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(TM) Scotch-Weld(TM) Threadlocker TL43 (formerly sold as Rite-Lok™ Threadlocker TL43-10, TL43-1L, TL43-250, & TL43-50)

Product Identification Numbers

62-3428-1050-4	62-3428-1055-3	62-3428-3950-3	62-3428-5050-0	62-3428-8330-3

1.2. Recommended use and restrictions on use

Recommended use
Anaerobic Threadlocking Adhesive, Structural adhesive

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

1.4. Emergency telephone number
+60 03-7884 2888

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
Serious Eye Damage/Irritation: Category 2.
Skin Corrosion/Irritation: Category 2.
Skin Sensitizer: Category 1.
Specific Target Organ Toxicity (repeated exposure): Category 2.
Acute Aquatic Toxicity: Category 1.
Chronic Aquatic Toxicity: Category 1.

2.2. Label elements
Signal word
Warning

Symbols
Exclamation mark | Health Hazard | Environment |

Pictograms

Hazard Statements

H319	Causes serious eye irritation.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H373	May cause damage to organs through prolonged or repeated exposure: nervous system | respiratory system |
H400	Very toxic to aquatic life.
H410	Very 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:

P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P280E	Wear protective gloves.
P273	Avoid release to the environment.

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.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

Disposal:

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

2.3. Other hazards
None known

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt
Triethylene Glycol Dimethacrylate	109-16-0	30 - 60
Aromatic Hydrocarbon - N.J.T.S. Reg. No. 044499600-6702	38640-62-9	10 - 30
Polyester Resin	Trade Secret	5 - 10
Hydroxypropyl Methacrylate	27813-02-1	5 - 10

Amorphous Treated Silica	68909-20-6	5 - 10
Dimethyl Siloxane, reaction product with Silica	67762-90-7	1 - 5
Cumene Hydroperoxide	80-15-9	1 - 5
Saccharin	81-07-2	0.5 - 1.5
Acrylic Acid	79-10-7	0.1 - 1
Ethylene Glycol	107-21-1	0.1 - 1
1-acetyl-2-phenylhydrazine	114-83-0	0.1 - 1
Titanium Dioxide	13463-67-7	0.1 - 1
4-METHYL-N,N-DIETHYLANILINE	613-48-9	< 0.3
N,N-DIMETHYL-O-TOLUIDINE	609-72-3	< 0.3
HYDROQUINONE	123-31-9	0.05 - 0.15

Any remaining components do not contribute to the hazards of this material.

SECTION 4: First aid measures

4.1. Description of first aid measures

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

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

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

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

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

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
In case of fire: Use a 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	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Irritant Vapors or Gases	During Combustion
Oxides of Nitrogen	During Combustion
Oxides of Sulfur	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. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. 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
Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Seal the container. Dispose of collected material as soon as possible.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
For industrial or professional use only. Do not use in a confined area with minimal air exchange. 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. Avoid release to the environment. Wash contaminated clothing before reuse. 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
Protect from sunlight. Store away from heat. 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
Ethylene Glycol	107-21-1	Malaysia OELs	CEIL(as aerosol):100 mg/m3(39.4 ppm)	
Ethylene Glycol	107-21-1	ACGIH	CEIL(as aerosol):100 mg/m3	A4: Not class. as human carcin
Ethylene Glycol	107-21-1	CMRG	CEIL(as vapor and aerosol):100 mg/m3	
HYDROQUINONE	123-31-9	ACGIH	TWA:1 mg/m3	Dermal Sensitizer, A3: Confirmed animal carcin.

