Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the 'Regulation of Labelling and Hazard Communication of Hazardous Chemicals'

SECTION 1: Identification

1.1. Chemicals Name
3M(TM) Marine Adhesive Sealant 4200 FC White

Product Identification Numbers
62-5579-1632-7 62-5579-5232-2 62-5579-5235-5 UU-0091-7086-9

1.2. Recommended use and restrictions on use

Recommended use
Sealant

1.3. Details of the supplier of the safety data sheet

Name: 3M Taiwan LTD
ADDRESS: 3F., No. 198, Jingmao 2nd Rd., Nangang Dist., Taipei City 11568, Taiwan (R.O.C.)
Telephone: (02) 2785-9338
Website: www.3m.com.tw

1.4. Emergency telephone number
Emergency Telephone:886-3-4783600, 8:00AM - 4:30PM
Fax number:(03) 475-0924, 475-0904

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
Serious Eye Damage/Irritation: Category 2A.
Skin Corrosion/Irritation: Category 3.

2.2. Label elements
SIGNAL WORD
Warning

Symbols
Exclamation mark |

Pictograms

HAZARD STATEMENTS

H319	Causes serious eye irritation.
H316	Causes mild skin irritation.

General:

P102	Keep out of reach of children.
P101	If medical advice is needed, have product container or label at hand.

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.
P332 + P313	If skin irritation occurs: Get medical advice/attention.

2.3. Other hazards

Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt
Phenol Alkylsulfonate	70775-94-9	20 - 40
Urethane Polymer	51447-37-1	20 - 40
Poly(vinyl Chloride)	9002-86-2	20 - 30
Titanium Dioxide	13463-67-7	1 - 5
Calcium Oxide	1305-78-8	1 - 3
Xylene	1330-20-7	< 2
Ethylbenzene	100-41-4	< 0.6
3-(Trimethoxysilyl)propyl glycidyl ether	2530-83-8	< 0.3
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	< 0.2

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:

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

Skin Contact:

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

Eye Contact:

Immediately flush with large amounts of water for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately get medical attention.

If Swallowed:

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

4.2. Most important symptoms and effects, both acute and delayed
No critical symptoms or effects. See Section 11.1, information on toxicological effects.

4.3. Advice to protect the rescuer and special warning to doctors
Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation and personal protective equipment.

4.4. 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

5.2. Special hazards arising from the substance or mixture
None inherent in this product.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Cyanide	During Combustion
Oxides of Nitrogen	During Combustion

5.3. Special protective actions for fire-fighters
No special protective actions for fire-fighters are anticipated.

5.4. Special equipment for the protection of fire-fighters
No information is available.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
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/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. Wash contaminated clothing before reuse. Use personal protective equipment (gloves, respirators, etc.) 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.

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
Ethylbenzene	100-41-4	ACGIH	TWA:20 ppm	A3: Confirmed animal carcin.
Ethylbenzene	100-41-4	Taiwan OELs	TWA(8 hours):434 mg/m3(100 ppm);STEL(15 minutes):542.5 mg/m3(125 ppm)	
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	ACGIH	TWA:0.005 ppm	
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	Taiwan OELs	CEIL:0.2 mg/m3(0.02 ppm)	
Calcium Oxide	1305-78-8	ACGIH	TWA:2 mg/m3	
Calcium Oxide	1305-78-8	Taiwan OELs	TWA(8 hours):5 mg/m3;STEL(15 minutes):10 mg/m3	
Xylene	1330-20-7	ACGIH	TWA:100 ppm;STEL:150 ppm	A4: Not class. as human carcin
Xylene	1330-20-7	Taiwan OELs	TWA(8 hours):434 mg/m3(100 ppm);STEL(15 minutes):542.5 mg/m3(125 ppm)	
Titanium Dioxide	13463-67-7	ACGIH	TWA:10 mg/m3	A4: Not class. as human carcin
Titanium Dioxide	13463-67-7	Taiwan OELs	TWA(8 hours):10 mg/m3;STEL(15 minutes):15 mg/m3	
DUST, INERT OR NUISANCE	9002-86-2	Taiwan OELs	TWA(as total dust)(8 hours):10 mg/m3;TWA(as respirable dust)(8 hours):5 mg/m3;STEL(as total dust)(15 minutes):15 mg/m3;STEL(as respirable dust)(15 minutes):10 mg/m3	
Poly(vinyl Chloride)	9002-86-2	ACGIH	TWA(respirable fraction):1 mg/m3	A4: Not class. as human carcin

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
Taiwan OELs : Taiwan. OELs (Standards of Permissible Exposure Limits at Workplace)
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
ppm: parts per million
mg/m3: milligrams per cubic metre

CEIL: Ceiling

Biological limit values
No biological limit values exist for any of the components listed in Section 3 of this safety data sheet.

