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™ Scotchkote™ Fusion Bonded Epoxy Coating 626-140

Product Identification Numbers
80-0002-1617-8 80-0002-1618-6 80-6300-0160-2 80-6300-0183-4

1.2. Recommended use and restrictions on use

Recommended use
Coating, Fusion Bonded Epoxy Coating for Metal Pipe

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
Skin Corrosion/Irritation: Category 2.
Serious Eye Damage/Irritation: Category 2.
Skin Sensitizer: Category 1.
Carcinogenicity: Category 2.
Chronic Aquatic Toxicity: Category 3.

2.2. Label elements
Signal word
Warning

Symbols

Exclamation mark |Health Hazard |

Pictograms

Hazard Statements:

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention:

P280K	Wear protective gloves and if needed, respiratory protection (see SDS Section 8).
P281	Use personal protective equipment as required.

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.
P333 + P313	If skin irritation or rash occurs: Get medical attention.

Disposal:

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

2.3. Other hazards

May form combustible dust concentrations in air.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt
Epoxy Polymer	60684-77-7	35 - 50
Epoxy Resin	25085-99-8	5 - 20
Barium Sulfate	7727-43-7	10 - 20
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	25036-25-3	5 - 10
Wollastonite	13983-17-0	5 - 10
Dicyandiamide	461-58-5	1 - 5
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	1 - 5
Polymer Additive	Trade Secret	< 1.5
Titanium Dioxide	13463-67-7	0.5 - 1.5
4,4'-Isopropylidenediphenol	80-05-7	< 1

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

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
Powdered material may form explosive dust-air mixture. Avoid fire fighting methods that would cause powders to become airborne.

Hazardous Decomposition or By-Products

Substance	Condition
Aldehydes	During Combustion
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Chloride	During Combustion
Ammonia	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
Evacuate area. Eliminate all ignition sources if safe to do so. 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. 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.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Vacuum to avoid dusting. WARNING! A motor could be an ignition source and cause combustible dust in the spill area to burn or explode. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
For industrial/occupational use only. Not for consumer sale or use. Do not handle until all safety precautions have been read and understood. 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. Use personal protective equipment (gloves, respirators, etc.) as required. Dust clouds of this material in sufficient concentration in combination with an ignition source may be explosive. Dust deposits should not be allowed to accumulate on surfaces because of the potential for secondary explosions. Routine housekeeping should be instituted to ensure that combustible dusts do not accumulate on surfaces. Solids can generate static electricity charges when transferred and in mixing operations sufficient to be an ignition source. Evaluate the need for precautions, such as grounding and bonding, low energy transfer of material (e.g. low speed, short distance), or inert atmospheres.

7.2. Conditions for safe storage including any incompatibilities
Store away from heat.

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
Particulates not Otherwise Classified (PNOC), Inhalable particulate	13463-67-7	Malaysia OELs	TWA (proposed)(respirable particles)(8 hours):3 mg/m3;TWA (proposed)(Inhalable particulate)(8 hours):10 mg/m3	
Titanium Dioxide	13463-67-7	ACGIH	TWA(Respirable nanoscale particles):0.2 mg/m3;TWA(Respirable finescale particles):2.5 mg/m3	A3: Confirmed animal carcin.
Titanium Dioxide	13463-67-7	Malaysia OELs	TWA(8 hours):10 mg/m3	
Wollastonite	13983-17-0	ACGIH	TWA(inhalable fraction):1 mg/m3	A4: Not class. as human carcin
Barium Sulfate	7727-43-7	ACGIH	TWA(inhalable fraction):5 mg/m3	
Barium Sulfate	7727-43-7	Malaysia OELs	TWA (proposed)(8 hours):10 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
Provide ventilated enclosure for curing. Curing enclosures must be exhausted to outdoors or to a suitable emission control device. 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. Provide local exhaust at process emission sources to control exposure near the source and to prevent the escape of dust into the work area. It is recommended that all dust control equipment (such as local exhaust ventilation), process equipment, and material transport systems involved in handling of this product be evaluated for the need for explosion-protection safeguards. Recognized safeguards include explosion relief vents, explosion suppression systems, and oxygen deficient process environments. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Evaluate the need for electrically classified 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:
Full Face Shield
Indirect Vented Goggles

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.