HYDROQUINONE	123-31-9	Malaysia OELs	TWA(8 hours):2 mg/m3	
HYDROQUINONE	123-31-9	CMRG	STEL:4 mg/m3	
Titanium Dioxide	13463-67-7	ACGIH	TWA:10 mg/m3	A4: Not class. as human carcin
Titanium Dioxide	13463-67-7	CMRG	TWA(as respirable dust):5 mg/m3	
Titanium Dioxide	13463-67-7	Malaysia OELs	TWA(8 hours):10 mg/m3	
Hydroxypropyl Methacrylate	27813-02-1	CMRG	CEIL:3 ppm	
Dimethyl Siloxane, reaction product with Silica	67762-90-7	CMRG	CEIL:5 mg/m3	
Acrylic Acid	79-10-7	ACGIH	TWA:2 ppm	A4: Not class. as human carcin, Skin Notation
Acrylic Acid	79-10-7	Malaysia OELs	TWA(8 hours):5.9 mg/m3(2 ppm)	Skin Notation
Acrylic Acid	79-10-7	Manufacturer determined	STEL:5 ppm(15 mg/m3)	

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

8.2. Exposure controls

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

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.
Gloves made from the following material(s) are recommended: Butyl Rubber
Fluoroelastomer

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

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:	Thixotropic Liquid
Appearance/Odor	Blue liquid with mild odor.
Odor threshold	*Not Applicable*
pH	*Not Applicable*
Melting point/Freezing point	*Not Applicable*
Boiling point/Initial boiling point/Boiling range	>=204.4 ºC [@ 760 mm]
Flash Point	>=100 ºC [*Test Method:* Closed Cup]
Evaporation rate	*No Data Available*
Evaporation rate	Negligible
Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	1.3 Pa [@ 20 ºC]
Vapor Density	1.01 [*Ref Std:* AIR=1]
Density	1.1 - 1.15 g/ml [@ 20 ºC]
Relative Density	1.1 - 1.15 [@ 20 ºC] [*Ref Std:* WATER=1]
Water solubility	Negligible
Solubility- non-water	*Not Applicable*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*No Data Available*
Decomposition temperature	*Not Applicable*
Viscosity	2.5 - 4 Pa-s [@ 20 ºC] [*Test Method:* Brookfield]
Volatile Organic Compounds	<=30 g/l [*Test Method:* tested per EPA method 24] [*Details:* EU VOC content]
Percent volatile	0.7 % [*Test Method:* ACS METHOD]
VOC Less H2O & Exempt Solvents	<=30 g/l [*Test Method:* tested per EPA method 24]

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
Heat
Light

10.5. Incompatible materials
Strong oxidizing agents

10.6. Hazardous decomposition products

Substance	**Condition**
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

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

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

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

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

Vapors released during curing may cause irritation of the respiratory system. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

May cause additional health effects (see below).

Skin Contact:
Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain.
Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

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

Vapors released during curing may cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

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

May cause additional health effects (see below).

Additional Health Effects:

Prolonged or repeated exposure may cause target organ effects:
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.

Respiratory Effects: Signs/symptoms may include cough, shortness of breath, chest tightness, wheezing, increased heart rate, bluish colored skin (cyanosis), sputum production, changes in lung function tests, and/or respiratory failure.

