Safety Data Sheet

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

SECTION 1: Identification

1.1. Product identifier
3M™ Fastbond™ Contact Adhesive 2000-NF Neutral

Product Identification Numbers
62-4347-7536-7 62-4347-8430-2 62-4347-8436-9 62-4347-9430-1

1.2. Recommended use and restrictions on use

Recommended use
Adhesive, Industrial use

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

1.4. Emergency telephone number
+60 03-7884 2888

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
Reproductive Toxicity: Category 1B.
Specific Target Organ Toxicity (single exposure): Category 2.
Specific Target Organ Toxicity (repeated exposure): Category 2.
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.
H371	May cause damage to organs: sensory organs |
H373	May cause damage to organs through prolonged or repeated exposure: nervous system | sensory organs |
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

General:

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

Prevention:

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P280E	Wear protective gloves.
P281	Use personal protective equipment as required.
P273	Avoid release to the environment.

Response:

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

Storage:

P405	Store locked up.

Disposal:

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

2.3. Other hazards

None known

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt
Water	7732-18-5	30 - 60
2,3-DICHLORO-1,3-BUTADIENE-CHLOROPRENE COPOLYMER	25067-95-2	20 - 40
Glycerol Esters of Rosin Acids	8050-31-5	5 - 10
Rosin, Polymer with Phenol	68083-03-4	5 - 10
Methyl Alcohol	67-56-1	1 - 5

Potassium Rosinate	61790-50-9	1 - 5
Toluene	108-88-3	1 - 5
Zinc Oxide	1314-13-2	1 - 2
2,2'-METHYLENEBIS[6-TERT-BUTYL-P-CRESOL]	119-47-1	0.1 - 1
Triethanolamine	102-71-6	0.1 - 1
Ammonium Hydroxide	1336-21-6	0.088 (typically 0.088)

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:
Wash with soap and water. If signs/symptoms develop, get medical attention.

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

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

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1. Information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
This product contains methanol. If there is a reasonable suspicion of methanol poisoning, intravenous (IV) administration with either fomepizole (preferred) or ethanol (if fomepizole is unavailable) should be considered as part of the medical management.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
Use a fire fighting agent suitable for the surrounding fire.

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

Hazardous Decomposition or By-Products

Substance	Condition
Formaldehyde	During Combustion
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Chloride	During Combustion
Oxides of Nitrogen	During Combustion
Oxides of Phosphorus	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 dikes 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 water. 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/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. Avoid release to the environment. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (gloves, respirators, etc.) as required.

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
Triethanolamine	102-71-6	ACGIH	TWA:5 mg/m3	
Triethanolamine	102-71-6	Malaysia OELs	TWA(8 hours):5 mg/m3	
Toluene	108-88-3	ACGIH	TWA:20 ppm	A4: Not class. as human carcin
Toluene	108-88-3	Malaysia OELs	TWA(8 hours):188 mg/m3(50 ppm)	SKIN
Zinc Oxide	1314-13-2	ACGIH	TWA(respirable fraction):2 mg/m3;STEL(respirable fraction):10 mg/m3	
Zinc Oxide	1314-13-2	Malaysia OELs	TWA(as dust)(8 hours):10 mg/m3;TWA(as fume)(8 hours):5 mg/m3	
AMMONIA RELEASED FROM AMMONIUM HYDROXIDE/AQUEOUS	1336-21-6	ACGIH	TWA:25 ppm;STEL:35 ppm	

AMMONIA SOLUTIONS				
AMMONIA RELEASED FROM AMMONIUM HYDROXIDE/AQUEOUS AMMONIA SOLUTIONS	1336-21-6	Malaysia OELs	TWA(8 hours):17 mg/m3(25 ppm)	
Methyl Alcohol	67-56-1	ACGIH	TWA:200 ppm;STEL:250 ppm	SKIN
Methyl Alcohol	67-56-1	Malaysia OELs	TWA(8 hours):262 mg/m3(200 ppm)	SKIN

ACGIH : American Conference of Governmental Industrial Hygienists
CMRG : Chemical Manufacturer's Recommended Guidelines
Malaysia OELs : Malaysia. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

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: Fluoroelastomer
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
Half facepiece or full facepiece supplied-air respirator

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
Color	Neutral
Odor	Slight Ammoniacal
Odor threshold	*No Data Available*
pH	10

