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.

IDENTIFICATION

1.1. Product identifier
3M™ Super Fast Plastic Repair, PN 04247

Product Identification Numbers
62-2644-3830-0

1.2. Recommended use and restrictions on use

Recommended use
Industrial use

1.3. Supplier's details

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

1.4. Emergency telephone number
+60 03-7884 2888

This product is a kit or a multipart product which consists of multiple, independently packaged components. An SDS for each of these components is included. Please do not separate the component SDSs from this cover page. The document numbers of the SDSs for components of this product are:

22-1873-3, 22-1818-8

TRANSPORT INFORMATION

This product is a kit that consists of two or more different regulated materials packed in the same outer packaging (ship unit). The transportation classifications of the individual components appear in Section 14 of the attached SDSs.
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.

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

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Document Group:	22-1818-8	**Version Number:**	4.00
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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™ Super Fast Plastic Repair, 04247 (Part A)

1.2. Recommended use and restrictions on use

Recommended use
Two-part urethane system., Industrial use

For Industrial or Professional use only

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.
Respiratory Sensitizer: Category 1.
Skin Sensitizer: Category 1.
Specific Target Organ Toxicity (repeated exposure): Category 1.
Specific Target Organ Toxicity (single exposure): Category 3.

2.2. Label elements
Signal word
Danger

Symbols
Exclamation mark |Health Hazard |

Pictograms



Hazard Statements:

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.
H372	Causes damage to organs through prolonged or repeated exposure: respiratory system.

Precautionary statements

Prevention:

P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P280E	Wear protective gloves.
P285	In case of inadequate ventilation wear respiratory protection.

Response:

P304 + P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
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 advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

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
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	30 - 65
Castor Oil, Polymer With 1,1'-Methylenebis[4-Isocyanatobenzene]	68424-09-9	15 - 40
4,4'-Diisocyanatodiphenylmethane Polymer	25686-28-6	5 - 25
3-(Trimethoxysilyl)Propyl Glycidyl Ether	2530-83-8	< 5
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	24801-88-5	< 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

Irritating to the respiratory tract (coughing, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain). Allergic respiratory reaction (difficulty breathing, wheezing, cough, and tightness of chest). Allergic skin reaction (redness, swelling, blistering, and itching). Target organ effects following prolonged or repeated exposure. See Section 11 for additional details.

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
Oxides of Nitrogen	During Combustion
Toxic Vapor, Gas, Particulate	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. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
Contain spill. Pour isocyanate decontaminant solution (90% water, 8% concentrated ammonia, 2% detergent) on spill and allow to react for 10 minutes. Or pour water on spill and allow to react for more than 30 minutes. Cover with absorbent material. 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 container approved for transportation by appropriate authorities, but do not seal the container for 48 hours to avoid pressure build-up. 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. 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
Do not use in a confined area with minimal air exchange. 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.

7.2. Conditions for safe storage including any incompatibilities
Store in a well-ventilated place. Keep container tightly closed to prevent contamination with water or air. If contamination is suspected, do not reseal container. Store away from acids. Store away from strong bases.

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	ACGIH	TWA:0.005 ppm	
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Malaysia OELs	TWA(8 hours):0.051 mg/m3(0.005 ppm)	

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. 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 (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - polymer laminate

Respiratory protection

In case of inadequate ventilation wear 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	Liquid
Specific Physical Form:	Viscous
Color	Colorless
Odor	Mild Urethane, Odorless
Odor threshold	*No Data Available*
pH	*Not Applicable*
Melting point/Freezing point	*No Data Available*
Boiling point/Initial boiling point/Boiling range	>=204.4 ºC
Flash Point	>=143.3 ºC [*Test Method:*Tagliabue Closed Cup]
Evaporation rate	<=1 [*Details:*Gels with exposure to humidity.]
Flammability	Not Applicable
Flammable Limits(LEL)	*Not Applicable*
Flammable Limits(UEL)	*Not Applicable*
Vapor Pressure	<=0 Pa [@ 20 ºC]
Relative Vapor Density	>=1 [*Ref Std:*AIR=1]
Density	1.1 g/ml
Relative Density	1.1 [*Ref Std:*WATER=1]
Water solubility	Negligible
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*Not Applicable*
Decomposition temperature	*No Data Available*
Kinematic Viscosity	1,364 mm2/sec
Volatile Organic Compounds	22 g/l [*Test Method:*calculated SCAQMD rule 443.1]
Volatile Organic Compounds	2 % weight [*Test Method:*calculated per CARB title 2]
Percent volatile	2 % weight [*Test Method:*Estimated]
VOC Less H2O & Exempt Solvents	22 g/l [*Test Method:*calculated SCAQMD rule 443.1]
Molecular weight	*No Data Available*

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
None known.