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

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 20 - 50 mg/l
Overall product	Ingestion		No data available; calculated ATE > 5,000 mg/kg
Triethylene Glycol Dimethacrylate	Dermal	Professional judgement	LD50 estimated to be > 5,000 mg/kg
Triethylene Glycol Dimethacrylate	Ingestion	Rat	LD50 10,837 mg/kg
Amorphous Treated Silica	Dermal	Rabbit	LD50 > 5,000 mg/kg
Amorphous Treated Silica	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Amorphous Treated Silica	Ingestion	Rat	LD50 > 5,110 mg/kg
Hydroxypropyl Methacrylate	Dermal	Rabbit	LD50 > 5,000 mg/kg
Hydroxypropyl Methacrylate	Ingestion	Rat	LD50 11,200 mg/kg
Cumene Hydroperoxide	Dermal	Rat	LD50 500 mg/kg
Cumene Hydroperoxide	Inhalation-Vapor (4 hours)	Rat	LC50 1.4 mg/l
Cumene Hydroperoxide	Ingestion	Rat	LD50 382 mg/kg
Dimethyl Siloxane, reaction product with Silica	Dermal	Rabbit	LD50 > 5,000 mg/kg
Dimethyl Siloxane, reaction product with Silica	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Dimethyl Siloxane, reaction product with Silica	Ingestion	Rat	LD50 > 5,110 mg/kg
Saccharin	Ingestion	Mouse	LD50 17,000 mg/kg
Acrylic Acid	Dermal	Rabbit	LD50 295 mg/kg
Acrylic Acid	Inhalation-Dust/Mist (4 hours)	Rat	LC50 3.8 mg/l
Acrylic Acid	Ingestion	Rat	LD50 1,250 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
Ethylene Glycol	Ingestion	Human	LD50 1,600 mg/kg
Ethylene Glycol	Inhalation-Dust/Mist (4 hours)	Other	LC50 estimated to be 5 - 12.5 mg/l
Ethylene Glycol	Dermal	Rabbit	9,530 mg/kg
1-acetyl-2-phenylhydrazine	Dermal		LD50 estimated to be 200 - 1,000 mg/kg
1-acetyl-2-phenylhydrazine	Ingestion	Mouse	LD50 270 mg/kg
N,N-DIMETHYL-O-TOLUIDINE	Dermal		LD50 estimated to be 1,000 - 2,000 mg/kg
N,N-DIMETHYL-O-TOLUIDINE	Inhalation-Dust/Mist		LC50 estimated to be 1 - 5 mg/l
N,N-DIMETHYL-O-TOLUIDINE	Ingestion		LD50 estimated to be 300 - 2,000 mg/kg
HYDROQUINONE	Dermal	Rat	LD50 > 4,800 mg/kg
HYDROQUINONE	Ingestion	Rat	LD50 302 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Triethylene Glycol Dimethacrylate	Guinea pig	Mild irritant
Amorphous Treated Silica	Rabbit	No significant irritation
Cumene Hydroperoxide	Rabbit	Corrosive
Dimethyl Siloxane, reaction product with Silica	Rabbit	No significant irritation
Acrylic Acid	Rabbit	Corrosive
Titanium Dioxide	Rabbit	No significant irritation
Ethylene Glycol	Rabbit	Minimal irritation

HYDROQUINONE	Human and animal	Minimal irritation

Serious Eye Damage/Irritation

Name	Species	Value
Triethylene Glycol Dimethacrylate	Professional judgement	Moderate irritant
Amorphous Treated Silica	Rabbit	No significant irritation
Cumene Hydroperoxide	Rabbit	Corrosive
Dimethyl Siloxane, reaction product with Silica	Rabbit	No significant irritation
Acrylic Acid	Rabbit	Corrosive
Titanium Dioxide	Rabbit	No significant irritation
Ethylene Glycol	Rabbit	Mild irritant
HYDROQUINONE	Professional judgement	Severe irritant

Skin Sensitization

Name	Species	Value
Triethylene Glycol Dimethacrylate	Human and animal	Sensitizing
Amorphous Treated Silica	Human and animal	Not sensitizing
Dimethyl Siloxane, reaction product with Silica	Human and animal	Not sensitizing
Acrylic Acid	Guinea pig	Some positive data exist, but the data are not sufficient for classification
Titanium Dioxide	Human and animal	Not sensitizing
Ethylene Glycol	Human	Some positive data exist, but the data are not sufficient for classification
HYDROQUINONE	Guinea pig	Sensitizing

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
Triethylene Glycol Dimethacrylate	In Vitro	Some positive data exist, but the data are not sufficient for classification
Amorphous Treated Silica	In Vitro	Not mutagenic
Cumene Hydroperoxide	In vivo	Not mutagenic
Cumene Hydroperoxide	In Vitro	Some positive data exist, but the data are not sufficient for classification
Dimethyl Siloxane, reaction product with Silica	In Vitro	Not mutagenic
Acrylic Acid	In vivo	Not mutagenic
Acrylic Acid	In Vitro	Some positive data exist, but the data are not sufficient for classification
Titanium Dioxide	In Vitro	Not mutagenic
Titanium Dioxide	In vivo	Not mutagenic
Ethylene Glycol	In Vitro	Not mutagenic
Ethylene Glycol	In vivo	Not mutagenic
HYDROQUINONE	In Vitro	Some positive data exist, but the data are not sufficient for classification

