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™ Impact Resistant Structural Adhesive PNs 07333, 57333

Product Identification Numbers
60-4550-8333-1 60-4550-8345-5 60-4551-1451-6

1.2. Recommended use and restrictions on use

Recommended use
Automotive, Two-part color changing adhesive with optimized shear, peel and impact performance.

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:

33-5988-2, 33-5984-1

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:	33-5984-1	**Version Number:**	1.00
Issue Date:	10/11/2024	**Supercedes Date:**	Initial Issue

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™ Impact Resistant Structural Adhesive Part A, PNs 07333, 57333

Product Identification Numbers
UU-0128-3031-9

1.2. Recommended use and restrictions on use

Recommended use
Automotive, Accelerator for two-part color changing adhesive with optimized shear, peel and impact performance.

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
Acute Toxicity (oral): Category 4.
Skin Corrosion/Irritation: Category 1.
Serious Eye Damage/Irritation: Category 1.
Skin Sensitizer: Category 1.
Carcinogenicity: Category 1A.
Chronic Aquatic Toxicity: Category 2.

2.2. Label elements
Signal word
Danger

Symbols
Corrosion |Exclamation mark |Health Hazard |Environment |

Pictograms



Hazard Statements:

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H350	May cause cancer.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements
General:

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

Prevention:

P201	Obtain special instructions before use.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P273	Avoid release to the environment.
P280J	Wear protective gloves, protective clothing, respiratory protection, and eye/face protection.
P281	Use personal protective equipment as required.

Response:

P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

Storage:

P405	Store locked up.

Disposal:

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

2.3. Other hazards
May cause chemical gastrointestinal burns., 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
Bis(3-Aminopropyl) Ether of Diethylene Glycol	4246-51-9	15 - 40
Epoxy Copolymer	Trade Secret	10 - 30
Acrylic Copolymer	Trade Secret	5 - 15
2-Propenenitrile, Polymer with 1,3-Butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	68683-29-4	5 - 10
Aluminum	7429-90-5	5 - 10
Methylenedi(cyclohexylamine)	1761-71-3	5 - 9
Treated Inorganic Filler	Trade Secret	3 - 7
Inorganic Filler	Trade Secret	1 - 5
Mineral Filler	Trade Secret	1 - 5
Treated Filler	Trade Secret	1 - 5
2,4,6-Tris(dimethylaminomonomethyl)phenol	90-72-2	< 3
m-Xylene-.alpha.alpha'.Diamine	1477-55-0	< 2
Formaldehyde, Polymer with Benzenamine, Hydrogenated	135108-88-2	< 2
N-Aminoethylpiperazine	140-31-8	< 0.25
Quartz Silica	14808-60-7	< 0.2

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 flush with large amounts of water for at least 15 minutes. Remove contaminated clothing. Get immediate medical attention. Wash clothing before reuse.

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

If Swallowed:
Rinse mouth. Do not induce vomiting. Get immediate medical attention.

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

Skin burns (localized redness, swelling, itching, intense pain, blistering, and tissue destruction). Allergic skin reaction (redness, swelling, blistering, and itching). Serious damage to the eyes (corneal cloudiness, severe pain, tearing, ulcerations, and significantly impaired or loss of vision). 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.

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
Keep out of reach of children. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (gloves, respirators, etc.) as required.

7.2. Conditions for safe storage including any incompatibilities
Store away from heat. 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
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
Quartz Silica	14808-60-7	ACGIH	TWA(respirable fraction):0.025 mg/m3	A2: Suspected human carcin.
Quartz Silica	14808-60-7	Malaysia OELs	TWA(respirable fraction)(8 hours):0.1 mg/m3	