Melting point/Freezing point	*Not Applicable*
Boiling point/Initial boiling point/Boiling range	>=64 ºC [*Details:*Methanol]
Flash Point	No flash point
Evaporation rate	1 [*Ref Std:*ETHER=1]
Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	*Not Applicable*
Flammable Limits(UEL)	*Not Applicable*
Vapor Pressure	<=2,333.1 Pa [@ 20 ºC]
Vapor Density	1.1 [*Ref Std:*AIR=1]
Density	1.1 g/ml
Relative Density	1.1 [*Ref Std:*WATER=1]
Water solubility	Complete
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*Not Applicable*
Decomposition temperature	*No Data Available*
Viscosity	200 - 600 mPa-s [@ 23 ºC]
Molecular weight	*No Data Available*
VOC Less H2O & Exempt Solvents	<=80 g/l [*Test Method:*tested per EPA method 24]
Solids Content	25 - 50 %

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
Sparks and/or flames

10.5. Incompatible materials
Strong acids
Strong oxidizing agents

10.6. Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

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

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:
Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

May cause additional health effects (see below).

Skin Contact:
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness. May cause additional health effects (see below).

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 diarrhea.

May cause additional health effects (see below).

Additional Health Effects:

Single exposure may cause target organ effects:
May cause blindness.

Prolonged or repeated exposure may cause target organ effects:
Ocular Effects: Signs/symptoms may include blurred or significantly impaired vision.

Auditory Effects: Signs/symptoms may include hearing impairment, balance dysfunction and ringing in the ears.

Olfactory Effects: Signs/symptoms may include decreased ability to detect odors and/or complete loss of smell.

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.

Reproductive/Developmental Toxicity:
Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

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
Glycerol Esters of Rosin Acids	Dermal	Rabbit	LD50 > 5,000 mg/kg
Glycerol Esters of Rosin Acids	Ingestion	Rat	LD50 > 2,000 mg/kg
Toluene	Dermal	Rat	LD50 12,000 mg/kg
Toluene	Inhalation-Vapor (4	Rat	LC50 30 mg/l

	hours)		
Toluene	Ingestion	Rat	LD50 5,550 mg/kg
Methyl Alcohol	Dermal		LD50 estimated to be 1,000 - 2,000 mg/kg
Methyl Alcohol	Inhalation-Vapor		LC50 estimated to be 10 - 20 mg/l
Methyl Alcohol	Ingestion		LD50 estimated to be 50 - 300 mg/kg
Potassium Rosinate	Dermal	Rat	LD50 > 2,000 mg/kg
Potassium Rosinate	Ingestion	Rat	LD50 > 2,000 mg/kg
Zinc Oxide	Dermal		LD50 estimated to be > 5,000 mg/kg
Zinc Oxide	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.7 mg/l
Zinc Oxide	Ingestion	Rat	LD50 > 5,000 mg/kg
2,2'-METHYLENEBIS[6-TERT-BUTYL-P-CRESOL]	Dermal	Rabbit	LD50 > 10,000 mg/kg
2,2'-METHYLENEBIS[6-TERT-BUTYL-P-CRESOL]	Ingestion	Rat	LD50 > 5,000 mg/kg
Triethanolamine	Dermal	Rabbit	LD50 > 2,000 mg/kg
Triethanolamine	Ingestion	Rat	LD50 9,000 mg/kg
Ammonium Hydroxide	Ingestion	Rat	LD50 350 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Glycerol Esters of Rosin Acids	Rabbit	Minimal irritation
Toluene	Rabbit	Irritant
Methyl Alcohol	Rabbit	Mild irritant
Potassium Rosinate	Rabbit	No significant irritation
Zinc Oxide	Human and animal	No significant irritation
Triethanolamine	Rabbit	Minimal irritation
Ammonium Hydroxide	Rabbit	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
Glycerol Esters of Rosin Acids	Rabbit	Mild irritant
Toluene	Rabbit	Moderate irritant
Methyl Alcohol	Rabbit	Moderate irritant
Potassium Rosinate	Rabbit	Moderate irritant
Zinc Oxide	Rabbit	Mild irritant
Triethanolamine	Rabbit	Mild irritant
Ammonium Hydroxide	Rabbit	Corrosive

Skin Sensitization

Name	Species	Value
Glycerol Esters of Rosin Acids	Guinea pig	Not classified
Toluene	Guinea pig	Not classified
Methyl Alcohol	Guinea pig	Not classified
Potassium Rosinate	Mouse	Not classified
Zinc Oxide	Guinea pig	Not classified
Triethanolamine	Human	Not classified