HYDROQUINONE	In vivo	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Triethylene Glycol Dimethacrylate	Dermal	Mouse	Not carcinogenic
Amorphous Treated Silica	Not Specified	Mouse	Some positive data exist, but the data are not sufficient for classification
Dimethyl Siloxane, reaction product with Silica	Not Specified	Mouse	Some positive data exist, but the data are not sufficient for classification
Acrylic Acid	Ingestion	Rat	Not carcinogenic
Acrylic Acid	Dermal	Mouse	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
Ethylene Glycol	Ingestion	Multiple animal species	Not carcinogenic
HYDROQUINONE	Dermal	Mouse	Not carcinogenic
HYDROQUINONE	Ingestion	Multiple animal species	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
Triethylene Glycol Dimethacrylate	Ingestion	Not toxic to female reproduction	Mouse	NOAEL 1 mg/kg/day	1 generation
Triethylene Glycol Dimethacrylate	Ingestion	Not toxic to male reproduction	Mouse	NOAEL 1 mg/kg/day	1 generation
Triethylene Glycol Dimethacrylate	Ingestion	Not toxic to development	Mouse	NOAEL 1 mg/kg/day	1 generation
Amorphous Treated Silica	Ingestion	Not toxic to female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Amorphous Treated Silica	Ingestion	Not toxic to male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Amorphous Treated Silica	Ingestion	Not toxic to development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
Dimethyl Siloxane, reaction product with Silica	Ingestion	Not toxic to female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Dimethyl Siloxane, reaction product with Silica	Ingestion	Not toxic to male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Dimethyl Siloxane, reaction product with Silica	Ingestion	Not toxic to development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
Acrylic Acid	Ingestion	Not toxic to female reproduction	Rat	NOAEL 460 mg/kg/day	2 generation
Acrylic Acid	Ingestion	Not toxic to male reproduction	Rat	NOAEL 460 mg/kg/day	2 generation
Acrylic Acid	Inhalation	Not toxic to development	Rat	NOAEL 1.1 mg/l	during organogenesis
Acrylic Acid	Ingestion	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 53 mg/kg/day	2 generation
Ethylene Glycol	Ingestion	Not toxic to female reproduction	Multiple animal species	NOAEL 1,000 mg/kg/day	2 years
Ethylene Glycol	Ingestion	Not toxic to male reproduction	Multiple animal species	NOAEL 1,000 mg/kg/day	2 years
Ethylene Glycol	Dermal	Some positive developmental data exist, but the data are not sufficient for	Mouse	NOAEL 3,549	during organogenesis

		classification		mg/kg/day	
Ethylene Glycol	Ingestion	Some positive developmental data exist, but the data are not sufficient for classification	Mouse	LOAEL 750 mg/kg/day	during organogenesis
Ethylene Glycol	Inhalation	Some positive developmental data exist, but the data are not sufficient for classification	Mouse	NOAEL 1,000 mg/kg/day	during organogenesis
HYDROQUINONE	Ingestion	Not toxic to female reproduction	Rat	NOAEL 150 mg/kg/day	2 generation
HYDROQUINONE	Ingestion	Not toxic to male reproduction	Rat	NOAEL 150 mg/kg/day	2 generation
HYDROQUINONE	Ingestion	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 100 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
Cumene Hydroperoxide	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	occupational exposure
Cumene Hydroperoxide	Inhalation	respiratory irritation	May cause respiratory irritation	Human	NOAEL Not available	occupational exposure
Acrylic Acid	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
Ethylene Glycol	Ingestion	heart | nervous system | kidney and/or bladder | respiratory system	Causes damage to organs	Human	NOAEL Not available	poisoning and/or abuse
Ethylene Glycol	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse
Ethylene Glycol	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	poisoning and/or abuse
HYDROQUINONE	Ingestion	nervous system	May cause damage to organs	Rat	NOAEL Not available	not applicable
HYDROQUINONE	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 400 mg/kg	not applicable