Aluminum	7429-90-5	ACGIH	TWA(respirable fraction):1 mg/m3	A4: Not class. as human carcin
Aluminum	7429-90-5	Malaysia OELs	TWA(as dust)(8 hours):10 mg/m3;TWA(Al, welding fume)(8 hours):5 mg/m3;TWA(as Al pyrophoric powder)(8 hours):5 mg/m3	
DUST, INERT OR NUISANCE	7429-90-5	Malaysia OELs	TWA (proposed)(respirable particles)(8 hours):3 mg/m3;TWA (proposed)(Inhalable particulate)(8 hours):10 mg/m3	
Inorganic Filler	Trade Secret	Manufacturer determined	TWA(as non-fibrous, respirable)(8 hours):3 mg/m3;TWA(as non-fibrous, inhalable fraction)(8 hours):10 mg/m3	
Inorganic Filler	Trade Secret	ACGIH	TWA(as fiber):0.2 fiber/cc	A2: Suspected human carcin.
Inorganic Filler	Trade Secret	ACGIH	TWA(as fiber):1 fiber/cc	A3: Confirmed animal carcin.
Inorganic Filler	Trade Secret	ACGIH	TWA(as fiber):1 fiber/cc	A4: Not class. as human carcin
Inorganic Filler	Trade Secret	ACGIH	TWA(inhalable fraction):5 mg/m3	A4: Not class. as human carcin
Inorganic Filler	Trade Secret	Malaysia OELs	TWA(inhalable fraction)(8 hours):5 mg/m3;TWA(as fiber)(8 hours):1 fibers/ml	
Mineral Filler	Trade Secret	ACGIH	TWA(inhalable fraction):1 mg/m3	A4: Not class. as human carcin
Treated Filler	Trade Secret	ACGIH	TWA(inhalable particulates):10 mg/m3	
Treated Filler	Trade Secret	ACGIH	TWA(respirable particles):3 mg/m3	
Treated Filler	Trade Secret	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.

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.
Gloves made from the following material(s) are recommended: Butyl Rubber
Neoprene
Nitrile 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 – Nitrile

Respiratory protection

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

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Specific Physical Form:	Paste
Color	Silver-Gray
Odor	Very Slight Acrylic
Odor threshold	*No Data Available*
pH	*No Data Available*
Melting point/Freezing point	*No Data Available*
Boiling point/Initial boiling point/Boiling range	*No Data Available*
Flash Point	103.9 ºC [*Test Method:*Closed Cup]
Evaporation rate	*No Data Available*
Flammability	Not Applicable
Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	666.6 Pa
Relative Vapor Density	*No Data Available*
Density	1.18 g/ml
Relative Density	1.18 [*Ref Std:*WATER=1]
Water solubility	*No Data Available*
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	46,610 mm2/sec
Volatile Organic Compounds	0.3 % weight [*Test Method:*calculated per CARB title 2]
Volatile Organic Compounds	3 g/l [*Test Method:*calculated SCAQMD rule 443.1]
Percent volatile	0.3 % weight
VOC Less H2O & Exempt Solvents	3 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
Heat
Sparks and/or flames

10.5. Incompatible materials
Strong acids
Strong oxidizing agents

10.6. Hazardous decomposition products

Substance	Condition
Aldehydes	Not Specified
Carbon monoxide	Not Specified
Carbon dioxide	Not Specified

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:
May be harmful in contact with skin.
Corrosive (Skin Burns): Signs/symptoms may include localized redness, swelling, itching, intense pain, blistering, ulceration, and tissue destruction.

Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye Contact:
Corrosive (Eye Burns): Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of vision.

Ingestion:
Harmful if swallowed. Gastrointestinal Corrosion: Signs/symptoms may include severe mouth, throat and abdominal pain; nausea; vomiting; and diarrhea; blood in the feces and/or vomitus may also be seen.

May cause additional health effects (see below).

Additional Health Effects:

Prolonged or repeated exposure may cause target organ effects:
Liver Effects: Signs/symptoms may include loss of appetite, weight loss, fatigue, weakness, abdominal tenderness and jaundice.

Muscular Effects: Signs/symptoms may include generalized muscle weakness, paralysis and atrophy.