Respiratory Sensitization

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

Germ Cell Mutagenicity

Name	Route	Value
Glycerol Esters of Rosin Acids	In Vitro	Not mutagenic
Toluene	In Vitro	Not mutagenic
Toluene	In vivo	Not mutagenic
Methyl Alcohol	In Vitro	Some positive data exist, but the data are not sufficient for classification
Methyl Alcohol	In vivo	Some positive data exist, but the data are not sufficient for classification
Zinc Oxide	In Vitro	Some positive data exist, but the data are not sufficient for classification
Zinc Oxide	In vivo	Some positive data exist, but the data are not sufficient for classification
Triethanolamine	In Vitro	Not mutagenic
Triethanolamine	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
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
Methyl Alcohol	Inhalation	Multiple animal species	Not carcinogenic
Triethanolamine	Dermal	Multiple animal species	Not carcinogenic
Triethanolamine	Ingestion	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
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
Methyl Alcohol	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,600 mg/kg/day	21 days
Methyl Alcohol	Ingestion	Toxic to development	Mouse	LOAEL 4,000 mg/kg/day	during organogenesis
Methyl Alcohol	Inhalation	Toxic to development	Mouse	NOAEL 1.3 mg/l	during organogenesis
Zinc Oxide	Ingestion	Not classified for reproduction and/or development	Multiple animal species	NOAEL 125 mg/kg/day	premating & during gestation
2,2'-METHYLENEBIS[6-TERT-BUTYL-P-CRESOL]	Ingestion	Not classified for female reproduction	Rat	NOAEL 50 mg/kg/day	premating & during gestation
2,2'-METHYLENEBIS[6-TERT-BUTYL-P-CRESOL]	Ingestion	Toxic to male reproduction	Rat	NOAEL 12.5 mg/kg/day	50 days
Triethanolamine	Ingestion	Not classified for development	Mouse	NOAEL 1,125 mg/kg/day	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
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 classification	Human	NOAEL Not available	
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
Methyl Alcohol	Inhalation	blindness	Causes damage to organs	Human	NOAEL Not available	occupational exposure
Methyl Alcohol	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	not available
Methyl Alcohol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	6 hours
Methyl Alcohol	Ingestion	blindness	Causes damage to organs	Human	NOAEL Not available	poisoning and/or abuse
Methyl Alcohol	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse
Potassium Rosinate	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
Ammonium Hydroxide	Inhalation	respiratory irritation	May cause respiratory irritation	Human	NOAEL not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Glycerol Esters of Rosin Acids	Ingestion	liver | heart | skin | endocrine system | bone, teeth, nails, and/or hair | blood | bone marrow | hematopoietic system | immune system | muscles | nervous system | eyes | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 5,000 mg/kg/day	90 days
Toluene	Inhalation	auditory system | eyes | olfactory system	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	poisoning and/or abuse
Toluene	Inhalation	nervous system	May cause damage to organs though 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	Not classified	Human	NOAEL Not available	occupational exposure

		system				
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 classification	Rat	NOAEL 625 mg/kg/day	13 weeks
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
Methyl Alcohol	Inhalation	liver	Not classified	Rat	NOAEL 6.55 mg/l	4 weeks
Methyl Alcohol	Inhalation	respiratory system	Not classified	Rat	NOAEL 13.1 mg/l	6 weeks
Methyl Alcohol	Ingestion	liver | nervous system	Not classified	Rat	NOAEL 2,500 mg/kg/day	90 days
Zinc Oxide	Ingestion	nervous system	Not classified	Rat	NOAEL 600 mg/kg/day	10 days
Zinc Oxide	Ingestion	endocrine system | hematopoietic system | kidney and/or bladder	Not classified	Other	NOAEL 500 mg/kg/day	6 months
Triethanolamine	Dermal	kidney and/or bladder	Not classified	Multiple animal species	NOAEL 2,000 mg/kg/day	2 years
Triethanolamine	Dermal	liver	Not classified	Mouse	NOAEL 4,000 mg/kg/day	13 weeks
Triethanolamine	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 1,000 mg/kg/day	2 years
Triethanolamine	Ingestion	liver	Not classified	Guinea pig	NOAEL 1,600 mg/kg/day	24 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 labeling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:

GHS Acute 2: Toxic to aquatic life.