10.5. Incompatible materials
Water
Strong acids
Strong bases

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.

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

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.

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

Additional Health Effects:

Prolonged or repeated exposure may cause target organ effects:
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.

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

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Inhalation-Vapor(4 hr)		No data available; calculated ATE >20 - =50 mg/l
Overall product	Ingestion		No data available; calculated ATE >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
4,4'-Diisocyanatodiphenylmethane Polymer	Dermal	Rabbit	LD50 > 5,000 mg/kg
4,4'-Diisocyanatodiphenylmethane Polymer	Inhalation-Dust/Mist (4 hours)	Rat	LC50 0.368 mg/l
4,4'-Diisocyanatodiphenylmethane Polymer	Ingestion	Rat	LD50 31,600 mg/kg
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Dermal	Rabbit	LD50 4,000 mg/kg
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.3 mg/l
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Ingestion	Rat	LD50 7,010 mg/kg
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	Dermal	Rabbit	LD50 1,259 mg/kg
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	Inhalation-Vapor (4 hours)	Rat	LC50 0.36 mg/l
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	Ingestion	Rat	LD50 706 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
P,P'-Methylenebis(phenyl isocyanate)	official classification	Irritant
4,4'-Diisocyanatodiphenylmethane Polymer	official classification	Irritant
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Rabbit	Mild irritant
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	Rabbit	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value

P,P'-Methylenebis(phenyl isocyanate)	official classification	Severe irritant
4,4'-Diisocyanatodiphenylmethane Polymer	official classification	Severe irritant
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Rabbit	Corrosive
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	Rabbit	Corrosive

Sensitization:

Skin Sensitization

Name	Species	Value
P,P'-Methylenebis(phenyl isocyanate)	Mouse	Sensitizing
4,4'-Diisocyanatodiphenylmethane Polymer	Mouse	Sensitizing
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Guinea pig	Not classified
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	similar compounds	Sensitizing

Respiratory Sensitization

Name	Species	Value
P,P'-Methylenebis(phenyl isocyanate)	Human	Sensitizing
4,4'-Diisocyanatodiphenylmethane Polymer	Human	Sensitizing
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	similar compounds	Sensitizing

Germ Cell Mutagenicity

Name	Route	Value
P,P'-Methylenebis(phenyl isocyanate)	In Vitro	Some positive data exist, but the data are not sufficient for classification
4,4'-Diisocyanatodiphenylmethane Polymer	In Vitro	Some positive data exist, but the data are not sufficient for classification
3-(Trimethoxysilyl)Propyl Glycidyl Ether	In Vitro	Some positive data exist, but the data are not sufficient for classification
3-(Trimethoxysilyl)Propyl Glycidyl Ether	In vivo	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
P,P'-Methylenebis(phenyl isocyanate)	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
4,4'-Diisocyanatodiphenylmethane Polymer	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Dermal	Mouse	Not 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
4,4'-Diisocyanatodiphenylmethane Polymer	Inhalation	Not classified for development	Rat	NOAEL 0.004 mg/l	during organogenesis
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	1 generation

3-(Trimethoxysilyl)Propyl Glycidyl Ether	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	1 generation
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Ingestion	Not classified for development	Rat	NOAEL 3,000 mg/kg/day	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
P,P'-Methylenebis(phenyl isocyanate)	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	
4,4'-Diisocyanatodiphenylmethane Polymer	Inhalation	respiratory irritation	May cause respiratory irritation	official classification	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
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
4,4'-Diisocyanatodiphenylmethane Polymer	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	LOAEL 0.004 mg/l	13 weeks
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Ingestion	heart | endocrine system | bone, teeth, nails, and/or hair | hematopoietic system | liver | immune system | nervous system | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days

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:
Not acutely toxic to aquatic life by GHS criteria.

