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™ OEM Polyurethane Glass Adhesive Sealant 590, Black

Product Identification Numbers
62-5567-3930-8 62-5567-5230-1 62-5567-5235-0 62-5567-9530-0

1.2. Recommended use and restrictions on use

Recommended use
Fast curing adhesive for permanent bonding., Sealant

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
Chronic Aquatic Toxicity: Category 3.

2.2. Label elements
Signal word
Not applicable

Symbols
Not applicable

Pictograms
Not applicable

Hazard Statements:

H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

Disposal:

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

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
Urethane Polymer	Trade Secret	30 - 60
Carbon Black	1333-86-4	10 - 30
Plasticizer	Trade Secret	15 - 30
Kaolin, calcined	92704-41-1	7 - 13
Hydrotreated Light Petroleum Distillates	64742-47-8	< 3
p,p-Methylenebis(phenyl Isocyanate)	101-68-8	< 1
Quartz Silica	14808-60-7	< 1
Dibutyltin Chloride	683-18-1	< 0.1
Tributyltin Chloride	1461-22-9	< 0.0005

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:

Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If Swallowed:

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

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

Allergic respiratory reaction (difficulty breathing, wheezing, cough, and tightness of chest). Allergic skin reaction (redness, swelling, blistering, and itching).

4.3. Indication of any immediate medical attention and special treatment required

Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

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

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Cyanide	During Combustion
Irritant Vapors or Gases	During Combustion
Oxides of Nitrogen	During Combustion

5.3. Special protective actions for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Use personal protective equipment based on the results of an exposure assessment. Refer to Section 8 for PPE recommendations. If anticipated exposure resulting from an accidental release exceeds the protective capabilities of the PPE listed in Section 8, or are unknown, select PPE that offers an appropriate level of protection. Consider the physical and chemical hazards of the material when doing so. Examples of PPE ensembles for emergency response could include wearing bunker gear for a release of flammable material; wearing chemical protective clothing if the spilled material is a corrosive, a sensitizer, a significant dermal irritant, or can be absorbed through the skin; or donning a positive pressure supplied-air respirator for chemicals with inhalation hazards. For information regarding physical and health hazards, refer to sections 2 and 11 of the SDS. 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.

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 container approved for transportation by appropriate authorities, but do not seal the container for 48 hours to avoid pressure build-up. Clean up residue. 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
Avoid breathing 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.

7.2. Conditions for safe storage including any incompatibilities
Keep container tightly closed to prevent contamination with water or air. If contamination is suspected, do not reseal container. Store away from heat. Store away from amines.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
p,p-Methylenebis(phenyl Isocyanate)	101-68-8	Malaysia OELs	TWA(8 hours):0.051 mg/m3(0.005 ppm)	
Carbon Black	1333-86-4	ACGIH	TWA(inhalable fraction):3 mg/m3	A3: Confirmed animal carcin.
Carbon Black	1333-86-4	Malaysia OELs	TWA(8 hours):3.5 mg/m3	
Particulates not Otherwise Classified (PNOC), Inhalable particulate	1333-86-4	Malaysia OELs	TWA (proposed)(respirable particles)(8 hours):3 mg/m3;TWA (proposed)(Inhalable particulate)(8 hours):10 mg/m3	
Tin, organic compounds, as Sn	1461-22-9	ACGIH	TWA(as Sn):0.1 mg/m3;STEL(as Sn):0.2 mg/m3	A4: Not class. as human carcin, Danger of cutaneous absorption
Tin, Organic compounds, as Sn	1461-22-9	Malaysia OELs	TWA(as Sn)(8 hours):0.1 mg/m3	SKIN
Quartz Silica	14808-60-7	Malaysia OELs	TWA(respirable fraction)(8 hours):0.1 mg/m3	
Silica, crystalline, respirable fraction	14808-60-7	ACGIH	TWA(respirable fraction):0.025 mg/m3	A2: Suspected human carcin.
Tin, organic compounds, as Sn	683-18-1	ACGIH	TWA(as Sn):0.1 mg/m3;STEL(as Sn):0.2 mg/m3	A4: Not class. as human carcin, Danger of cutaneous absorption
Tin, Organic compounds, as Sn	683-18-1	Malaysia OELs	TWA(as Sn)(8 hours):0.1 mg/m3	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.