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

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
2,3-DICHLORO-1,3-BUTADIENE-CHLOROPRENE COPOLYMER	25067-95-2		Data not available or insufficient for classification			
Glycerol Esters of Rosin Acids	8050-31-5	Green Algae	Estimated	72 hours	Effect Level 50%	>100 mg/l
Glycerol Esters of Rosin Acids	8050-31-5	Water flea	Estimated	48 hours	Effect Level 50%	>100 mg/l
Glycerol Esters of Rosin Acids	8050-31-5	Fathead Minnow	Estimated	96 hours	Lethal Level 50%	>100 mg/l
Glycerol Esters of Rosin Acids	8050-31-5	Green Algae	Estimated	72 hours	No obs Effect Level	>100 mg/l
Methyl Alcohol	67-56-1	Algae or other aquatic plants	Experimental	96 hours	Effect Concentration 50%	16.9 mg/l
Methyl Alcohol	67-56-1	Water flea	Experimental	24 hours	Effect Concentration 50%	20,803 mg/l
Methyl Alcohol	67-56-1	Bluegill	Experimental	96 hours	Lethal Concentration 50%	15,400 mg/l
Methyl Alcohol	67-56-1	Green Algae	Experimental	96 hours	Effect Concentration 50%	22,000 mg/l
Methyl Alcohol	67-56-1	Algae or other aquatic plants	Experimental	96 hours	No obs Effect Conc	9.96 mg/l
Methyl Alcohol	67-56-1	Water flea	Experimental	21 days	No obs Effect Conc	122 mg/l
Potassium Rosinate	61790-50-9	Water flea	Estimated	48 hours	Effect Concentration 50%	1.6 mg/l
Potassium Rosinate	61790-50-9	Green Algae	Estimated	72 hours	Effect Concentration 50%	39.6 mg/l
Potassium Rosinate	61790-50-9	Fathead Minnow	Estimated	96 hours	Lethal Concentration 50%	1.7 mg/l
Toluene	108-88-3	Coho Salmon	Experimental	96 hours	Lethal Concentration 50%	5.5 mg/l
Toluene	108-88-3	Fish other	Experimental	96 hours	Lethal Concentration 50%	6.41 mg/l
Toluene	108-88-3	Green Algae	Experimental	72 hours	Effect	12.5 mg/l

					Concentration 50%	
Toluene	108-88-3	Water flea	Experimental	48 hours	Effect Concentration 50%	3.78 mg/l
Toluene	108-88-3	Water flea	Experimental	7 days	No obs Effect Conc	0.74 mg/l
Toluene	108-88-3	Coho salmon	Experimental	40 days	No obs Effect Conc	3.2 mg/l
Zinc Oxide	1314-13-2	Crustecea other	Experimental	24 hours	Lethal Concentration 50%	0.24 mg/l
Zinc Oxide	1314-13-2	Green Algae	Experimental	72 hours	Effect Concentration 50%	0.057 mg/l
Zinc Oxide	1314-13-2	Rainbow Trout	Estimated	96 hours	Lethal Concentration 50%	0.21 mg/l
Zinc Oxide	1314-13-2	Algae or other aquatic plants	Estimated	96 hours	Effect Concentration 10%	0.026 mg/l
Zinc Oxide	1314-13-2	Rainbow Trout	Estimated	30 days	No obs Effect Conc	0.049 mg/l
Zinc Oxide	1314-13-2	Crustecea other	Estimated	24 days	No obs Effect Conc	0.007 mg/l
2,2'-METHYLENE BIS[6-TERT-BUTYL-P-CRESOL]	119-47-1	Water flea	Endpoint not reached	48 hours	Effect Concentration 50%	>100 mg/l
2,2'-METHYLENE BIS[6-TERT-BUTYL-P-CRESOL]	119-47-1	Green Algae	Endpoint not reached	72 hours	Effect Concentration 50%	>100 mg/l
2,2'-METHYLENE BIS[6-TERT-BUTYL-P-CRESOL]	119-47-1	Ricefish	Experimental	96 hours	Lethal Concentration 50%	>100 mg/l
2,2'-METHYLENE BIS[6-TERT-BUTYL-P-CRESOL]	119-47-1	Green Algae	Experimental	72 hours	No obs Effect Conc	1.3 mg/l
2,2'-METHYLENE BIS[6-TERT-BUTYL-P-CRESOL]	119-47-1	Water flea	Experimental	21 days	No obs Effect Conc	0.34 mg/l
Triethanolamine	102-71-6	Water flea	Experimental	48 hours	Effect Concentration 50%	609.98 mg/l
Triethanolamine	102-71-6	Fathead Minnow	Experimental	96 hours	Lethal Concentration	11,800 mg/l