Kidney/Bladder Effects: Signs/symptoms may include changes in urine production, abdominal or lower back pain, increased protein in urine, increased blood urea nitrogen (BUN), blood in urine, and painful urination.

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.

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 >2,000 - =5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE >300 - =2,000 mg/kg
Bis(3-Aminopropyl) Ether of Diethylene Glycol	Dermal	Rabbit	LD50 2,525 mg/kg
Bis(3-Aminopropyl) Ether of Diethylene Glycol	Ingestion	Rat	LD50 2,850 mg/kg
Aluminum	Dermal		LD50 estimated to be > 5,000 mg/kg
Aluminum	Ingestion		LD50 estimated to be > 5,000 mg/kg
Aluminum	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.888 mg/l

Methylenedi(cyclohexylamine)	Dermal	Rabbit	LD50 2,110 mg/kg
Methylenedi(cyclohexylamine)	Ingestion	Rat	LD50 350 mg/kg
2-Propenenitrile, Polymer with 1,3-Butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	Dermal	Rabbit	LD50 > 3,000 mg/kg
2-Propenenitrile, Polymer with 1,3-Butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	Ingestion	Rat	LD50 > 15,300 mg/kg
Treated Inorganic Filler	Dermal	Rabbit	LD50 > 5,000 mg/kg
Treated Inorganic Filler	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Treated Inorganic Filler	Ingestion	Rat	LD50 > 5,110 mg/kg
Treated Filler	Dermal	Rat	LD50 > 2,000 mg/kg
Treated Filler	Inhalation-Dust/Mist (4 hours)	Rat	LC50 3 mg/l
Treated Filler	Ingestion	Rat	LD50 6,450 mg/kg
Mineral Filler	Ingestion	Rat	LD50 > 5,000 mg/kg
Mineral Filler	Dermal	similar compounds	LD50 > 5,000 mg/kg
Mineral Filler	Inhalation-Dust/Mist (4 hours)	similar compounds	LC50 > 2.08 mg/l
2,4,6-Tris(dimethylaminomonomethyl)phenol	Dermal	Rat	LD50 1,280 mg/kg
2,4,6-Tris(dimethylaminomonomethyl)phenol	Ingestion	Rat	LD50 1,000 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
Formaldehyde, Polymer with Benzenamine, Hydrogenated	Dermal	Rat	LD50 > 700 mg/kg
Formaldehyde, Polymer with Benzenamine, Hydrogenated	Ingestion	Rat	LD50 300 mg/kg
Inorganic Filler	Dermal		LD50 estimated to be > 5,000 mg/kg
Inorganic Filler	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
N-Aminoethylpiperazine	Dermal	Rabbit	LD50 865 mg/kg
N-Aminoethylpiperazine	Ingestion	Rat	LD50 1,470 mg/kg
Quartz Silica	Dermal		LD50 estimated to be > 5,000 mg/kg
Quartz Silica	Ingestion		LD50 estimated to be > 5,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Bis(3-Aminopropyl) Ether of Diethylene Glycol	Rabbit	Corrosive
Aluminum	Rabbit	No significant irritation
Methylenedi(cyclohexylamine)	Rabbit	Corrosive
2-Propenenitrile, Polymer with 1,3-Butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	Rabbit	Irritant
Treated Inorganic Filler	Rabbit	No significant irritation
Treated Filler	Rabbit	No significant irritation
Mineral Filler	similar compounds	No significant irritation
2,4,6-Tris(dimethylaminomonomethyl)phenol	Rabbit	Corrosive
m-Xylene-.alpha.alpha'.Diamine	Rat	Corrosive
Formaldehyde, Polymer with Benzenamine, Hydrogenated	In vitro data	Corrosive
Inorganic Filler	Professional judgement	No significant irritation
N-Aminoethylpiperazine	Rabbit	Corrosive
Quartz Silica	Professional	No significant irritation