8.2. Exposure controls

8.2.1. Engineering controls
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/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:
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 vapors and particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

8.3. Hygiene Measures
See Section 7.1 Precautions for safe handling

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid
Specific Physical Form:	Paste
Color	White
Odor	Slight Urethane
Odor threshold	*No Data Available*
pH	*Not Applicable*
Melting point/Freezing point	*No Data Available*
Boiling point/Initial boiling point/Boiling range	*Not Applicable*
Flash Point	No flash point
Evaporation rate	*Not Applicable*
Flammability (solid, gas)	Not Classified

Flammable Limits(LEL)	*Not Applicable*
Flammable Limits(UEL)	*Not Applicable*
Vapor Pressure	*No Data Available*
Vapor Density and/or Relative Vapor Density	*No Data Available*
Density	1.18 g/ml
Relative Density	1.18 [*Details:*Water = 1]
Water solubility	Nil
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	>=398.9 ºC
Decomposition temperature	*No Data Available*
Viscosity/Kinematic Viscosity	*No Data Available*
Volatile Organic Compounds	*No Data Available*
Percent volatile	*No Data Available*
VOC Less H2O & Exempt Solvents	36 g/l [*Test Method:*calculated SCAQMD rule 443.1]
VOC Less H2O & Exempt Solvents	3 % [*Test Method:*calculated SCAQMD rule 443.1]

Nanoparticles
This material does not contain nanoparticles.

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 will not occur.

10.4. Conditions to avoid
None known.

10.5. Incompatible materials
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 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.

Allergic Respiratory Reaction: Signs/symptoms may include difficulty breathing, wheezing, cough, and tightness of chest.

May cause additional health effects (see below).

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:
Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

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

May cause additional health effects (see below).

Additional Health Effects:

Single exposure may cause target organ effects:
Auditory Effects: Signs/symptoms may include hearing impairment, balance dysfunction and ringing in the ears.

Chronic toxicity or long term toxicity

Prolonged or repeated exposure may cause target organ effects:
Auditory Effects: Signs/symptoms may include hearing impairment, balance dysfunction and ringing in the ears.

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

Carcinogenicity:
Contains a chemical or chemicals which can cause cancer.

Additional Information:
Persons previously sensitized to isocyanates may develop a cross-sensitization reaction to other isocyanates.

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	Inhalation-Vapor(4 hr)		No data available; calculated ATE >50 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Urethane Polymer	Dermal		LD50 estimated to be > 5,000 mg/kg

Urethane Polymer	Ingestion	Rat	LD50 > 5,000 mg/kg
Phenol Alkylsulfonate	Dermal	Rat	LD50 > 1,000 mg/kg
Phenol Alkylsulfonate	Ingestion	Rat	LD50 > 5,000 mg/kg
Poly(vinyl Chloride)	Dermal		LD50 estimated to be > 5,000 mg/kg
Poly(vinyl Chloride)	Ingestion		LD50 estimated to be > 5,000 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
Calcium Oxide	Ingestion	Rat	LD50 > 2,500 mg/kg
Calcium Oxide	Dermal	similar compounds	LD50 > 2,500 mg/kg
Xylene	Dermal	Rabbit	LD50 > 4,200 mg/kg
Xylene	Inhalation-Vapor (4 hours)	Rat	LC50 29 mg/l
Xylene	Ingestion	Rat	LD50 3,523 mg/kg
Ethylbenzene	Dermal	Rabbit	LD50 15,433 mg/kg
Ethylbenzene	Inhalation-Vapor (4 hours)	Rat	LC50 17.4 mg/l
Ethylbenzene	Ingestion	Rat	LD50 4,769 mg/kg
3-(Trimethoxysilyl)propyl glycidyl ether	Dermal	Rabbit	LD50 4,000 mg/kg
3-(Trimethoxysilyl)propyl glycidyl ether	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.3 mg/l
3-(Trimethoxysilyl)propyl glycidyl ether	Ingestion	Rat	LD50 7,010 mg/kg
p,p'-Methylenebis(phenyl isocyanate)	Dermal	Rabbit	LD50 > 5,000 mg/kg
p,p'-Methylenebis(phenyl isocyanate)	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.368 mg/l
p,p'-Methylenebis(phenyl isocyanate)	Ingestion	Rat	LD50 31,600 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Poly(vinyl Chloride)	Professional judgement	No significant irritation
Titanium Dioxide	Rabbit	No significant irritation
Calcium Oxide	Human	Corrosive
Xylene	Rabbit	Mild irritant
Ethylbenzene	Rabbit	Mild irritant
3-(Trimethoxysilyl)propyl glycidyl ether	Rabbit	Mild irritant
p,p'-Methylenebis(phenyl isocyanate)	official classification	Irritant