Gloves made from the following material(s) are recommended: Polymer laminate

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 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:	Powder
Color	Green

Odor	Minimal Epoxy
Odor threshold	*No Data Available*
pH	*Not Applicable*
Melting point/Freezing point	*No Data Available*
Boiling point/Initial boiling point/Boiling range	*Not Applicable*
Flash Point	No flash point
Evaporation rate	*No Data Available*
Flammability	Not Applicable
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	*Not Applicable*
Relative Vapor Density	*Not Applicable*
Density	1.45 g/cm3
Relative Density	1.45 [*Ref Std:*WATER=1]
Water solubility	Nil
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*No Data Available*
Decomposition temperature	*No Data Available*
Kinematic Viscosity	*No Data Available*
Volatile Organic Compounds	0 %
Percent volatile	*No Data Available*
VOC Less H2O & Exempt Solvents	0 %
***Dust deflagration index (Kst)**	70 - 250 bar.m/s [*Details:*Typical Range]
***Min. explosible conc.(MEC)**	35 - 55 g/m3 [*Details:*Typical Range]
***Min. ignition energy (MIE)**	3 - 100 mJ [*Details:*Typical Range]
***Min. ign temp(MIT)-dust cloud**	450 - 550 ºC [*Details:*Typical Range]

* The values noted with an asterisk (*) in the above table are representative values based on testing of raw materials and selected products. Additionally, a material's characteristics may change depending upon the process and conditions of use at a facility, including further changes in particle size, or mixture with other materials. In order to obtain specific data for the material, we recommend the user conduct characterization testing based on the use factors at the specific facility.

Particle Characteristics	*Not Applicable*

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
Heat

10.5. Incompatible materials
None known.

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:
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.

Photosensitization: Signs/symptoms may include a sunburn-like reaction such as blistering, redness, swelling, and itching from minor exposure to sunlight.

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

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

May cause additional health effects (see below).

Additional Health Effects:

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

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	Ingestion		No data available; calculated ATE >5,000 mg/kg
Epoxy Polymer	Dermal	Professional judgement	LD50 estimated to be > 5,000 mg/kg
Epoxy Polymer	Inhalation-Dust/Mist	Professional judgement	LC50 estimated to be > 12.5 mg/l
Epoxy Polymer	Ingestion	Professional judgement	LD50 estimated to be > 5,000 mg/kg
Barium Sulfate	Dermal		LD50 estimated to be > 5,000 mg/kg
Barium Sulfate	Ingestion	Rat	LD50 > 15,000 mg/kg
Epoxy Resin	Dermal	Rat	LD50 > 1,600 mg/kg
Epoxy Resin	Ingestion	Rat	LD50 > 1,000 mg/kg
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Dermal	Rat	LD50 > 1,600 mg/kg
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	Rat	LD50 > 1,000 mg/kg
Wollastonite	Ingestion	Rat	LD50 > 5,000 mg/kg
Wollastonite	Dermal	similar compounds	LD50 > 5,000 mg/kg
Wollastonite	Inhalation-Dust/Mist (4 hours)	similar compounds	LC50 > 2.08 mg/l
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Dermal	Rat	LD50 > 1,600 mg/kg
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	Rat	LD50 > 1,000 mg/kg
Dicyandiamide	Dermal	Rabbit	LD50 > 10,000 mg/kg
Dicyandiamide	Ingestion	Rat	LD50 > 30,000 mg/kg
Titanium Dioxide	Dermal	Rabbit	LD50 > 10,000 mg/kg
Titanium Dioxide	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 6.82 mg/l
Titanium Dioxide	Ingestion	Rat	LD50 > 10,000 mg/kg
Polymer Additive	Dermal		LD50 estimated to be > 5,000 mg/kg
Polymer Additive	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
4,4'-Isopropylidenediphenol	Dermal	Rabbit	LD50 > 2,000 mg/kg
4,4'-Isopropylidenediphenol	Ingestion	Rat	LD50 3,200 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Epoxy Polymer	Professional judgement	Irritant
Epoxy Resin	Rabbit	Mild irritant
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Rabbit	No significant irritation
Wollastonite	similar compounds	No significant irritation
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Rabbit	Mild irritant
Dicyandiamide	Human and animal	Minimal irritation
Titanium Dioxide	Rabbit	No significant irritation
4,4'-Isopropylidenediphenol	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Epoxy Polymer	Professional judgement	Severe irritant
Barium Sulfate	Rabbit	No significant irritation
Epoxy Resin	Rabbit	Moderate irritant
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Rabbit	Mild irritant
Wollastonite	similar compounds	Mild irritant
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Rabbit	Moderate irritant
Dicyandiamide	Professional judgement	Mild irritant
Titanium Dioxide	Rabbit	No significant irritation
4,4'-Isopropylidenediphenol	Rabbit	Corrosive