	judgement	

Serious Eye Damage/Irritation

Name	Species	Value
Bis(3-Aminopropyl) Ether of Diethylene Glycol	Rabbit	Corrosive
Aluminum	Rabbit	No significant irritation
Methylenedi(cyclohexylamine)	Rabbit	Corrosive
2-Propenenitrile, Polymer with 1,3-Butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	Rabbit	Mild irritant
Treated Inorganic Filler	Rabbit	No significant irritation
Treated Filler	Rabbit	No significant irritation
Mineral Filler	similar compounds	Mild irritant
2,4,6-Tris(dimethylaminomonomethyl)phenol	Rabbit	Corrosive
m-Xylene-.alpha.alpha'.Diamine	Rabbit	Corrosive
Formaldehyde, Polymer with Benzenamine, Hydrogenated	similar health hazards	Corrosive
Inorganic Filler	Professional judgement	No significant irritation
N-Aminoethylpiperazine	Rabbit	Corrosive

Sensitization:

Skin Sensitization

Name	Species	Value
Bis(3-Aminopropyl) Ether of Diethylene Glycol	Professional judgement	Sensitizing
Aluminum	Guinea pig	Not classified
Methylenedi(cyclohexylamine)	Guinea pig	Sensitizing
2-Propenenitrile, Polymer with 1,3-Butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	Guinea pig	Sensitizing
Treated Inorganic Filler	Human and animal	Not classified
Mineral Filler	Human	Not classified
2,4,6-Tris(dimethylaminomonomethyl)phenol	Guinea pig	Not classified
m-Xylene-.alpha.alpha'.Diamine	Guinea pig	Sensitizing
Formaldehyde, Polymer with Benzenamine, Hydrogenated	Professional judgement	Sensitizing
N-Aminoethylpiperazine	Guinea pig	Sensitizing

Respiratory Sensitization

Name	Species	Value
Aluminum	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value