Serious Eye Damage/Irritation

Name	Species	Value
Titanium Dioxide	Rabbit	No significant irritation
Calcium Oxide	Rabbit	Corrosive
Xylene	Rabbit	Mild irritant
Ethylbenzene	Rabbit	Moderate irritant
3-(Trimethoxysilyl)propyl glycidyl ether	Rabbit	Corrosive
p,p'-Methylenebis(phenyl isocyanate)	official classification	Severe irritant

Sensitization:

Skin Sensitization

Name	Species	Value
Titanium Dioxide	Human and animal	Not classified
Ethylbenzene	Human	Not classified
3-(Trimethoxysilyl)propyl glycidyl ether	Guinea pig	Not classified
p,p'-Methylenebis(phenyl isocyanate)	official classification	Sensitizing

Respiratory Sensitization

Name	Species	Value
p,p'-Methylenebis(phenyl isocyanate)	Human	Sensitizing

Germ Cell Mutagenicity

Name	Route	Value
Poly(vinyl Chloride)	In Vitro	Not mutagenic
Titanium Dioxide	In Vitro	Not mutagenic
Titanium Dioxide	In vivo	Not mutagenic
Calcium Oxide	In Vitro	Not mutagenic
Xylene	In Vitro	Not mutagenic
Xylene	In vivo	Not mutagenic
Ethylbenzene	In vivo	Not mutagenic
Ethylbenzene	In Vitro	Some positive data exist, but the data are not sufficient for classification
3-(Trimethoxysilyl)propyl glycidyl ether	In vivo	Not mutagenic
3-(Trimethoxysilyl)propyl glycidyl ether	In Vitro	Some positive data exist, but the data are not sufficient for classification
p,p'-Methylenebis(phenyl isocyanate)	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Poly(vinyl Chloride)	Not Specified	Rat	Some positive data exist, but the data are not sufficient for classification
Titanium Dioxide	Ingestion	Multiple animal species	Not carcinogenic
Titanium Dioxide	Inhalation	Rat	Carcinogenic
Xylene	Dermal	Rat	Not carcinogenic
Xylene	Ingestion	Multiple animal species	Not carcinogenic
Xylene	Inhalation	Human	Some positive data exist, but the data are not sufficient for classification
Ethylbenzene	Inhalation	Multiple animal species	Carcinogenic
3-(Trimethoxysilyl)propyl glycidyl ether	Dermal	Mouse	Not carcinogenic
p,p'-Methylenebis(phenyl isocyanate)	Inhalation	Rat	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
Poly(vinyl Chloride)	Not Specified	Not classified for development	Mouse	NOAEL Not available	during gestation
Xylene	Inhalation	Not classified for female reproduction	Human	NOAEL Not available	occupational exposure
Xylene	Ingestion	Not classified for development	Mouse	NOAEL Not available	during organogenesis
Xylene	Inhalation	Not classified for development	Multiple animal species	NOAEL Not available	during gestation
Ethylbenzene	Inhalation	Not classified for development	Rat	NOAEL 4.3 mg/l	premating & during gestation
3-(Trimethoxysilyl)propyl glycidyl ether	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	1 generation
3-(Trimethoxysilyl)propyl glycidyl ether	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	1 generation
3-(Trimethoxysilyl)propyl glycidyl ether	Ingestion	Not classified for development	Rat	NOAEL 3,000 mg/kg/day	during organogenesis
p,p'-Methylenebis(phenyl isocyanate)	Inhalation	Not classified for development	Rat	NOAEL 0.004 mg/l	during organogenesis

