (insoluble or poorly soluble) not otherwise specified, respirable particles	471-34-1	ACGIH	TWA(respirable particles):3 mg/m ³	
TIN, ORGANIC COMPOUNDS	54068-28-9	ACGIH	TWA(as Sn):0.1 mg/m ³ ;STEL(as Sn):0.2 mg/m ³	A4: Not class. as human carcin, Danger of cutaneous absorption
TIN, ORGANIC COMPOUNDS	54068-28-9	Singapore PELs	TWA(as Sn)(8 hours):0.1 mg/m ³ ;STEL(as Sn)(15 minutes):0.2 mg/m ³	

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association

CMRG : Chemical Manufacturer's Recommended Guidelines

Singapore PELs : Singapore. Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order

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.

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

When only incidental contact is anticipated, alternative glove material(s) may be used. If contact with the glove does occur, remove immediately and replace with a set of new gloves. For incidental contact, gloves made of the following material(s) may be used: Nitrile rubber.

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 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	Liquid.
Specific Physical Form:	Paste
Color	White
Odor	Slight Polyether
Odour threshold	<i>No data available.</i>
pH	<i>No data available.</i>
Melting point/Freezing point	<i>Not applicable.</i>
Boiling point/Initial boiling point/Boiling range	<i>Not applicable.</i>
Flash point	No flash point
Evaporation rate	<i>Not applicable.</i>
Flammability	Not applicable.
Flammable Limits(LEL)	<i>Not applicable.</i>
Flammable Limits(UEL)	<i>Not applicable.</i>
Vapour pressure	<i>Not applicable.</i>
Vapor Density and/or Relative Vapor Density	<i>Not applicable.</i>
Density	1.3 - 1.5 g/ml
Relative density	1.3 - 1.5 [Ref Std: WATER=1]
Water solubility	<i>No data available.</i>
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>
Kinematic Viscosity	<i>No data available.</i>
Volatile organic compounds (VOC)	16 g/l [Test Method: tested per EPA method 24]

Percent volatile	0.93 % weight
VOC less H2O & exempt solvents	16 g/l [<i>Test Method</i> :tested per EPA method 24]
VOC less H2O & exempt solvents	0.93 % [<i>Test Method</i> :tested per EPA method 24]
Molecular weight	<i>No data available.</i>

Particle Characteristics	<i>Not applicable.</i>
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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.

10.5 Incompatible materials

Alcohols.

Amines.

Water

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

Contact with the skin during product use is not expected to result in significant irritation. Allergic skin reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye contact

Contact with the eyes during product use is not expected to result in significant irritation.

Ingestion

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

Additional Health Effects:**Reproductive/Developmental Toxicity:**

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

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	Ingestion		No data available; calculated ATE >5,000 mg/kg
Calcium Carbonate	Dermal	Rat	LD50 > 2,000 mg/kg
Calcium Carbonate	Inhalation-Dust/Mist (4 hours)	Rat	LC50 3 mg/l
Calcium Carbonate	Ingestion	Rat	LD50 6,450 mg/kg
Polyether	Dermal		LD50 estimated to be > 5,000 mg/kg
Polyether	Ingestion	Rat	LD50 5,000 mg/kg
Diisodecyl Phthalate	Dermal	Rabbit	LD50 > 3,160 mg/kg
Diisodecyl Phthalate	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 12.5 mg/l
Diisodecyl Phthalate	Ingestion	Rat	LD50 > 9,700 mg/kg
Titanium dioxide	Dermal	Rabbit	LD50 > 10,000 mg/kg
Titanium dioxide	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 6.82 mg/l
Titanium dioxide	Ingestion	Rat	LD50 > 10,000 mg/kg
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	Dermal	Rabbit	LD50 > 2,000 mg/kg
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	Inhalation-Dust/Mist (4 hours)	Rat	LC50 >1.49, <2.44 mg/l
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	Ingestion	Rat	LD50 1,897 mg/kg
Polyamide	Dermal	Rat	LD50 > 2,000
Polyamide	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 6.3
Polyamide	Ingestion	Rat	LD50 > 2,000
Vinyltrimethoxysilane	Dermal	Rabbit	LD50 3,260 mg/kg
Vinyltrimethoxysilane	Inhalation-Vapor (4 hours)	Rat	LC50 16.8 mg/l
Vinyltrimethoxysilane	Ingestion	Rat	LD50 7,120 mg/kg
Tin, dioctylbis(2,4-pentanedionato-O,O')	Dermal	Rat	LD50 > 2,000 mg/kg
Tin, dioctylbis(2,4-pentanedionato-O,O')	Ingestion	Rat	LD50 > 2,000 mg/kg
Hindered Amine	Dermal	Rat	LD50 > 3,170 mg/kg
Hindered Amine	Ingestion	Rat	LD50 1,490 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Calcium Carbonate	Rabbit	No significant irritation
Diisodecyl Phthalate	Rabbit	Minimal irritation
Titanium dioxide	Rabbit	No significant irritation
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	Rabbit	Mild irritant
Polyamide	Rabbit	No significant irritation
Vinyltrimethoxysilane	Rabbit	Minimal irritation
Tin, dioctylbis(2,4-pentanedionato-O,O')	Rabbit	No significant irritation
Hindered Amine	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Calcium Carbonate	Rabbit	No significant irritation
Diisodecyl Phthalate	Rabbit	Mild irritant
Titanium dioxide	Rabbit	No significant irritation
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	Rabbit	Corrosive
Polyamide	Rabbit	Mild irritant
Vinyltrimethoxysilane	Rabbit	No significant irritation
Tin, dioctylbis(2,4-pentanedionato-O,O')	Rabbit	Mild irritant
Hindered Amine	Rabbit	Mild irritant