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Triethylene Glycol Dimethacrylate	Dermal	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 833 mg/kg/day	78 weeks
Triethylene Glycol Dimethacrylate	Dermal	blood	All data are negative	Mouse	NOAEL 833 mg/kg/day	78 weeks
Amorphous Treated Silica	Inhalation	respiratory system | silicosis	All data are negative	Human	NOAEL Not available	occupational exposure
Cumene Hydroperoxide	Inhalation	nervous system | respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.2 mg/l	7 days
Cumene Hydroperoxide	Inhalation	heart | liver | kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 0.03 mg/l	90 days
Dimethyl Siloxane, reaction product with Silica	Inhalation	respiratory system | silicosis	All data are negative	Human	NOAEL Not available	occupational exposure
Titanium Dioxide	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 0.010 mg/l	2 years
Titanium Dioxide	Inhalation	pulmonary fibrosis	All data are negative	Human	NOAEL Not available	occupational exposure
Ethylene Glycol	Ingestion	kidney and/or bladder | vascular	Some positive data exist, but the data are not sufficient for	Rat	NOAEL 200 mg/kg/day	2 years

		system	classification			
Ethylene Glycol	Ingestion	heart | hematopoietic system | liver | immune system | muscles	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 1,000 mg/kg/day	2 years
Ethylene Glycol	Ingestion	respiratory system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 12,000 mg/kg/day	2 years
Ethylene Glycol	Ingestion	skin | endocrine system | bone, teeth, nails, and/or hair | nervous system | eyes	All data are negative	Multiple animal species	NOAEL 1,000 mg/kg/day	2 years
HYDROQUINONE	Ingestion	blood	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	40 days
HYDROQUINONE	Ingestion	bone marrow | liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	9 weeks
HYDROQUINONE	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 50 mg/kg/day	15 months
HYDROQUINONE	Ocular	eyes	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure

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

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labeling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:
GHS Acute 1: Very toxic to aquatic life.

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

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
Hydroxypropyl Methacrylate	27813-02-1	Green Algae	Estimated	72 hours	Effect Concentration 50%	345 mg/l
Hydroxypropyl Methacrylate	27813-02-1	Water flea	Estimated	48 hours	Effect Concentration 50%	380 mg/l
Hydroxypropyl Methacrylate	27813-02-1	Ricefish	Estimated	96 hours	Lethal Concentration	>100 mg/l

					50%	
Hydroxypropyl Methacrylate	27813-02-1	Water flea	Estimated	21 days	No obs Effect Conc	24.1 mg/l
Hydroxypropyl Methacrylate	27813-02-1	Green Algae	Estimated	72 hours	No obs Effect Conc	160 mg/l
Saccharin	81-07-2	Fathead Minnow	Experimental	96 hours	Lethal Concentration 50%	18,300 mg/l
Aromatic Hydrocarbon - N.J.T.S. Reg. No. 044499600-6702	38640-62-9	Ricefish	Experimental	96 hours	Lethal Concentration 50%	2.44 mg/l
Aromatic Hydrocarbon - N.J.T.S. Reg. No. 044499600-6702	38640-62-9	Water flea	Experimental	48 hours	Effect Concentration 50%	0.035 mg/l
Aromatic Hydrocarbon - N.J.T.S. Reg. No. 044499600-6702	38640-62-9	Water flea	Experimental	21 days	No obs Effect Conc	0.013 mg/l
4-METHYL-N,N-DIETHYLANILINE	613-48-9	Water flea	Estimated	48 hours	Effect Concentration 50%	1.3 mg/l
4-METHYL-N,N-DIETHYLANILINE	613-48-9	Green algae	Estimated	72 hours	Effect Concentration 50%	5.6 mg/l
4-METHYL-N,N-DIETHYLANILINE	613-48-9	Fathead Minnow	Estimated	96 hours	Lethal Concentration 50%	16.4 mg/l
1-acetyl-2-phenylhydrazine	114-83-0	Zebra Fish	Estimated	96 hours	Lethal Concentration 50%	0.16 mg/l
1-acetyl-2-phenylhydrazine	114-83-0	Water flea	Estimated	48 hours	Effect Concentration 50%	<1.2 mg/l
1-acetyl-2-phenylhydrazine	114-83-0	Zebra Fish	Estimated	16 days	No obs Effect Conc	0.00049 mg/l
Triethylene Glycol Dimethacrylate	109-16-0		Data not available or insufficient for classification			
Dimethyl Siloxane, reaction product with	67762-90-7		Data not available or insufficient for classification			