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

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Activated sludge	Analogous Compound	3 hours	EC50	>100 mg/l
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Green algae	Analogous Compound	72 hours	EC50	>1,640 mg/l
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Water flea	Analogous Compound	24 hours	EC50	>1,000 mg/l
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Zebra Fish	Analogous Compound	96 hours	LC50	>1,000 mg/l
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Green algae	Analogous Compound	72 hours	NOEC	1,640 mg/l
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Water flea	Analogous Compound	21 days	NOEC	10 mg/l
Castor Oil, Polymer With 1,1'-Methylenebis[4-Isocyanatobenzene]	68424-09-9	N/A	Data not available or insufficient for classification	N/A	N/A	NA
4,4'-Diisocyanatodiphenylmethane Polymer	25686-28-6	Green algae	Estimated	72 hours	EC50	>1,640 mg/l
4,4'-Diisocyanatodiphenylmethane Polymer	25686-28-6	Water flea	Estimated	24 hours	EC50	>1,000 mg/l
4,4'-Diisocyanatodiphenylmethane Polymer	25686-28-6	Zebra Fish	Estimated	96 hours	LC50	>1,000 mg/l
4,4'-Diisocyanatodiphenylmethane Polymer	25686-28-6	Green algae	Estimated	72 hours	NOEL	1,640 mg/l
4,4'-Diisocyanatodiphenylmethane Polymer	25686-28-6	Water flea	Estimated	21 days	NOEC	10 mg/l
3-(Trimethoxysilyl)Propyl Glycidyl Ether	2530-83-8	Common Carp	Experimental	96 hours	LC50	55 mg/l
3-(Trimethoxysilyl)Propyl Glycidyl Ether	2530-83-8	Green algae	Experimental	96 hours	ErC50	350 mg/l
3-(Trimethoxysilyl)Propyl Glycidyl Ether	2530-83-8	Invertebrate	Experimental	48 hours	LC50	324 mg/l
3-(Trimethoxysilyl)Propyl Glycidyl Ether	2530-83-8	Green algae	Experimental	96 hours	NOEC	130 mg/l
3-(Trimethoxysilyl)Propyl Glycidyl Ether	2530-83-8	Water flea	Experimental	21 days	NOEC	100 mg/l
3-(Trimethoxysilyl)Propyl Glycidyl Ether	2530-83-8	Activated sludge	Experimental	3 hours	EC50	>100 mg/l

Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	24801-88-5	Green algae	Estimated	72 hours	EC50	>1,000 mg/l
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	24801-88-5	Water flea	Estimated	48 hours	EC50	331 mg/l
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	24801-88-5	Zebra Fish	Estimated	96 hours	LC50	>934 mg/l
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	24801-88-5	Activated sludge	Experimental	3 hours	NOEC	10 mg/l
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	24801-88-5	Green algae	Estimated	72 hours	NOEC	1.3 mg/l
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	24801-88-5	Water flea	Estimated	21 days	NOEC	>=100 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Castor Oil, Polymer With 1,1'-Methylenebis[4-Isocyanatobenzene]	68424-09-9	Data not availbl-insufficient	N/A	N/A	N/A	N/A
4,4'-Diisocyanatodiphenylmethane Polymer	25686-28-6	Data not availbl-insufficient	N/A	N/A	N/A	N/A
3-(Trimethoxysilyl)Propyl Glycidyl Ether	2530-83-8	Experimental Biodegradation	28 days	Dissolv. Organic Carbon Deplet	37 %removal of DOC	EC C.4.A. DOC Die-Away Test
3-(Trimethoxysilyl)Propyl Glycidyl Ether	2530-83-8	Experimental Hydrolysis		Hydrolytic half-life (pH 7)	6.5 hours (t 1/2)	OECD 111 Hydrolysis func of pH
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	24801-88-5	Estimated Hydrolysis		Hydrolytic half-life	8.5 hours (t 1/2)	

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
P,P'-Methylenebis(phenyl isocyanate)	101-68-8	Analogous Compound BCF - Fish	28 days	Bioaccumulation Factor	200	OECD305-Bioconcentration
Castor Oil, Polymer With 1,1'-Methylenebis[4-Isocyanatobenzene]	68424-09-9	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
4,4'-Diisocyanatodiphenylmethane Polymer	25686-28-6	Estimated BCF - Fish	28 days	Bioaccumulation Factor	200	OECD305-Bioconcentration
3-(Trimethoxysilyl)Propyl Glycidyl	2530-83-8	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	0.5	Episuite™

Ether						
Isocyanic Acid, 3-(Triethyoxysilyl)propyl Ester	24801-88-5	Estimated BCF - Fish	56 days	Bioaccumulation Factor	<3.4	OECD305-Bioconcentration

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 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 material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information. 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.