Sensitization:

Skin Sensitization

Name	Species	Value
Epoxy Polymer	Professional judgement	Sensitizing
Epoxy Resin	Human and animal	Sensitizing
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Guinea pig	Not classified
Wollastonite	Human	Not classified
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Human and animal	Sensitizing
Dicyandiamide	Guinea pig	Not classified
Titanium Dioxide	Human and animal	Not classified
4,4'-Isopropylidenediphenol	official classification	Sensitizing

Photosensitization

Name	Species	Value
4,4'-Isopropylidenediphenol	Human and animal	Sensitizing

Respiratory Sensitization

Name	Species	Value
Epoxy Resin	Human	Not classified
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Human	Not classified
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
Epoxy Resin	In vivo	Not mutagenic
Epoxy Resin	In Vitro	Some positive data exist, but the data are not sufficient for classification
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	In vivo	Not mutagenic
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	In Vitro	Some positive data exist, but the data are not sufficient for classification
Wollastonite	In Vitro	Not mutagenic
Wollastonite	In vivo	Not mutagenic
4,4'-isopropylidenediphenol-epichlorohydrin polymer	In vivo	Not mutagenic
4,4'-isopropylidenediphenol-epichlorohydrin polymer	In Vitro	Some positive data exist, but the data are not sufficient for classification
Dicyandiamide	In Vitro	Not mutagenic
Titanium Dioxide	In Vitro	Not mutagenic
Titanium Dioxide	In vivo	Not mutagenic
Polymer Additive	In Vitro	Not mutagenic
4,4'-Isopropylidenediphenol	In vivo	Not mutagenic
4,4'-Isopropylidenediphenol	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Epoxy Resin	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Dicyandiamide	Ingestion	Rat	Not carcinogenic
Titanium Dioxide	Ingestion	Multiple animal species	Not carcinogenic
Titanium Dioxide	Inhalation	Rat	Carcinogenic
4,4'-Isopropylidenediphenol	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
Epoxy Resin	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Epoxy Resin	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
Epoxy Resin	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
Wollastonite	Ingestion	Not classified for development	Multiple animal species	NOAEL 1,600 mg/kg/day	during organogenesis
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation

4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
Dicyandiamide	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	premating & during gestation
Dicyandiamide	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	44 days
Dicyandiamide	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	premating & during gestation
4,4'-Isopropylidenediphenol	Ingestion	Not classified for female reproduction	Multiple animal species	NOAEL 50 mg/kg/day	
4,4'-Isopropylidenediphenol	Ingestion	Not classified for male reproduction	Multiple animal species	NOAEL 50 mg/kg/day	
4,4'-Isopropylidenediphenol	Ingestion	Toxic to development	Multiple animal species	NOAEL 50 mg/kg/day	

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Epoxy Resin	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
4,4'-Isopropylidenediphenol	Inhalation	respiratory irritation	May cause respiratory irritation	Multiple animal species	LOAEL 0.152 mg/l	15 minutes

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Barium Sulfate	Inhalation	pneumoconiosis	Not classified	Human	NOAEL Not available	occupational exposure
Epoxy Resin	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Epoxy Resin	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Epoxy Resin	Ingestion	auditory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Epoxy Resin	Ingestion	heart	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Epoxy Resin	Ingestion	endocrine system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Epoxy Resin	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Epoxy Resin	Ingestion	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days

Epoxy Resin	Ingestion	eyes	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Epoxy Resin	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	auditory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	heart	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	endocrine system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	eyes	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Wollastonite	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
Wollastonite	Inhalation	pulmonary fibrosis	Not classified	Human and animal	NOAEL Not available	
Wollastonite	Ingestion	liver	Not classified	Rat	NOAEL 2,500 mg/kg/day	2 years
Wollastonite	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 2,500 mg/kg/day	2 years
Wollastonite	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 2,500 mg/kg/day	2 years
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	auditory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	heart	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	endocrine system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days