Lactation

Name	Route	Species	Value
Xylene	Ingestion	Mouse	Not classified for effects on or via lactation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Calcium Oxide	Inhalation	respiratory irritation	May cause respiratory irritation	Not available	NOAEL Not available	occupational exposure
Xylene	Inhalation	auditory system	Causes damage to organs	Rat	LOAEL 6.3 mg/l	8 hours
Xylene	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Xylene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Xylene	Inhalation	eyes	Not classified	Rat	NOAEL 3.5 mg/l	not available
Xylene	Inhalation	liver	Not classified	Multiple animal species	NOAEL Not available	
Xylene	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Multiple animal species	NOAEL Not available	
Xylene	Ingestion	eyes	Not classified	Rat	NOAEL 250 mg/kg	not applicable
Ethylbenzene	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
Ethylbenzene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human and animal	NOAEL Not available	
Ethylbenzene	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Professional judgement	NOAEL Not available	

p,p'-Methylenebis(phenyl isocyanate)	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Poly(vinyl Chloride)	Inhalation	respiratory system	Not classified	Multiple animal species	NOAEL 0.013 mg/l	22 months
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
Xylene	Inhalation	nervous system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.4 mg/l	4 weeks
Xylene	Inhalation	auditory system	May cause damage to organs though prolonged or repeated exposure	Rat	LOAEL 7.8 mg/l	5 days
Xylene	Inhalation	liver	Not classified	Multiple animal species	NOAEL Not available	
Xylene	Inhalation	heart | endocrine system | gastrointestinal tract | hematopoietic system | muscles | kidney and/or bladder | respiratory system	Not classified	Multiple animal species	NOAEL 3.5 mg/l	13 weeks
Xylene	Ingestion	auditory system	Not classified	Rat	NOAEL 900 mg/kg/day	2 weeks
Xylene	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1,500 mg/kg/day	90 days
Xylene	Ingestion	liver	Not classified	Multiple animal species	NOAEL Not available	
Xylene	Ingestion	heart | skin | endocrine system | bone, teeth, nails, and/or hair | hematopoietic system | immune system | nervous system | respiratory system	Not classified	Mouse	NOAEL 1,000 mg/kg/day	103 weeks
Ethylbenzene	Inhalation	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1.1 mg/l	2 years
Ethylbenzene	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 1.1 mg/l	103 weeks
Ethylbenzene	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 3.4 mg/l	28 days
Ethylbenzene	Inhalation	auditory system	Not classified	Rat	NOAEL 2.4 mg/l	5 days
Ethylbenzene	Inhalation	endocrine system	Not classified	Mouse	NOAEL 3.3 mg/l	103 weeks
Ethylbenzene	Inhalation	gastrointestinal tract	Not classified	Rat	NOAEL 3.3 mg/l	2 years
Ethylbenzene	Inhalation	bone, teeth, nails, and/or hair | muscles	Not classified	Multiple animal species	NOAEL 4.2 mg/l	90 days
Ethylbenzene	Inhalation	heart | immune system | respiratory	Not classified	Multiple animal	NOAEL 3.3 mg/l	2 years

		system		species		
Ethylbenzene	Ingestion	liver | kidney and/or bladder	Not classified	Rat	NOAEL 680 mg/kg/day	6 months
3-(Trimethoxysilyl)propyl glycidyl ether	Ingestion	heart | endocrine system | bone, teeth, nails, and/or hair | hematopoietic system | liver | immune system | nervous system | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
p,p'-Methylenebis(phenyl isocyanate)	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.004 mg/l	13 weeks

Aspiration Hazard

Name	Value
Xylene	Aspiration hazard
Ethylbenzene	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 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:
Not acutely toxic to aquatic life by GHS criteria.

Chronic aquatic hazard:
Not chronically toxic to aquatic life by GHS criteria.