Silica						
Amorphous Treated Silica	68909-20-6	Algae	Estimated	72 hours	Effect Concentration 50%	>100 mg/l
N,N-DIMETHYL-O-TOLUIDINE	609-72-3	Ricefish	Estimated	48 hours	Lethal Concentration 50%	20 mg/l
Cumene Hydroperoxide	80-15-9	Water flea	Experimental	24 hours	Effect Concentration 50%	7 mg/l
Cumene Hydroperoxide	80-15-9	Rainbow Trout	Experimental	96 hours	Lethal Concentration 50%	3.9 mg/l
Acrylic Acid	79-10-7	Rainbow Trout	Experimental	96 hours	Lethal Concentration 50%	27 mg/l
Acrylic Acid	79-10-7	Water flea	Experimental	48 hours	Effect Concentration 50%	47 mg/l
Acrylic Acid	79-10-7	Green algae	Experimental	72 hours	Effect Concentration 50%	0.13 mg/l
Acrylic Acid	79-10-7	Water flea	Experimental	21 days	No obs Effect Conc	3.8 mg/l
Acrylic Acid	79-10-7	Green algae	Experimental	72 hours	No obs Effect Conc	0.025 mg/l
Ethylene Glycol	107-21-1	Water flea	Experimental	48 hours	Effect Concentration 50%	10,000 mg/l
Ethylene Glycol	107-21-1	Fathead Minnow	Experimental	96 hours	Lethal Concentration 50%	8,050 mg/l
Ethylene Glycol	107-21-1	Water flea	Experimental	21 days	No obs Effect Conc	100 mg/l
HYDROQUINONE	123-31-9	Green Algae	Experimental	72 hours	Effect Concentration 50%	0.053 mg/l
HYDROQUINONE	123-31-9	Rainbow Trout	Experimental	96 hours	Lethal Concentration 50%	0.044 mg/l
HYDROQUINONE	123-31-9	Water flea	Experimental	48 hours	Effect Concentration 50%	0.061 mg/l
HYDROQUINONE	123-31-9	Green Algae	Experimental	72 hours	No obs Effect Conc	0.0015 mg/l
HYDROQUINONE	123-31-9	Water flea	Experimental	21 days	No obs Effect Conc	0.0029 mg/l
Titanium Dioxide	13463-67-7	Crustecea other	Experimental	96 hours	Effect Concentration 50%	>300 mg/l
Titanium Dioxide	13463-67-7	Sheepshead Minnow	Experimental	96 hours	Lethal Concentration 50%	>240 mg/l
Titanium	13463-67-7	Water flea	Experimental	48 hours	Effect	>100 mg/l

Dioxide					Concentration 50%	
Titanium Dioxide	13463-67-7	Fish	Experimental	30 days	No obs Effect Conc	>=1,000 mg/l
Titanium Dioxide	13463-67-7	Water flea	Experimental	30 days	No obs Effect Conc	3 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Hydroxypropyl Methacrylate	27813-02-1	Experimental Biodegradation	28 days	Biological Oxygen Demand	81 % weight	OECD 301C - MITI (I)
Saccharin	81-07-2	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Aromatic Hydrocarbon - N.J.T.S. Reg. No. 044499600-6702	38640-62-9	Modeled Photolysis		Photolytic half-life (in air)	5.82 hours (t 1/2)	Other methods
Aromatic Hydrocarbon - N.J.T.S. Reg. No. 044499600-6702	38640-62-9	Experimental Photolysis		Photolytic half-life(in water)	6.4 hours (t 1/2)	Other methods
4-METHYL-N,N-DIETHYLANILINE	613-48-9	Estimated Biodegradation	14 days	Biological Oxygen Demand	0 % weight	OECD 301C - MITI (I)
1-acetyl-2-phenylhydrazine	114-83-0	Estimated Biodegradation	28 days	Dissolv. Organic Carbon Deplet	97 % weight	OECD 301E - Modified OECD Scre
Triethylene Glycol Dimethacrylate	109-16-0	Estimated Biodegradation	28 days	Biological Oxygen Demand	60 % weight	Other methods
Dimethyl Siloxane, reaction product with Silica	67762-90-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Amorphous Treated Silica	68909-20-6	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
N,N-DIMETHYL-O-TOLUIDINE	609-72-3	Estimated Biodegradation	14 days	Biological Oxygen Demand	1.9 % weight	OECD 301C - MITI (I)
Cumene Hydroperoxide	80-15-9	Experimental Biodegradation	28 days	Biological Oxygen Demand	0 % weight	OECD 301C - MITI (I)