For prolonged or repeated contact, gloves made from the following material(s) are recommended (breakthrough times are >4 hours): Natural Rubber, Neoprene, Nitrile Rubber

Any glove recommended for prolonged/repeated contact is also suitable for short-term/splash contact.

If this product is used in a manner that presents a higher potential for exposure (e.g., spraying, high splash potential, etc.), then use of a protective apron may be necessary. See recommended glove material(s) for determining appropriate apron material(s). If a glove material is not available as an apron, polymer laminate is a suitable option.

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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid
Specific Physical Form:	Paste
Color	Black
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	192 - 200 ºC
Flash Point	No flash point
Evaporation rate	*No Data Available*
Flammability	Not Applicable
Flammable Limits(LEL)	*Not Applicable*
Flammable Limits(UEL)	*Not Applicable*
Relative Vapor Density	*No Data Available*
Density	1.2 g/cm3
Relative Density	1.2 [*Ref Std:*WATER=1]
Water solubility	Negligible
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	> 200 ºC
Decomposition temperature	*No Data Available*
Kinematic Viscosity	*No Data Available*
Volatile Organic Compounds	19 g/l [*Test Method:*tested per EPA method 24] [*Details:*EU VOC content]
Percent volatile	*No Data Available*
VOC Less H2O & Exempt Solvents	19 g/l [*Test Method:*tested per EPA method 24]
VOC Less H2O & Exempt Solvents	1.6 % [*Test Method:*tested per EPA method 24]
VOC Less H2O & Exempt Solvents	0.16 lb/gal [*Test Method:*tested per EPA method 24]

Molecular weight	*No Data Available*
Solids Content	> 95 %

Particle Characteristics	
Primary particle dia-median	18 - 61 nm (*Carbon Black*)
Shape of Primary particle	Other (see details) (*Carbon Black*)
Specific surface area	21 - 1,200 m2/g (*Carbon Black*)

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

10.5. Incompatible materials
Alcohols
Amines
Water

10.6. Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for 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:
Allergic Respiratory Reaction: Signs/symptoms may include difficulty breathing, wheezing, cough, and tightness of chest.

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

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

Ingestion:
No known health effects.

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	Inhalation-Vapor(4 hr)		No data available; calculated ATE >50 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Plasticizer	Dermal	Rat	LD50 > 1,000 mg/kg
Plasticizer	Ingestion	Rat	LD50 > 5,000 mg/kg
Carbon Black	Dermal	Rabbit	LD50 > 3,000 mg/kg
Carbon Black	Ingestion	Rat	LD50 > 8,000 mg/kg
Kaolin, calcined	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 2.07 mg/l
Kaolin, calcined	Dermal	similar compounds	LD50 > 5,000 mg/kg
Kaolin, calcined	Ingestion	similar compounds	LD50 > 5,000 mg/kg
Hydrotreated Light Petroleum Distillates	Ingestion	Rat	LD50 > 15,000 mg/kg
Hydrotreated Light Petroleum Distillates	Dermal	similar compounds	LD50 > 5,000 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
Quartz Silica	Dermal		LD50 estimated to be > 5,000 mg/kg
Quartz Silica	Ingestion		LD50 estimated to be > 5,000 mg/kg
Dibutyltin Chloride	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.059 mg/l
Dibutyltin Chloride	Ingestion	Rat	LD50 219 mg/kg
Tributyltin Chloride	Dermal	Rabbit	LD50 500 mg/kg
Tributyltin Chloride	Inhalation-Dust/Mist (4 hours)	Rat	LC50 Not Available
Tributyltin Chloride	Ingestion	Rat	LD50 101 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Carbon Black	Rabbit	No significant irritation
Kaolin, calcined	Rabbit	No significant irritation
Hydrotreated Light Petroleum Distillates	similar compounds	Mild irritant

p,p-Methylenebis(phenyl Isocyanate)	official classification	Irritant
Quartz Silica	Professional judgement	No significant irritation
Dibutyltin Chloride	Multiple animal species	Corrosive
Tributyltin Chloride	Rabbit	Irritant