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
Phenol Alkylsulfonate	70775-94-9	Water flea	Estimated	48 hours	EC50	>100 mg/l
Phenol Alkylsulfonate	70775-94-9	Zebra Fish	Estimated	96 hours	LC50	>=100 mg/l
Phenol Alkylsulfonate	70775-94-9	Green algae	Estimated	72 hours	EC0	>100 mg/l
Urethane Polymer	51447-37-1		Data not available or insufficient for classification			N/A
Poly(vinyl Chloride)	9002-86-2		Data not available or insufficient for classification			N/A

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
Calcium Oxide	1305-78-8	Common Carp	Experimental	96 hours	LC50	1,070 mg/l
Xylene	1330-20-7	Activated sludge	Estimated	3 hours	NOEC	157 mg/l
Xylene	1330-20-7	Green Algae	Estimated	72 hours	EC50	4.36 mg/l
Xylene	1330-20-7	Rainbow Trout	Estimated	96 hours	LC50	2.6 mg/l
Xylene	1330-20-7	Water flea	Estimated	48 hours	EC50	3.82 mg/l
Xylene	1330-20-7	Green Algae	Estimated	72 hours	NOEC	0.44 mg/l
Xylene	1330-20-7	Water flea	Estimated	7 days	NOEC	0.96 mg/l
Xylene	1330-20-7	Rainbow Trout	Experimental	56 days	NOEC	>1.3 mg/l
Ethylbenzene	100-41-4	Activated sludge	Experimental	49 hours	EC50	130 mg/l
Ethylbenzene	100-41-4	Atlantic Silverside	Experimental	96 hours	LC50	5.1 mg/l
Ethylbenzene	100-41-4	Green Algae	Experimental	96 hours	EC50	3.6 mg/l
Ethylbenzene	100-41-4	Mysid Shrimp	Experimental	96 hours	LC50	2.6 mg/l
Ethylbenzene	100-41-4	Rainbow Trout	Experimental	96 hours	LC50	4.2 mg/l
Ethylbenzene	100-41-4	Water flea	Experimental	48 hours	EC50	1.8 mg/l
Ethylbenzene	100-41-4	Water flea	Experimental	7 days	NOEC	0.96 mg/l
3-(Trimethoxysilyl)propyl glycidyl ether	2530-83-8	Bacteria	Experimental	5 hours	EC10	1,520 mg/l
3-(Trimethoxysilyl)propyl glycidyl ether	2530-83-8	Common Carp	Experimental	96 hours	LC50	55 mg/l
3-(Trimethoxysilyl)propyl glycidyl ether	2530-83-8	Crustecea other	Experimental	48 hours	LC50	324 mg/l
3-(Trimethoxysilyl)propyl glycidyl ether	2530-83-8	Green algae	Experimental	96 hours	EC50	350 mg/l
3-(Trimethoxysilyl)propyl glycidyl ether	2530-83-8	Green Algae	Experimental	96 hours	NOEC	130 mg/l
3-(Trimethoxysilyl)propyl glycidyl ether	2530-83-8	Water flea	Experimental	21 days	NOEC	>=100 mg/l
p,p'-	101-68-8	Activated	Estimated	3 hours	EC50	>100 mg/l

Methylenebis(phenyl isocyanate)		sludge				
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	Green algae	Estimated	72 hours	EC50	>1,640 mg/l
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	Water flea	Estimated	24 hours	EC50	>1,000 mg/l
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	Zebra Fish	Estimated	96 hours	LC50	>1,000 mg/l
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	Green algae	Estimated	72 hours	NOEC	1,640 mg/l
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	Water flea	Estimated	21 days	NOEC	10 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Phenol Alkylsulfonate	70775-94-9	Experimental Biodegradation	28 days	Biological Oxygen Demand	49 % weight	
Urethane Polymer	51447-37-1	Data not availbl-insufficient			N/A	
Poly(vinyl Chloride)	9002-86-2	Data not availbl-insufficient			N/A	
Titanium Dioxide	13463-67-7	Data not availbl-insufficient			N/A	
Calcium Oxide	1305-78-8	Data not availbl-insufficient			N/A	
Xylene	1330-20-7	Experimental Photolysis		Photolytic half-life (in air)	1.4 days (t 1/2)	
Xylene	1330-20-7	Experimental Biodegradation	28 days	Biological Oxygen Demand	90-98 % BOD/ThBOD	OECD 301F - Manometric Respiro
Ethylbenzene	100-41-4	Experimental Photolysis		Photolytic half-life (in air)	4.26 days (t 1/2)	Non-standard method
Ethylbenzene	100-41-4	Experimental Biodegradation	28 days	Carbon dioxide evolution	70-80 %CO2 evolution/THCO2 evolution	ISO 14593 Inorg C Headspace
3-(Trimethoxysil	2530-83-8	Experimental Hydrolysis		Hydrolytic half-life	6.5 hours (t 1/2)	Non-standard method

yl)propyl glycidyl ether						
3-(Trimethoxysilyl)propyl glycidyl ether	2530-83-8	Experimental Biodegradation	28 days	Dissolv. Organic Carbon Deplet	37 % weight	Non-standard method
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	Estimated Hydrolysis		Hydrolytic half-life	20 hours (t 1/2)	Non-standard method