Sensitization:

Skin Sensitisation

Name	Species	Value
Diisodecyl Phthalate	Guinea pig	Not classified
Titanium dioxide	Human and animal	Not classified
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	Multiple animal species	Sensitising
Polyamide	Mouse	Not classified
Vinyltrimethoxysilane	Guinea pig	Some positive data exist, but the data are not sufficient for classification
Tin, dioctylbis(2,4-pentanedionato-O,O')	Mouse	Sensitising
Hindered Amine	Guinea pig	Not classified

Photosensitisation

Name	Species	Value
Hindered Amine	Guinea pig	Not sensitizing

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
Diisodecyl Phthalate	In Vitro	Not mutagenic
Diisodecyl Phthalate	In vivo	Not mutagenic
Titanium dioxide	In Vitro	Not mutagenic
Titanium dioxide	In vivo	Not mutagenic
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	In Vitro	Not mutagenic
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	In vivo	Not mutagenic
Polyamide	In Vitro	Not mutagenic

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Vinyltrimethoxysilane	In vivo	Not mutagenic
Vinyltrimethoxysilane	In Vitro	Some positive data exist, but the data are not sufficient for classification
Tin, dioctylbis(2,4-pentanedionato-O,O')	In Vitro	Not mutagenic
Hindered Amine	In vivo	Not mutagenic
Hindered Amine	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Titanium dioxide	Ingestion	Multiple animal species	Not carcinogenic
Titanium dioxide	Inhalation	Rat	Carcinogenic.

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Calcium Carbonate	Ingestion	Not classified for development	Rat	NOAEL 625 mg/kg/day	premating & during gestation
Diisodecyl Phthalate	Ingestion	Not classified for female reproduction	Rat	NOAEL 927 mg/kg/day	2 generation
Diisodecyl Phthalate	Ingestion	Not classified for male reproduction	Rat	NOAEL 929 mg/kg/day	2 generation
Diisodecyl Phthalate	Ingestion	Toxic to development	Rat	NOAEL 38 mg/kg/day	2 generation
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	Ingestion	Not classified for female reproduction	Rat	NOAEL 500 mg/kg/day	premating into lactation
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	Ingestion	Not classified for male reproduction	Rat	NOAEL 500 mg/kg/day	28 days
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	during gestation
Polyamide	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
Polyamide	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	28 days
Polyamide	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
Vinyltrimethoxysilane	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
Vinyltrimethoxysilane	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
Vinyltrimethoxysilane	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
Vinyltrimethoxysilane	Inhalation	Not classified for development	Rat	NOAEL 1.8 mg/l	during organogenesis
Tin, dioctylbis(2,4-pentanedionato-O,O')	Ingestion	Toxic to development	similar compounds	NOAEL not available	2 generation
Hindered Amine	Ingestion	Not classified for female reproduction	Rat	NOAEL 10 mg/kg/day	premating into lactation
Hindered Amine	Ingestion	Not classified for male reproduction	Rat	NOAEL 10 mg/kg/day	36 days
Hindered Amine	Ingestion	Not classified for development	Rat	NOAEL 10 mg/kg/day	premating into lactation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Calcium Carbonate	Inhalation	respiratory system	Not classified	Rat	NOAEL 0.812 mg/l	90 minutes
N-(3-(Trimethoxysilyl)propyl)ethylendiamine	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
Calcium Carbonate	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
Diisodecyl Phthalate	Inhalation	respiratory system hematopoietic system liver	Not classified	Rat	NOAEL 0.5 mg/l	2 weeks
Diisodecyl Phthalate	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 0.5 mg/l	2 generation
Diisodecyl Phthalate	Ingestion	endocrine system	Not classified	Rat	NOAEL 686 mg/kg/day	90 days
Diisodecyl Phthalate	Ingestion	liver kidney and/or bladder heart	Not classified	Rat	NOAEL 500 mg/kg/day	90 days
Diisodecyl Phthalate	Ingestion	hematopoietic system	Not classified	Dog	NOAEL 320 mg/kg/day	90 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
N-(3-(Trimethoxysilyl)propyl)ethylendiamine	Dermal	skin endocrine system hematopoietic system kidney and/or bladder	Not classified	Rat	NOAEL 1,545 mg/kg/day	11 days
N-(3-(Trimethoxysilyl)propyl)ethylendiamine	Inhalation	respiratory system	May cause damage to organs though prolonged or repeated exposure	Rat	NOAEL 0.015 mg/l	90 days
N-(3-(Trimethoxysilyl)propyl)ethylendiamine	Inhalation	hematopoietic system eyes kidney and/or bladder	Not classified	Rat	NOAEL 0.044 mg/l	90 days
N-(3-(Trimethoxysilyl)propyl)ethylendiamine	Ingestion	hematopoietic system nervous system	Not classified	Rat	NOAEL 500 mg/kg/day	28 days
Vinyltrimethoxysilane	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL mg/l	14 weeks
Vinyltrimethoxysilane	Inhalation	hematopoietic system eyes	Not classified	Rat	NOAEL 2.4 mg/l	14 weeks
Vinyltrimethoxysilane	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 250 mg/kg/day	40 days
Vinyltrimethoxysilane	Ingestion	endocrine system hematopoietic system liver immune system	Not classified	Rat	NOAEL 1,000 mg/kg/day	40 days
Tin, dioctylbis(2,4-pentanedionato-O,O')	Ingestion	immune system	Causes damage to organs through prolonged or repeated exposure	similar compounds	NOAEL not available	
Hindered Amine	Ingestion	gastrointestinal tract hematopoietic system liver immune system	Causes damage to organs through prolonged or repeated exposure	Rat	NOAEL 2 mg/kg/day	36 days