Serious Eye Damage/Irritation

Name	Species	Value
Carbon Black	Rabbit	No significant irritation
Kaolin, calcined	Rabbit	No significant irritation
Hydrotreated Light Petroleum Distillates	similar compounds	No significant irritation
p,p-Methylenebis(phenyl Isocyanate)	official classification	Severe irritant
Dibutyltin Chloride	Rabbit	Corrosive
Tributyltin Chloride	Rabbit	Corrosive

Sensitization:

Skin Sensitization

Name	Species	Value
Hydrotreated Light Petroleum Distillates	similar compounds	Not classified
p,p-Methylenebis(phenyl Isocyanate)	Mouse	Sensitizing
Dibutyltin Chloride	similar compounds	Sensitizing
Tributyltin Chloride	Mouse	Sensitizing

Respiratory Sensitization

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

Germ Cell Mutagenicity

Name	Route	Value
Carbon Black	In Vitro	Not mutagenic
Carbon Black	In vivo	Some positive data exist, but the data are not sufficient for classification
Hydrotreated Light Petroleum Distillates	In Vitro	Not mutagenic
p,p-Methylenebis(phenyl Isocyanate)	In Vitro	Some positive data exist, but the data are not sufficient for classification
Quartz Silica	In Vitro	Some positive data exist, but the data are not sufficient for classification
Quartz Silica	In vivo	Some positive data exist, but the data are not sufficient for classification
Dibutyltin Chloride	In Vitro	Some positive data exist, but the data are not sufficient for classification
Dibutyltin Chloride	In vivo	Mutagenic
Tributyltin Chloride	In Vitro	Not mutagenic
Tributyltin Chloride	In vivo	Some positive data exist, but the data are not

		sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Carbon Black	Dermal	Mouse	Not carcinogenic
Carbon Black	Ingestion	Mouse	Not carcinogenic
Carbon Black	Inhalation	Rat	Carcinogenic
p,p-Methylenebis(phenyl Isocyanate)	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
Quartz Silica	Inhalation	Human and animal	Carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
p,p-Methylenebis(phenyl Isocyanate)	Inhalation	Not classified for development	Rat	NOAEL 0.004 mg/l	during organogenesis
Dibutyltin Chloride	Ingestion	Not classified for male reproduction	Rat	NOAEL 12 mg/kg/day	28 days
Dibutyltin Chloride	Ingestion	Toxic to female reproduction	Rat	NOAEL 1.7 mg/kg/day	premating into lactation
Dibutyltin Chloride	Ingestion	Toxic to development	Rat	NOAEL 1.7 mg/kg/day	premating into lactation
Tributyltin Chloride	Ingestion	Not classified for male reproduction	Rat	NOAEL 10 mg/kg/day	2 generation
Tributyltin Chloride	Ingestion	Toxic to female reproduction	Rat	NOAEL 2 mg/kg/day	2 generation
Tributyltin Chloride	Ingestion	Toxic to development	Rat	LOAEL 0.025 mg/kg/day	weeks

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Hydrotreated Light Petroleum Distillates	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
p,p-Methylenebis(phenyl Isocyanate)	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	
Dibutyltin Chloride	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL not available	
Dibutyltin Chloride	Ingestion	immune system	Causes damage to organs	Rat	LOAEL 5 mg/kg	
Tributyltin Chloride	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not Available	
Tributyltin Chloride	Ingestion	immune system	Causes damage to organs	Rat	NOAEL 5 mg/kg	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Carbon Black	Inhalation	pneumoconiosis	Not classified	Human	NOAEL Not available	occupational exposure
Kaolin, calcined	Inhalation	pneumoconiosis	Not classified	similar compounds	NOAEL not available	occupational exposure