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Phenol Alkylsulfonate	70775-94-9	Experimental BCF-Carp	36 days	Bioaccumulation Factor	212	
Urethane Polymer	51447-37-1	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Poly(vinyl Chloride)	9002-86-2	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Titanium Dioxide	13463-67-7	Experimental BCF-Carp	42 days	Bioaccumulation Factor	9.6	Non-standard method
Calcium Oxide	1305-78-8	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Xylene	1330-20-7	Experimental BCF - Rainbow Trout	56 days	Bioaccumulation Factor	25.9	
Ethylbenzene	100-41-4	Experimental BCF - Salmon	42 days	Bioaccumulation Factor	1	Non-standard method
3-(Trimethoxysilyl)propyl glycidyl ether	2530-83-8	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
p,p'-Methylenebis(phenyl isocyanate)	101-68-8	Experimental BCF-Carp	28 days	Bioaccumulation Factor	200	OECD 305E-Bioaccum Fl-thru fis

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 completely cured (or polymerized) material in a permitted industrial waste facility. As a disposal alternative, incinerate uncured product in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include halogen acid (HCl/HF/HBr). Facility must be capable of handling halogenated materials. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

SECTION 14: Transport Information

14.1. International Regulations
Not hazardous for transportation.

UN No.: Not applicable
UN Proper shipping name: Not applicable
Transportation Class (IMO): Not applicable
Transportation Class (IATA): Not applicable
Packing Group: Not applicable
Marine pollutant: Not applicable
Specific transport measures and precautionary conditions: Not applicable

SECTION 15: Regulatory information

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

Applicable regulations:
Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste

Occupational Safety and Health Act
Regulation of Labelling and Hazard Communication of Hazardous Chemicals

Component name:	Threshold Value:	Regulation:
Ethylbenzene	70.00	Taiwan. Toxic and Concerned Chemical Substances Control Act (TCS) (List of Toxic Chemical Substances announced by the Environmental Protection Administration)

15.2. Global Inventory Status:
Australian Inventory of Chemical Substances: No
Canadian Domestic Substances List: No
EU Directive 2002/95/EC Restriction of Hazardous Substances (RoHS): Meets
European Inventory of Existing Commercial Chemical Substances: Yes
Inventory of Existing Chemical Substances in China (IECSC): Yes
Japan Existing & New Chemical Substances (ENCS): Yes
Korean Existing Chemicals Inventory: Yes
New Zealand. Inventory of Chemicals (NZIoC): Compliant
Philippine Inventory of Chemicals and Chemical Substances: Yes
Toxic Substances Control Act: Yes - Active

SECTION 16: Other information

16.1. Literature references

Organization that prepared the SDS

Name:	3M Taiwan LTD
Address:	3F., No. 198, Jingmao 2nd Rd., Nangang Dist., Taipei City 11568, Taiwan (R.O.C.)
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Person who prepared the SDS

Title:	Senior Product Responsibility Liaison
Name:	Sunny Chang

Date that the SDS was prepared:
2021/12/16

Revision information:
Section 01: Product name information was modified.
Section 04: Information on toxicological effects information was deleted.
Section 08: Occupational exposure limit table information was modified.
Section 09: Color information was added.
Section 09: Nanoparticle information was added.
Section 09: Odor information was added.
Section 09: Odor, color, grade information information was deleted.
Section 09: Percent Volatile information was added.
Section 09: Property description for optional properties information was deleted.
Section 09: Vapor Density Value information was added.
Section 09: Vapor density value information was deleted.
Section 09: 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 12: Component ecotoxicity information information was modified.
Section 12: Persistence and Degradability information information was modified.
Section 12:Bioccumulative potential information information was modified.
Section 15: Global Inventory Status information was modified.
Section 15: Methods and Facilities Standards information was modified.
Section 15: Regulation information was modified.
Section 16: UK disclaimer information was deleted.

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3M Taiwan SDSs are available at www.3m.com.tw