Bis(3-Aminopropyl) Ether of Diethylene Glycol	In Vitro	Not mutagenic
Aluminum	In Vitro	Not mutagenic
Treated Inorganic Filler	In Vitro	Not mutagenic
Mineral Filler	In Vitro	Not mutagenic
Mineral Filler	In vivo	Not mutagenic
2,4,6-Tris(dimethylaminomonomethyl)phenol	In Vitro	Not mutagenic
m-Xylene-.alpha.alpha'.Diamine	In Vitro	Not mutagenic
m-Xylene-.alpha.alpha'.Diamine	In vivo	Not mutagenic
Formaldehyde, Polymer with Benzenamine, Hydrogenated	In Vitro	Not mutagenic
Inorganic Filler	In Vitro	Some positive data exist, but the data are not sufficient for classification
N-Aminoethylpiperazine	In vivo	Not mutagenic
N-Aminoethylpiperazine	In Vitro	Some positive data exist, but the data are not sufficient for classification
Quartz Silica	In Vitro	Some positive data exist, but the data are not sufficient for classification
Quartz Silica	In vivo	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Treated Inorganic Filler	Not Specified	Mouse	Some positive data exist, but the data are not sufficient for classification
Inorganic Filler	Inhalation	Multiple animal species	Some positive data exist, but the data are not sufficient for classification
Quartz Silica	Inhalation	Human and animal	Carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
Bis(3-Aminopropyl) Ether of Diethylene Glycol	Ingestion	Not classified for female reproduction	Rat	NOAEL 600 mg/kg/day	premating into lactation
Bis(3-Aminopropyl) Ether of Diethylene Glycol	Ingestion	Not classified for male reproduction	Rat	NOAEL 600 mg/kg/day	59 days
Bis(3-Aminopropyl) Ether of Diethylene Glycol	Ingestion	Not classified for development	Rat	NOAEL 600 mg/kg/day	premating into lactation
Treated Inorganic Filler	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Treated Inorganic Filler	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Treated Inorganic Filler	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
Treated Filler	Ingestion	Not classified for development	Rat	NOAEL 625 mg/kg/day	premating & during gestation
Mineral Filler	Ingestion	Not classified for development	Multiple animal species	NOAEL 1,600 mg/kg/day	during organogenesis
2,4,6-Tris(dimethylaminomonomethyl)phenol	Ingestion	Not classified for male reproduction	Rat	NOAEL 150 mg/kg/day	2 generation
2,4,6-Tris(dimethylaminomonomethyl)phenol	Ingestion	Not classified for female reproduction	Rat	NOAEL 50 mg/kg/day	2 generation
2,4,6-Tris(dimethylaminomonomethyl)phenol	Ingestion	Not classified for development	Rabbit	NOAEL 15 mg/kg/day	during gestation
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
Formaldehyde, Polymer with Benzenamine, Hydrogenated	Ingestion	Not classified for female reproduction	Rat	NOAEL 140 mg/kg/day	premating into lactation
Formaldehyde, Polymer with Benzenamine, Hydrogenated	Ingestion	Not classified for male reproduction	Rat	NOAEL 140 mg/kg/day	28 days
Formaldehyde, Polymer with Benzenamine, Hydrogenated	Ingestion	Not classified for development	Rat	NOAEL 280 mg/kg/day	during gestation
N-Aminoethylpiperazine	Ingestion	Not classified for female reproduction	Rat	NOAEL 598 mg/kg/day	premating & during gestation
N-Aminoethylpiperazine	Ingestion	Not classified for male reproduction	Rat	NOAEL 409 mg/kg/day	32 days
N-Aminoethylpiperazine	Ingestion	Toxic to development	Rabbit	NOAEL 75 mg/kg/day	during gestation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Bis(3-Aminopropyl) Ether of Diethylene Glycol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
Methylenedi(cyclohexylamine)	Inhalation	respiratory irritation	May cause respiratory irritation	similar health hazards	NOAEL Not available	
2-Propenenitrile, Polymer with 1,3-Butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL not available	
Treated Filler	Inhalation	respiratory system	Not classified	Rat	NOAEL 0.812 mg/l	90 minutes
2,4,6-Tris(dimethylaminomonomethyl)phenol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
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	
Formaldehyde, Polymer with Benzenamine, Hydrogenated	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
N-Aminoethylpiperazine	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Bis(3-Aminopropyl) Ether of Diethylene Glycol	Ingestion	gastrointestinal tract | heart | endocrine system | bone, teeth, nails, and/or hair | hematopoietic system | liver | immune system | muscles | nervous system | eyes | kidney and/or bladder | respiratory system | vascular system	Not classified	Rat	NOAEL 600 mg/kg/day	59 days
Aluminum	Inhalation	nervous system | respiratory system	Not classified	Human	NOAEL Not available	occupational exposure