4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	eyes	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
4,4'-isopropylidenediphenol-epichlorohydrin polymer	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Dicyandiamide	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 6,822 mg/kg/day	13 weeks
Titanium Dioxide	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 0.01 mg/l	2 years
Titanium Dioxide	Inhalation	pulmonary fibrosis	Not classified	Human	NOAEL Not available	occupational exposure
4,4'-Isopropylidenediphenol	Inhalation	liver	Not classified	Rat	NOAEL 0.15 mg/l	13 weeks
4,4'-Isopropylidenediphenol	Inhalation	kidney and/or bladder	Not classified	Rat	NOAEL 0.15 mg/l	13 weeks
4,4'-Isopropylidenediphenol	Inhalation	hematopoietic system	Not classified	Rat	NOAEL 0.15 mg/l	13 weeks
4,4'-Isopropylidenediphenol	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 50 mg/kg/day	3 generation
4,4'-Isopropylidenediphenol	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 370 mg/kg/day	13 weeks
4,4'-Isopropylidenediphenol	Ingestion	endocrine system	Not classified	Rat	NOAEL 500 mg/kg/day	3 generation
4,4'-Isopropylidenediphenol	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 500 mg/kg/day	3 generation
4,4'-Isopropylidenediphenol	Ingestion	nervous system	Not classified	Rat	NOAEL 185 mg/kg/day	90 days
4,4'-Isopropylidenediphenol	Ingestion	heart	Not classified	Mouse	NOAEL 2,400 mg/kg/day	13 weeks
4,4'-Isopropylidenediphenol	Ingestion	bone, teeth, nails, and/or hair	Not classified	Mouse	NOAEL 2,400 mg/kg/day	13 weeks

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 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
Epoxy Polymer	60684-77-7	N/A	Data not available or insufficient for classification	N/A	N/A	n/a
Barium Sulfate	7727-43-7	Green algae	Analogous Compound	72 hours	No tox obs at lmt of water sol	>100 mg/l
Barium Sulfate	7727-43-7	Sheepshead Minnow	Analogous Compound	96 hours	LC50	>849.7 mg/l
Barium Sulfate	7727-43-7	Water flea	Analogous Compound	48 hours	No tox obs at lmt of water sol	>100 mg/l
Barium Sulfate	7727-43-7	Zebra Fish	Analogous Compound	96 hours	No tox obs at lmt of water sol	>100 mg/l
Barium Sulfate	7727-43-7	Green algae	Analogous Compound	72 hours	No tox obs at lmt of water sol	>100 mg/l
Barium Sulfate	7727-43-7	Water flea	Analogous Compound	21 days	NOEC	4.9 mg/l
Barium Sulfate	7727-43-7	Zebra Fish	Analogous Compound	33 days	No tox obs at lmt of water sol	>100 mg/l
Barium Sulfate	7727-43-7	Activated sludge	Analogous Compound	3 hours	EC50	>622 mg/l
Epoxy Resin	25085-99-8	Green algae	Estimated	72 hours	EC50	>11 mg/l
Epoxy Resin	25085-99-8	Rainbow Trout	Estimated	96 hours	LC50	2 mg/l
Epoxy Resin	25085-99-8	Water flea	Estimated	48 hours	EC50	1.8 mg/l
Epoxy Resin	25085-99-8	Green algae	Estimated	72 hours	NOEC	4.2 mg/l
Epoxy Resin	25085-99-8	Water flea	Estimated	21 days	NOEC	0.3 mg/l
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	25036-25-3	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Wollastonite	13983-17-0	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Dicyandiamide	461-58-5	Bluegill	Experimental	96 hours	LC50	>1,000 mg/l
Dicyandiamide	461-58-5	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
Dicyandiamide	461-58-5	Water flea	Experimental	48 hours	EC50	3,177 mg/l
Dicyandiamide	461-58-5	Green algae	Experimental	72 hours	NOEC	310 mg/l
Dicyandiamide	461-58-5	Water flea	Experimental	21 days	NOEC	25 mg/l
Dicyandiamide	461-58-5	Redworm	Experimental	14 days	LC50	>3,200 mg/kg (Dry Weight)
Polymer Additive	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Titanium Dioxide	13463-67-7	Activated sludge	Experimental	3 hours	NOEC	>=1,000 mg/l
Titanium Dioxide	13463-67-7	Diatom	Experimental	72 hours	EC50	>10,000 mg/l
Titanium Dioxide	13463-67-7	Fathead Minnow	Experimental	96 hours	LC50	>100 mg/l
Titanium Dioxide	13463-67-7	Water flea	Experimental	48 hours	EC50	>100 mg/l
Titanium Dioxide	13463-67-7	Diatom	Experimental	72 hours	NOEC	5,600 mg/l
4,4'-Isopropylidenediphenol	80-05-7	Activated sludge	Experimental	3 hours	EC50	58.4 mg/l
4,4'-Isopropylidenediphenol	80-05-7	Atlantic Silverside	Experimental	96 hours	LC50	9.4 mg/l
4,4'-Isopropylidenediphenol	80-05-7	Bacteria	Experimental	18 hours	EC10	>320 mg/l
4,4'-Isopropylidenediphenol	80-05-7	Diatom	Experimental	96 hours	EC50	1.1 mg/l
4,4'-Isopropylidenediph	80-05-7	Fathead Minnow	Experimental	96 hours	LC50	4.6 mg/l