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 2: 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
Calcium Carbonate	471-34-1	Green algae	Experimental	72 hours	EC50	>100 mg/l
Calcium Carbonate	471-34-1	Rainbow trout	Experimental	96 hours	LC50	>100 mg/l
Calcium Carbonate	471-34-1	Water flea	Experimental	48 hours	EC50	>100 mg/l
Calcium Carbonate	471-34-1	Green algae	Experimental	72 hours	EC10	100 mg/l
Polyether	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Diisodecyl Phthalate	68515-49-1	Activated sludge	Experimental	30 minutes	EC50	>83.3 mg/l
Diisodecyl Phthalate	68515-49-1	Green algae	Experimental	96 hours	EC50	>100 mg/l
Diisodecyl Phthalate	68515-49-1	Rainbow trout	Experimental	96 hours	LC50	>100 mg/l
Diisodecyl Phthalate	68515-49-1	Water flea	Experimental	48 hours	EC50	>100 mg/l
Diisodecyl Phthalate	68515-49-1	Green algae	Experimental	96 hours	NOEC	100 mg/l
Diisodecyl Phthalate	68515-49-1	Water flea	Experimental	21 days	NOEC	100 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
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	1760-24-3	Bacteria	Experimental	16 hours	EC50	67 mg/l
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	1760-24-3	Fathead minnow	Experimental	96 hours	LC50	168 mg/l
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	1760-24-3	Green algae	Experimental	72 hours	ErC50	8.8 mg/l