Hydrotreated Light Petroleum Distillates	Inhalation	liver	Not classified	Rat	NOAEL 6 mg/l	13 weeks
Hydrotreated Light Petroleum Distillates	Inhalation	kidney and/or bladder	Not classified	Rat	LOAEL 1.5 mg/l	13 weeks
Hydrotreated Light Petroleum Distillates	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 6 mg/l	13 weeks
Hydrotreated Light Petroleum Distillates	Ingestion	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Hydrotreated Light Petroleum Distillates	Ingestion	kidney and/or bladder	Not classified	Rat	LOAEL 100 mg/kg/day	13 weeks
Hydrotreated Light Petroleum Distillates	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Hydrotreated Light Petroleum Distillates	Ingestion	eyes	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
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
Quartz Silica	Inhalation	silicosis	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	occupational exposure
Dibutyltin Chloride	Ingestion	immune system	Causes damage to organs through prolonged or repeated exposure	Rat	NOAEL 0.3 mg/kg/day	28 days
Dibutyltin Chloride	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 12 mg/kg/day	28 days
Dibutyltin Chloride	Ingestion	liver	Not classified	Rat	NOAEL 12 mg/kg/day	28 days
Dibutyltin Chloride	Ingestion	nervous system	Not classified	Rat	NOAEL 12 mg/kg/day	28 days
Dibutyltin Chloride	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 12 mg/kg/day	28 days
Tributyltin Chloride	Ingestion	liver	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.36 mg/kg/day	28 days
Tributyltin Chloride	Ingestion	immune system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.36 mg/kg/day	28 days
Tributyltin Chloride	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1.5 mg/kg/day	28 days
Tributyltin Chloride	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1.5 mg/kg/day	28 days

Aspiration Hazard

Name	Value
Hydrotreated Light Petroleum Distillates	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 3: Harmful to aquatic life.

Chronic aquatic hazard:
GHS Chronic 3: Harmful to aquatic life with long lasting effects

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
Urethane Polymer	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	NA
Carbon Black	1333-86-4	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	>100 mg/l
Carbon Black	1333-86-4	Zebra Fish	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Carbon Black	1333-86-4	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	100 mg/l
Carbon Black	1333-86-4	Activated sludge	Experimental	3 hours	NOEC	>800 mg/l
Plasticizer	Trade Secret	Medaka	Experimental	96 hours	LC50	>100 mg/l
Plasticizer	Trade Secret	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
Plasticizer	Trade Secret	Green algae	Experimental	72 hours	EC10	>=2 mg/l
Kaolin, calcined	92704-41-1	Bacteria	Estimated	16 hours	EC10	1,400 mg/l
Kaolin, calcined	92704-41-1	Green algae	Estimated	72 hours	EC50	2,500 mg/l
Kaolin, calcined	92704-41-1	Water flea	Estimated	48 hours	EC50	>100 mg/l
Kaolin, calcined	92704-41-1	Zebra Fish	Estimated	96 hours	LC50	>100 mg/l
Kaolin, calcined	92704-41-1	Green algae	Estimated	72 hours	EC10	41 mg/l
Kaolin, calcined	92704-41-1	Rainbow Trout	Estimated	30 days	NOEC	100 mg/l
Hydrotreated Light Petroleum Distillates	64742-47-8	Green algae	Experimental	72 hours	EL50	>1,000 mg/l
Hydrotreated Light Petroleum Distillates	64742-47-8	Rainbow Trout	Experimental	96 hours	LL50	>1,000 mg/l
Hydrotreated Light Petroleum Distillates	64742-47-8	Water flea	Experimental	48 hours	EL50	>1,000 mg/l
Hydrotreated Light Petroleum Distillates	64742-47-8	Green algae	Experimental	72 hours	NOEL	1,000 mg/l
p,p-Methylenebis(phenyl Isocyanate)	101-68-8	Activated sludge	Estimated	3 hours	EC50	>100 mg/l
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
Quartz Silica	14808-60-7	Green algae	Estimated	72 hours	EC50	440 mg/l
Quartz Silica	14808-60-7	Water flea	Estimated	48 hours	EC50	7,600 mg/l
Quartz Silica	14808-60-7	Zebra Fish	Estimated	96 hours	LC50	5,000 mg/l
Quartz Silica	14808-60-7	Green algae	Estimated	72 hours	NOEC	60 mg/l
Dibutyltin Chloride	683-18-1	Algae or other aquatic plants	Experimental	96 hours	ErC50	0.0427 mg/l
Dibutyltin Chloride	683-18-1	Water flea	Experimental	48 hours	EC50	0.843 mg/l
Dibutyltin Chloride	683-18-1	Medaka	Experimental	28 days	NOEC	1.8 mg/l
Dibutyltin Chloride	683-18-1	Water flea	Experimental	21 days	NOEC	0.0105 mg/l
Dibutyltin Chloride	683-18-1	Activated sludge	Experimental	24 hours	IC50	11.5 mg/l
Tributyltin Chloride	1461-22-9	Copepod	Estimated	48 hours	LC50	0.0012 mg/l