enol						
4,4'-Isopropylidenediphenol	80-05-7	Green algae	Experimental	96 hours	EC50	2.73 mg/l
4,4'-Isopropylidenediphenol	80-05-7	Mysid Shrimp	Experimental	96 hours	LC50	1.1 mg/l
4,4'-Isopropylidenediphenol	80-05-7	Water flea	Experimental	48 hours	EC50	10.2 mg/l
4,4'-Isopropylidenediphenol	80-05-7	Diatom	Experimental	96 hours	EC10	0.4 mg/l
4,4'-Isopropylidenediphenol	80-05-7	Fathead Minnow	Experimental	444 days	NOEC	0.016 mg/l
4,4'-Isopropylidenediphenol	80-05-7	Green algae	Experimental	96 hours	EC10	1.36 mg/l
4,4'-Isopropylidenediphenol	80-05-7	Invertebrate	Experimental	328 days	NOEC	0.025 mg/l
4,4'-Isopropylidenediphenol	80-05-7	Mysid Shrimp	Experimental	28 days	NOEC	0.17 mg/l
4,4'-Isopropylidenediphenol	80-05-7	Sheepshead Minnow	Experimental	116 days	NOEC	0.066 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Epoxy Polymer	60684-77-7	Estimated Biodegradation	28 days	Biological Oxygen Demand	0 %BOD/ThOD	OECD 301C - MITI (I)
Barium Sulfate	7727-43-7	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Epoxy Resin	25085-99-8	Estimated Biodegradation	28 days	Biological Oxygen Demand	5 %BOD/COD	OECD 301F - Manometric Respiro
Epoxy Resin	25085-99-8	Estimated Hydrolysis		Hydrolytic half-life	4.9 days (t 1/2)	
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	25036-25-3	Estimated Biodegradation	28 days	Biological Oxygen Demand	7 %BOD/ThOD	OECD 301C - MITI (I)
Wollastonite	13983-17-0	Data not availbl-insufficient	N/A	N/A	N/A	N/A
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	Estimated Biodegradation	28 days	Biological Oxygen Demand	7 %BOD/ThOD	OECD 301C - MITI (I)
Dicyandiamide	461-58-5	Experimental Biodegradation	28 days	Dissolv. Organic Carbon Deplet	0 %removal of DOC	OECD 301E - Modif. OECD Screen
Dicyandiamide	461-58-5	Experimental Aquatic Inherent Biodegrad.	14 days	Dissolv. Organic Carbon Deplet	0 %removal of DOC	OECD 302B Zahn-Wellens/EVPA
Dicyandiamide	461-58-5	Experimental Biodegradation	61 days	Carbon dioxide evolution	1.1 %CO2 evolution/THCO2 evolution	OECD 309 Aero Sim Biod Water
Polymer Additive	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Titanium Dioxide	13463-67-7	Data not availbl-insufficient	N/A	N/A	N/A	N/A

4,4'-Isopropylidenediphenol	80-05-7	Experimental Biodegradation	28 days	Biological Oxygen Demand	81.4 %BOD/ThOD	OECD 301F - Manometric Respiro

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Epoxy Polymer	60684-77-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Barium Sulfate	7727-43-7	Analogous Compound BCF - Fish		Bioaccumulation Factor	74.4	
Epoxy Resin	25085-99-8	Estimated Bioconcentration		Log of Octanol/H2O part. coeff	3.242	
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	25036-25-3	Estimated Bioconcentration		Bioaccumulation Factor	7.4	
Wollastonite	13983-17-0	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
4,4'-isopropylidenediphenol-epichlorohydrin polymer	25068-38-6	Estimated Bioconcentration		Bioaccumulation Factor	7.4	
Dicyandiamide	461-58-5	Experimental BCF - Fish	42 days	Bioaccumulation Factor	<=3.1	OECD305-Bioconcentration
Dicyandiamide	461-58-5	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	-0.52	OECD 107 log Kow shke flsk mtd
Polymer Additive	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Titanium Dioxide	13463-67-7	Experimental BCF - Fish	42 days	Bioaccumulation Factor	9.6	
4,4'-Isopropylidenediphenol	80-05-7	Experimental BCF - Fish	42 days	Bioaccumulation Factor	≤67	

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 3M for more information. 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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