Acrylic Acid	79-10-7	Experimental Biodegradation	28 days	Biological Oxygen Demand	81 % weight	OECD 301D - Closed Bottle Test
Titanium Dioxide	13463-67-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Hydroxypropyl Methacrylate	27813-02-1	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	0.97	Other methods
Saccharin	81-07-2	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	0.91	Other methods
Aromatic Hydrocarbon - N.J.T.S. Reg. No. 044499600-6702	38640-62-9	Experimental BCF-Carp	60 days	Bioaccumulation Factor	6400	OECD 305E-Bioaccum Fl-thru fis
4-METHYL-N,N-DIETHYLANILINE	613-48-9	Estimated Bioconcentration		Bioaccumulation Factor	120	Est: Bioconcentration factor
1-acetyl-2-phenylhydrazine	114-83-0	Estimated BCF - Other		Bioaccumulation Factor	5	Other methods
Triethylene Glycol Dimethacrylate	109-16-0	Experimental Bioaccumulation		Log of Octanol/H2O part. coeff	1.88	Other methods
Dimethyl Siloxane, reaction product with Silica	67762-90-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Amorphous Treated Silica	68909-20-6	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
N,N-DIMETHYL-O-TOLUIDINE	609-72-3	Experimental Bioaccumulation		Log of Octanol/H2O part. coeff	2.85	Other methods
Cumene Hydroperoxide	80-15-9	Estimated Bioconcentration		Bioaccumulation Factor	37.49	Other methods
Acrylic Acid	79-10-7	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	0.35	Other methods
Ethylene Glycol	107-21-1	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	-1.36	Other methods

HYDROQUINONE	123-31-9	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	0.59	Other methods
Titanium Dioxide	13463-67-7	Experimental BCF - Other	42 days	Bioaccumulation Factor	9.6	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: None assigned.
Proper Shipping Name: None assigned.
Technical Name: None assigned.
Hazard Class/Division: None assigned.
Subsidiary Risk: None assigned.
Packing Group: None assigned.
Limited Quantity: None assigned.
Marine Pollutant: None assigned.
Marine Pollutant Technical Name: None assigned.
Other Dangerous Goods Descriptions:
None assigned.

Air Transport (IATA)

UN Number: None assigned.
Proper Shipping Name: None assigned.
Technical Name: None assigned.
Hazard Class/Division: None assigned.
Subsidiary Risk: None assigned.
Packing Group: None assigned.
Limited Quantity: None assigned.
Marine Pollutant: None assigned.
Marine Pollutant Technical Name: None assigned.
Other Dangerous Goods Descriptions:
None assigned.

Transportation classifications are provided as a customer service. As for shipping, YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. 3M's transportation classifications are based on product formulation, packaging, 3M policies and 3M's understanding of applicable current

regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and not the packaging, labeling or marking requirements. The above information is only for reference. If you are shipping by air or ocean, YOU are advised to check & meet applicable regulatory requirements.

SECTION 15: Regulatory information

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

Global inventory status
Contact 3M for more information. The components of this material are in compliance with the China "Measures on Environmental Management of New Chemical Substance". Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the new substance notification requirements of CEPA. The components of this product are in compliance with the chemical notification requirements of TSCA.

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