					50%	
Triethanolamine	102-71-6	Green algae	Experimental	72 hours	Effect Concentration 50%	512 mg/l
Triethanolamine	102-71-6	Green Algae	Experimental	72 hours	Effect Concentration 10%	26 mg/l
Triethanolamine	102-71-6	Water flea	Experimental	21 days	No obs Effect Conc	16 mg/l
Ammonium Hydroxide	1336-21-6	Grass Shrimp	Estimated	48 hours	Effect Concentration 50%	20 mg/l
Ammonium Hydroxide	1336-21-6	Fish other	Estimated	96 hours	Lethal Concentration 50%	3.5 mg/l
Ammonium Hydroxide	1336-21-6	Algae or other aquatic plants	Estimated	72 hours	Inhibitory Concentration 50%	21.5 mg/l
Ammonium Hydroxide	1336-21-6	Algae or other aquatic plants	Estimated	72 hours	No obs Effect Conc	1.5 mg/l
Ammonium Hydroxide	1336-21-6	Water flea	Estimated	21 days	No obs Effect Conc	49.2 mg/l
Ammonium Hydroxide	1336-21-6	Bluegill	Estimated	32 days	No obs Effect Conc	4.1 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
2,3-DICHLORO-1,3-BUTADIENE-CHLOROPRENE COPOLYMER	25067-95-2	Data not availbl-insufficient			N/A	
Glycerol Esters of Rosin Acids	8050-31-5	Experimental Biodegradation	28 days	Carbon dioxide evolution	0 % weight	OECD 301B - Mod. Sturm or CO2
Methyl Alcohol	67-56-1	Experimental Biodegradation	14 days	Biological Oxygen Demand	92 % BOD/ThBOD	OECD 301C - MITI (I)
Potassium Rosinate	61790-50-9	Estimated Biodegradation	28 days	Carbon dioxide evolution	80 % weight	OECD 301B - Mod. Sturm or CO2
Toluene	108-88-3	Experimental Photolysis		Photolytic half-life (in air)	5.2 days (t 1/2)	Other methods
Toluene	108-88-3	Experimental Biodegradation	20 days	Biological Oxygen Demand	80 % weight	
Zinc Oxide	1314-13-2	Data not availbl-insufficient			N/A	
2,2'-METHYLENE BIS[6-TERT-BUTYL-P-	119-47-1	Experimental Biodegradation	28 days	Biological Oxygen Demand	0 % BOD/ThBOD	OECD 301C - MITI (I)

CRESOL]						
Triethanolamine	102-71-6	Experimental Biodegradation	19 days	Dissolv. Organic Carbon Deplet	96 % weight	Other methods
Ammonium Hydroxide	1336-21-6	Data not availbl-insufficient			N/A	

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
2,3-DICHLORO-1,3-BUTADIENE-CHLOROPRENE COPOLYMER	25067-95-2	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Glycerol Esters of Rosin Acids	8050-31-5	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	<1.5	Other methods
Methyl Alcohol	67-56-1	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	-0.77	Other methods
Potassium Rosinate	61790-50-9	Estimated BCF - Rainbow Tr	20 days	Bioaccumulation Factor	≤129	Other methods
Toluene	108-88-3	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	2.73	Other methods
Zinc Oxide	1314-13-2	Experimental BCF-Carp	56 days	Bioaccumulation Factor	≤217	OECD 305E-Bioaccum Fl-thru fis
2,2'-METHYLENE BIS[6-TERT-BUTYL-P-CRESOL]	119-47-1	Experimental BCF-Carp	60 days	Bioaccumulation Factor	840	OECD 305E-Bioaccum Fl-thru fis
Triethanolamine	102-71-6	Experimental BCF-Carp	42 days	Bioaccumulation Factor	<3.9	Other methods
Ammonium Hydroxide	1336-21-6	Estimated Bioconcentration		Log of Octanol/H2O part. coeff	-1.14	Other methods

12.4. Mobility in soil
Please contact manufacturer for more details

12.5 Other adverse effects
No information available

SECTION 13: Disposal considerations

13.1. Disposal methods

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

disposal.

SECTION 14: Transport Information

Marine Transport (IMDG)

UN Number:UN3082
Proper Shipping Name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: None assigned.
Hazard Class/Division:9
Subsidiary Risk: None assigned.
Packing Group:III
Limited Quantity: None assigned.
Marine Pollutant: Yes
Marine Pollutant Technical Name: None assigned.
Other Dangerous Goods Descriptions:
None assigned.

Air Transport (IATA)

UN Number:UN3082
Proper Shipping Name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: None assigned.
Hazard Class/Division:9
Subsidiary Risk: None assigned.
Packing Group:III
Limited Quantity: None assigned.
Marine Pollutant: Yes
Marine Pollutant Technical Name: None assigned.
Other Dangerous Goods Descriptions:
None assigned.

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

SECTION 15: Regulatory information

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

Global inventory status
Contact 3M for more information. The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the new substance notification requirements of CEPA. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

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