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

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™ Super Fast Plastic Repair, 04247 (Part B)

1.2. Recommended use and restrictions on use

Recommended use
Two-part urethane system., Industrial use

For Industrial or Professional use only

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.

2.2. Label elements
Signal word
Warning

Symbols
Exclamation mark |

Pictograms



Hazard Statements:

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.

Precautionary statements

Prevention:

P280E	Wear protective gloves.

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 advice/attention.

2.3. Other hazards

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

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt
Polyether Polyol	9082-00-2	40 - 70
Propoxylated Glycerol	25791-96-2	10 - 30
Tetrakis(2-Hydroxypropyl)Ethylenediamine	102-60-3	10 - 30
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	< 3
BHT	128-37-0	< 0.5

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

6.2. Environmental precautions
Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up
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 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. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.)

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
BHT	128-37-0	ACGIH	TWA(inhalable fraction and vapor):2 mg/m3	A4: Not class. as human carcin
BHT	128-37-0	Malaysia OELs	TWA(8 hours):10 mg/m3	
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	ACGIH	CEIL:0.018 ppm	Danger of cutaneous absorption
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	Malaysia OELs	CEIL: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
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
Neoprene
Natural Rubber

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron – Butyl rubber
Apron - Neoprene
Apron - polymer laminate

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Specific Physical Form:	Gel
Color	Colorless
Odor	Slight Ammoniacal
Odor threshold	*No Data Available*
pH	*Not Applicable*
Melting point/Freezing point	*No Data Available*
Boiling point/Initial boiling point/Boiling range	>=204.4 ºC
Flash Point	>=143.3 ºC [*Test Method:*Tagliabue Closed Cup]
Evaporation rate	<=1 [*Ref Std:*WATER=1]
Flammability	Not Applicable
Flammable Limits(LEL)	*Not Applicable*
Flammable Limits(UEL)	*Not Applicable*
Vapor Pressure	*Not Applicable*
Relative Vapor Density	>=1 [*Ref Std:*AIR=1]
Density	1.02 g/ml
Relative Density	1.02 [*Ref Std:*WATER=1]
Water solubility	Negligible
Solubility- non-water	*No Data Available*
Partition coefficient: n-octanol/ water	*No Data Available*
Autoignition temperature	*Not Applicable*
Decomposition temperature	*No Data Available*
Kinematic Viscosity	1,569 mm2/sec
Volatile Organic Compounds	0 % weight [*Test Method:*calculated per CARB title 2]
Volatile Organic Compounds	0 g/l [*Test Method:*calculated SCAQMD rule 443.1]
Percent volatile	<=1 % weight [*Test Method:*Estimated]
VOC Less H2O & Exempt Solvents	0 g/l [*Test Method:*calculated SCAQMD rule 443.1]
Molecular weight	*No Data Available*

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
None known.

10.5. Incompatible materials

Strong acids
Strong oxidizing agents

10.6. Hazardous decomposition products

Substance	Condition
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

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

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

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

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

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.

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

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

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-Dust/Mist(4 hr)		No data available; calculated ATE >12.5 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Polyether Polyol	Dermal	similar compounds	LD50 > 2,000 mg/kg
Polyether Polyol	Inhalation-	similar	LC50 > 3.2 mg/l

	Dust/Mist (4 hours)	compounds	
Polyether Polyol	Ingestion	similar compounds	LD50 > 5,000 mg/kg
Propoxylated Glycerol	Dermal	Rat	LD50 > 2,000 mg/kg
Propoxylated Glycerol	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 50 mg/l
Propoxylated Glycerol	Ingestion	Rat	LD50 4,600 mg/kg
Tetrakis(2-Hydroxypropyl)Ethylenediamine	Dermal	Rat	LD50 > 2,000 mg/kg
Tetrakis(2-Hydroxypropyl)Ethylenediamine	Ingestion	Rat	LD50 2,890 mg/kg
M-Xylene-Alpha,Alpha'-Diamine	Dermal	Rabbit	LD50 > 2,000 mg/kg
M-Xylene-Alpha,Alpha'-Diamine	Inhalation-Dust/Mist (4 hours)	Rat	LC50 1.2 mg/l
M-Xylene-Alpha,Alpha'-Diamine	Ingestion	Rat	LD50 980 mg/kg
BHT	Dermal	Rat	LD50 > 2,000 mg/kg
BHT	Ingestion	Rat	LD50 > 2,930 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Polyether Polyol	similar compounds	Minimal irritation
Propoxylated Glycerol	Rabbit	No significant irritation
Tetrakis(2-Hydroxypropyl)Ethylenediamine	Rabbit	No significant irritation
M-Xylene-Alpha,Alpha'-Diamine	Rat	Corrosive
BHT	Human and animal	Minimal irritation