Methylenedi(cyclohexylamine)	Ingestion	liver | muscles	May cause damage to organs though prolonged or repeated exposure	Rat	NOAEL 15 mg/kg/day	36 days
Treated Inorganic Filler	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure
Treated Filler	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
Mineral Filler	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
Mineral Filler	Inhalation	pulmonary fibrosis	Not classified	Human and animal	NOAEL Not available	
Mineral Filler	Ingestion	liver | kidney and/or bladder | hematopoietic system	Not classified	Rat	NOAEL 2,500 mg/kg/day	2 years
2,4,6-Tris(dimethylaminomonomethyl)phenol	Dermal	skin	Not classified	Rat	NOAEL 25 mg/kg/day	4 weeks
2,4,6-Tris(dimethylaminomonomethyl)phenol	Dermal	liver | nervous system | auditory system | hematopoietic system | eyes	Not classified	Rat	NOAEL 125 mg/kg/day	4 weeks
2,4,6-Tris(dimethylaminomonomethyl)phenol	Ingestion	heart | endocrine system | hematopoietic system | liver | muscles | nervous system | kidney and/or bladder | respiratory system | vascular system | auditory system | skin | gastrointestinal tract | bone, teeth, nails, and/or hair | immune system | eyes	Not classified	Rat	NOAEL 150 mg/kg/day	90 days
m-Xylene-.alpha.alpha'.Diamine	Ingestion	endocrine system | blood | bone marrow	Not classified	Rat	NOAEL 600 mg/kg/day	28 days
Formaldehyde, Polymer with Benzenamine, Hydrogenated	Ingestion	kidney and/or bladder	May cause damage to organs though prolonged or repeated exposure	Rat	NOAEL 15 mg/kg/day	28 days
Formaldehyde, Polymer with Benzenamine, Hydrogenated	Ingestion	endocrine system | hematopoietic system | liver | nervous system	Not classified	Rat	NOAEL 300 mg/kg/day	28 days
Inorganic Filler	Inhalation	respiratory system	Not classified	Human	NOAEL not available	occupational exposure
N-Aminoethylpiperazine	Dermal	skin	Not classified	Rat	NOAEL 100 mg/kg/day	29 days
N-Aminoethylpiperazine	Dermal	hematopoietic system | nervous system | kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	29 days
N-Aminoethylpiperazine	Inhalation	respiratory system	Causes damage to organs through prolonged or repeated exposure	Rat	NOAEL 0.2 mg/m3	13 weeks
N-Aminoethylpiperazine	Inhalation	hematopoietic system | eyes | kidney and/or bladder	Not classified	Rat	NOAEL 53.8 mg/m3	13 weeks
N-Aminoethylpiperazine	Ingestion	heart | endocrine system | hematopoietic system | liver |	Not classified	Rat	NOAEL 598 mg/kg/day	28 days

		nervous system | kidney and/or bladder				
Quartz Silica	Inhalation	silicosis	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	occupational exposure

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

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

SECTION 12: Ecological information

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

12.1. Toxicity

Acute aquatic hazard:
GHS Acute 3: Harmful to aquatic life.

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

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
Bis(3-Aminopropyl) Ether of Diethylene Glycol	4246-51-9	Bacteria	Experimental	17 hours	EC50	4,000 mg/l
Bis(3-Aminopropyl) Ether of Diethylene Glycol	4246-51-9	Golden Orfe	Experimental	96 hours	LC50	>1,000 mg/l
Bis(3-Aminopropyl) Ether of Diethylene Glycol	4246-51-9	Green algae	Experimental	72 hours	EC50	>500 mg/l
Bis(3-Aminopropyl) Ether of Diethylene Glycol	4246-51-9	Water flea	Experimental	48 hours	EC50	218.16 mg/l
Bis(3-Aminopropyl) Ether of Diethylene Glycol	4246-51-9	Green algae	Experimental	72 hours	EC10	5.4 mg/l
Epoxy Copolymer	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Acrylic Copolymer	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
2-Propenenitrile, Polymer with 1,3-Butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-	68683-29-4	N/A	Data not available or insufficient for classification	N/A	N/A	N/A