3M™ Marine Adhesive Sealant Fast Cure 4000 UV, White

N-(3-(Trimethoxysilyl)propyl)ethylenediamine	1760-24-3	Water flea	Experimental	48 hours	EC50	81 mg/l
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	1760-24-3	Green algae	Experimental	72 hours	NOEC	3.1 mg/l
Hindered Amine	63843-89-0	Activated sludge	Experimental	3 hours	IC20	>100 mg/l
Hindered Amine	63843-89-0	Water flea	Experimental	21 days	NOEC	0.002 mg/l
Polyamide	None	Water flea	Endpoint not reached	48 hours	EC50	>100 mg/l
Polyamide	None	Activated sludge	Experimental	3 hours	EC50	>100 mg/l
Polyamide	None	Common Carp	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Polyamide	None	Green algae	Experimental	72 hours	EC50	0.025 mg/l
Polyamide	None	Water flea	Endpoint not reached	21 days	NOEC	>100 mg/l
Polyamide	None	Green algae	Experimental	72 hours	NOEC	0.007 mg/l
Vinyltrimethoxysilane	2768-02-7	Bacteria	Experimental	5 hours	EC10	1.1 mg/l
Vinyltrimethoxysilane	2768-02-7	Green algae	Experimental	72 hours	EC50	>957 mg/l
Vinyltrimethoxysilane	2768-02-7	Rainbow trout	Experimental	96 hours	LC50	191 mg/l
Vinyltrimethoxysilane	2768-02-7	Water flea	Experimental	48 hours	EC50	169 mg/l
Vinyltrimethoxysilane	2768-02-7	Green algae	Experimental	72 hours	NOEC	957 mg/l
Vinyltrimethoxysilane	2768-02-7	Water flea	Experimental	21 days	NOEC	28 mg/l
Tin, dioctylbis(2,4-pentanedionato-O,O')	54068-28-9	Fathead minnow	Estimated	96 hours	LC50	282 mg/l
Tin, dioctylbis(2,4-pentanedionato-O,O')	54068-28-9	Green algae	Estimated	72 hours	ErC50	226 mg/l
Tin, dioctylbis(2,4-pentanedionato-O,O')	54068-28-9	Water flea	Estimated	48 hours	EC50	70.2 mg/l
Tin, dioctylbis(2,4-pentanedionato-O,O')	54068-28-9	Fathead minnow	Estimated	34 days	NOEC	27 mg/l
Tin, dioctylbis(2,4-pentanedionato-O,O')	54068-28-9	Green algae	Estimated	72 hours	NOEC	8.7 mg/l
Tin, dioctylbis(2,4-pentanedionato-O,O')	54068-28-9	Water flea	Estimated	21 days	NOEC	0.62 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Calcium Carbonate	471-34-1	Data not available-insufficient	N/A	N/A	N/A	N/A
Polyether	Trade Secret	Data not available-insufficient	N/A	N/A	N/A	N/A
Diisodecyl Phthalate	68515-49-1	Experimental Biodegradation	28 days	BOD	74 %BOD/ThOD	OECD 301F - Manometric respirometry
Titanium dioxide	13463-67-7	Data not available-	N/A	N/A	N/A	N/A

3M™ Marine Adhesive Sealant Fast Cure 4000 UV, White

		insufficient				
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	1760-24-3	Experimental Biodegradation	28 days	Dissolv. Organic Carbon Deplet	39 %removal of DOC	EC C.4.A. DOC Die-Away Test
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	1760-24-3	Experimental Hydrolysis		Hydrolytic half-life (pH 7)	1.5 minutes (t 1/2)	
Hindered Amine	63843-89-0	Experimental Biodegradation	28 days	CO2 evolution	2 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
Polyamide	None	Experimental Biodegradation	28 days	CO2 evolution	7 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
Vinyltrimethoxysilane	2768-02-7	Experimental Biodegradation	28 days	BOD	51 %BOD/ThOD	OECD 301F - Manometric respirometry
Tin, dioctylbis(2,4-pentanedionato-O,O')	54068-28-9	Experimental Biodegradation	28 days	BOD	9 %BOD/ThOD	OECD 301F - Manometric respirometry
Tin, dioctylbis(2,4-pentanedionato-O,O')	54068-28-9	Experimental Hydrolysis		Hydrolytic half-life (pH 7)	<10 minutes (t 1/2)	OECD 111 Hydrolysis func of pH

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Calcium Carbonate	471-34-1	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Polyether	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Diisodecyl Phthalate	68515-49-1	Estimated BCF - Fish	56 days	Bioaccumulation factor	<14.4	OECD305-Bioconcentration
Titanium dioxide	13463-67-7	Experimental BCF - Fish	42 days	Bioaccumulation factor	9.6	
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	1760-24-3	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Hindered Amine	63843-89-0	Experimental BCF - Fish	60 days	Bioaccumulation factor	≤437.1	OECD305-Bioconcentration
Polyamide	None	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Vinyltrimethoxysilane	2768-02-7	Estimated Bioconcentration		Log Kow	-2	
Tin, dioctylbis(2,4-pentanedionato-O,O')	54068-28-9	Analogous Compound BCF - Fish	30 days	Bioaccumulation factor	<100	OECD305-Bioconcentration
Tin, dioctylbis(2,4-pentanedionato-O,O')	54068-28-9	Hydrolysis product		Log Kow	0.68	EC A.8 Partition Coefficient

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

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

Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

SECTION 14: Transport Information

International Regulations

UN No.: None assigned

UN Proper shipping name: None assigned

Transportation Class (IMO): None assigned

Transportation Class (IATA): None assigned

Other Dangerous Goods Descriptions (IMO): Not restricted, as per IMDG code 2.10.2.7, marine pollutant exception.

Other Dangerous Goods Descriptions (IATA): Not restricted, as per Special Provision A197, environmentally hazardous substance exception.

Packing Group: None assigned

Marine pollutant: None assigned

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.

This product may contain component(s) that are regulated by the following:

Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations: this product is subject to SDS, labelling, PEL and other requirements in the Act/Regulations.

Environmental Protection and Management (Hazardous Substances) Regulations: This product is subject to the requirements in the Regulations

SECTION 16: Other information

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 Singapore SDSs are available at www.3m.com.sg