Serious Eye Damage/Irritation

Name	Species	Value
Polyether Polyol	similar compounds	Mild irritant
Propoxylated Glycerol	Rabbit	Mild irritant
Tetrakis(2-Hydroxypropyl)Ethylenediamine	Rabbit	Severe irritant
M-Xylene-Alpha,Alpha'-Diamine	Rabbit	Corrosive
BHT	Rabbit	Mild irritant

Sensitization:

Skin Sensitization

Name	Species	Value
Polyether Polyol	similar compounds	Not classified
Tetrakis(2-Hydroxypropyl)Ethylenediamine	Guinea pig	Not classified
M-Xylene-Alpha,Alpha'-Diamine	Guinea pig	Sensitizing
BHT	Human	Not classified

Respiratory Sensitization

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

Germ Cell Mutagenicity

Name	Route	Value
Polyether Polyol	In Vitro	Not mutagenic
Tetrakis(2-Hydroxypropyl)Ethylenediamine	In Vitro	Not mutagenic
M-Xylene-Alpha,Alpha'-Diamine	In Vitro	Not mutagenic
M-Xylene-Alpha,Alpha'-Diamine	In vivo	Not mutagenic
BHT	In Vitro	Not mutagenic
BHT	In vivo	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
BHT	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
Tetrakis(2-Hydroxypropyl)Ethylenediamine	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
Tetrakis(2-Hydroxypropyl)Ethylenediamine	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	30 days
Tetrakis(2-Hydroxypropyl)Ethylenediamine	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
M-Xylene-Alpha,Alpha'-Diamine	Ingestion	Not classified for female reproduction	Rat	NOAEL 450 mg/kg/day	1 generation
M-Xylene-Alpha,Alpha'-Diamine	Ingestion	Not classified for male reproduction	Rat	NOAEL 450 mg/kg	1 generation
M-Xylene-Alpha,Alpha'-Diamine	Ingestion	Not classified for development	Rat	NOAEL 450 mg/kg/day	1 generation
BHT	Ingestion	Not classified for female reproduction	Rat	NOAEL 500 mg/kg/day	2 generation
BHT	Ingestion	Not classified for male reproduction	Rat	NOAEL 500 mg/kg/day	2 generation
BHT	Ingestion	Not classified for development	Rat	NOAEL 100 mg/kg/day	2 generation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Tetrakis(2-Hydroxypropyl)Ethylenediamine	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Positive	
M-Xylene-Alpha,Alpha'-Diamine	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Not available	NOAEL Not avaliable	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Tetrakis(2-Hydroxypropyl)Ethylenediamine	Ingestion	nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 300 mg/kg/day	30 days
Tetrakis(2-Hydroxypropyl)Ethylenediamine	Ingestion	heart | skin | endocrine system | gastrointestinal tract | bone, teeth, nails,	Not classified	Rat	NOAEL 1,000 mg/kg/day	30 days

		and/or hair | hematopoietic system | liver | immune system | muscles | eyes | kidney and/or bladder | respiratory system | vascular system				
M-Xylene-Alpha,Alpha'-Diamine	Ingestion	endocrine system | blood | bone marrow	Not classified	Rat	NOAEL 600 mg/kg/day	28 days
BHT	Ingestion	liver	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 250 mg/kg/day	28 days
BHT	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 500 mg/kg/day	2 generation
BHT	Ingestion	blood	Not classified	Rat	LOAEL 420 mg/kg/day	40 days
BHT	Ingestion	endocrine system	Not classified	Rat	NOAEL 25 mg/kg/day	2 generation
BHT	Ingestion	heart	Not classified	Mouse	NOAEL 3,480 mg/kg/day	10 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:
Not chronically toxic to aquatic life by GHS criteria.