Tributyltin Chloride	1461-22-9	Diatom	Experimental	72 hours	ErC50	0.000987 mg/l
Tributyltin Chloride	1461-22-9	Green algae	Experimental	96 hours	ErC50	0.0124 mg/l
Tributyltin Chloride	1461-22-9	Inland Silverside	Experimental	96 hours	LC50	0.003 mg/l
Tributyltin Chloride	1461-22-9	Water flea	Experimental	48 hours	EC50	0.0098 mg/l
Tributyltin Chloride	1461-22-9	Zebra Fish	Experimental	96 hours	LC50	0.0079 mg/l
Tributyltin Chloride	1461-22-9	Green algae	Experimental	96 hours	NOEC	0.0012 mg/l
Tributyltin Chloride	1461-22-9	Rainbow Trout	Experimental	110 days	NOEC	.00004 mg/l
Tributyltin Chloride	1461-22-9	Redworm	Experimental	N/A	EC50	1.3 mg/kg (Dry Weight)
Tributyltin Chloride	1461-22-9	Soil microbes	Experimental	6 hours	EC50	11 mg/l
Tributyltin Chloride	1461-22-9	Springtail	Experimental	N/A	EC50	11 mg/kg (Dry Weight)

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Urethane Polymer	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Carbon Black	1333-86-4	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Plasticizer	Trade Secret	Estimated Biodegradation	28 days	Biological Oxygen Demand	51 %BOD/ThOD	
Kaolin, calcined	92704-41-1	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Hydrotreated Light Petroleum Distillates	64742-47-8	Estimated Biodegradation	28 days	Biological Oxygen Demand	69 %BOD/ThOD	OECD 301F - Manometric Respiro
p,p-Methylenebis(phenyl Isocyanate)	101-68-8	Estimated Hydrolysis		Hydrolytic half-life	20 hours (t 1/2)	
Quartz Silica	14808-60-7	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Dibutyltin Chloride	683-18-1	Experimental Biodegradation	28 days	Carbon dioxide evolution	6 %CO2 evolution/THCO2 evolution	OECD 301B - Mod. Sturm or CO2
Tributyltin Chloride	1461-22-9	Experimental Biodegradation	28 days	Biological Oxygen Demand	0 %BOD/ThOD	OECD 301F - Manometric Respiro

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Urethane Polymer	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Carbon Black	1333-86-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Plasticizer	Trade Secret	Experimental BCF - Fish	36 days	Bioaccumulation Factor	56-212	
Kaolin, calcined	92704-41-1	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Hydrotreated Light Petroleum	64742-47-8	Data not available or insufficient for	N/A	N/A	N/A	N/A

Distillates		classification				
p,p-Methylenebis(phenyl Isocyanate)	101-68-8	Experimental BCF - Fish	28 days	Bioaccumulation Factor	200	OECD305-Bioconcentration
Quartz Silica	14808-60-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Dibutyltin Chloride	683-18-1	Analogous Compound BCF - Fish	56 days	Bioaccumulation Factor	≤110	similar to OECD 305
Dibutyltin Chloride	683-18-1	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	0.97	OECD 107 log Kow shke flsk mtd
Tributyltin Chloride	1461-22-9	Experimental BCF - Fish	10 days	Bioaccumulation Factor	24000	
Tributyltin Chloride	1461-22-9	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	4.76	

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

Not hazardous for transportation.

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

SECTION 16: Other information

DISCLAIMER: The information in this Safety Data Sheet (SDS) 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 SDS or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own evaluation to satisfy themselves as to the suitability of the product for their own intended applications. In addition, this SDS is being provided to convey health and safety information. If you are the importer of record of this product into Malaysia, you are responsible for all applicable regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration/notification.

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