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
Polyether Polyol	9082-00-2	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Propoxylated Glycerol	25791-96-2	Golden Orfe	Experimental	96 hours	LC50	>1,000 mg/l
Propoxylated Glycerol	25791-96-2	Green algae	Experimental	72 hours	ErC50	>100 mg/l
Propoxylated Glycerol	25791-96-2	Water flea	Experimental	48 hours	EC50	>100 mg/l
Propoxylated Glycerol	25791-96-2	Green algae	Experimental	72 hours	NOEC	>100 mg/l
Tetrakis(2-	102-60-3	Green algae	Analogous	72 hours	ErC50	>100 mg/l

Hydroxypropyl)Ethylenediamine			Compound			
Tetrakis(2-Hydroxypropyl)Ethylenediamine	102-60-3	Water flea	Analogous Compound	48 hours	EC50	>500 mg/l
Tetrakis(2-Hydroxypropyl)Ethylenediamine	102-60-3	Activated sludge	Experimental	30 minutes	EC50	>1,000 mg/l
Tetrakis(2-Hydroxypropyl)Ethylenediamine	102-60-3	Fathead Minnow	Experimental	96 hours	LC50	>1,000 mg/l
Tetrakis(2-Hydroxypropyl)Ethylenediamine	102-60-3	Green algae	Analogous Compound	72 hours	ErC10	16.1 mg/l
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	Activated sludge	Experimental	30 minutes	EC50	>1,000 mg/l
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	Bacteria	Experimental	16 hours	EC10	24 mg/l
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	Green algae	Experimental	72 hours	ErC50	28 mg/l
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	Medaka	Experimental	96 hours	LC50	87.6 mg/l
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	Water flea	Experimental	48 hours	EC50	15.2 mg/l
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	Green algae	Experimental	72 hours	NOEC	9.8 mg/l
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	Water flea	Experimental	21 days	NOEC	4.7 mg/l
BHT	128-37-0	Activated sludge	Experimental	3 hours	EC50	>10,000 mg/l
BHT	128-37-0	Green algae	Experimental	72 hours	EC50	>0.4 mg/l
BHT	128-37-0	Water flea	Experimental	48 hours	EC50	0.48 mg/l
BHT	128-37-0	Zebra Fish	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
BHT	128-37-0	Green algae	Experimental	72 hours	EC10	0.4 mg/l
BHT	128-37-0	Medaka	Experimental	42 days	NOEC	0.053 mg/l
BHT	128-37-0	Water flea	Experimental	21 days	NOEC	0.023 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Polyether Polyol	9082-00-2	Modeled Biodegradation	28 days	Biological Oxygen Demand	20 %BOD/ThOD	Catalogic™
Propoxylated Glycerol	25791-96-2	Experimental Biodegradation	28 days	Carbon dioxide evolution	38 %CO2 evolution/THCO2 evolution	OECD 301B - Mod. Sturm or CO2
Tetrakis(2-Hydroxypropyl)Ethylenediamine	102-60-3	Experimental Biodegradation	28 days	Biological Oxygen Demand	1 %BOD/ThOD	OECD 301C - MITI (I)
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	Experimental Biodegradation	28 days	Carbon dioxide evolution	49 %CO2 evolution/THCO2 evolution	OECD 301B - Mod. Sturm or CO2
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	Experimental Aquatic Inherent Biodegrad.	28 days	Biological Oxygen Demand	22 %BOD/ThOD	OECD 302C - Modified MITI (II)
BHT	128-37-0	Data not availbl-insufficient	N/A	N/A	N/A	N/A

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Polyether Polyol	9082-00-2	Modeled Bioconcentration		Bioaccumulation Factor	2	Catalogic™
Polyether Polyol	9082-00-2	Modeled Bioconcentration		Log of Octanol/H2O part. coeff	-2.6	Episuite™
Propoxylated Glycerol	25791-96-2	Experimental BCF - Fish	42 days	Bioaccumulation Factor	≤7	
Tetrakis(2-Hydroxypropyl)Ethylenediamine	102-60-3	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	0.27	OECD 107 log Kow shke flsk mtd
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	Experimental BCF - Fish	42 days	Bioaccumulation Factor	<2.7	OECD305-Bioconcentration
M-Xylene-Alpha,Alpha'-Diamine	1477-55-0	Extrapolated Bioconcentration		Log of Octanol/H2O part. coeff	0.18	OECD 107 log Kow shke flsk mtd
BHT	128-37-0	Experimental BCF - Fish	56 days	Bioaccumulation Factor	1277	OECD305-Bioconcentration

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 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 material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the new substance notification requirements of CEPA. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

SECTION 16: Other information

DISCLAIMER: The information 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.

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