piperazinyl)ethyl]amino]butyl-terminated						
Aluminum	7429-90-5	Fish	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminum	7429-90-5	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminum	7429-90-5	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminum	7429-90-5	Green algae	Experimental	72 hours	No tox obs at lmt of water sol	100 mg/l
Aluminum	7429-90-5	Water flea	Experimental	21 days	NOEC	0.076 mg/l
Methylenedi(cyclohexylamine)	1761-71-3	Golden Orfe	Experimental	96 hours	LC50	>100 mg/l
Methylenedi(cyclohexylamine)	1761-71-3	Green algae	Experimental	72 hours	EC50	140 mg/l
Methylenedi(cyclohexylamine)	1761-71-3	Water flea	Experimental	48 hours	EC50	7.07 mg/l
Methylenedi(cyclohexylamine)	1761-71-3	Water flea	Analogous Compound	21 days	NOEC	4 mg/l
Methylenedi(cyclohexylamine)	1761-71-3	Green algae	Experimental	72 hours	EC10	100 mg/l
Methylenedi(cyclohexylamine)	1761-71-3	Redworm	Analogous Compound	56 days	EC10	228 mg/kg (Dry Weight)
Methylenedi(cyclohexylamine)	1761-71-3	Soil microbes	Analogous Compound	28 days	EC10	>1,000 mg/kg (Dry Weight)
Methylenedi(cyclohexylamine)	1761-71-3	Bacteria	Experimental	30 minutes	EC50	156 mg/l
Treated Inorganic Filler	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Inorganic Filler	Trade Secret	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
Inorganic Filler	Trade Secret	Water flea	Experimental	72 hours	EC50	>1,000 mg/l
Inorganic Filler	Trade Secret	Zebra Fish	Experimental	96 hours	LC50	>1,000 mg/l
Inorganic Filler	Trade Secret	Green algae	Experimental	72 hours	NOEC	>=1,000 mg/l
Mineral Filler	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Treated Filler	Trade Secret	Green algae	Estimated	72 hours	EC50	>100 mg/l
Treated Filler	Trade Secret	Rainbow Trout	Estimated	96 hours	LC50	>100 mg/l
Treated Filler	Trade Secret	Water flea	Estimated	48 hours	EC50	>100 mg/l
Treated Filler	Trade Secret	Green algae	Estimated	72 hours	EC10	>100 mg/l
2,4,6-Tris(dimethylaminomonomethyl)phenol	90-72-2	N/A	Experimental	96 hours	LC50	718 mg/l
2,4,6-Tris(dimethylaminomonomethyl)phenol	90-72-2	Common Carp	Experimental	96 hours	LC50	>100 mg/l
2,4,6-Tris(dimethylaminomonomethyl)phenol	90-72-2	Green algae	Experimental	72 hours	EC50	46.7 mg/l
2,4,6-Tris(dimethylaminomonomethyl)phenol	90-72-2	Water flea	Experimental	48 hours	EC50	>100 mg/l
2,4,6-Tris(dimethylaminomonomethyl)phenol	90-72-2	Green algae	Experimental	72 hours	NOEC	6.44 mg/l
Formaldehyde, Polymer with Benzenamine, Hydrogenated	135108-88-2	Activated sludge	Experimental	3 hours	EC50	186.7 mg/l
Formaldehyde,	135108-88-2	Green algae	Experimental	72 hours	EC50	43.94 mg/l

Polymer with Benzenamine, Hydrogenated						
Formaldehyde, Polymer with Benzenamine, Hydrogenated	135108-88-2	Guppy	Experimental	96 hours	LC50	63 mg/l
Formaldehyde, Polymer with Benzenamine, Hydrogenated	135108-88-2	Water flea	Experimental	48 hours	EC50	15.4 mg/l
Formaldehyde, Polymer with Benzenamine, Hydrogenated	135108-88-2	Green algae	Experimental	72 hours	EC10	1.2 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
N-Aminoethylpiperazine	140-31-8	Bacteria	Experimental	17 hours	EC10	100 mg/l
N-Aminoethylpiperazine	140-31-8	Golden Orfe	Experimental	96 hours	LC50	368 mg/l
N-Aminoethylpiperazine	140-31-8	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
N-Aminoethylpiperazine	140-31-8	Water flea	Experimental	48 hours	EC50	58 mg/l
N-Aminoethylpiperazine	140-31-8	Green algae	Experimental	72 hours	NOEC	31 mg/l
Quartz Silica	14808-60-7	Green algae	Estimated	72 hours	EC50	440 mg/l
Quartz Silica	14808-60-7	Water flea	Estimated	48 hours	EC50	7,600 mg/l
Quartz Silica	14808-60-7	Zebra Fish	Estimated	96 hours	LC50	5,000 mg/l
Quartz Silica	14808-60-7	Green algae	Estimated	72 hours	NOEC	60 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
Bis(3-Aminopropyl) Ether of Diethylene Glycol	4246-51-9	Experimental Biodegradation	25 days	Carbon dioxide evolution	-8 %CO2 evolution/THCO2 evolution	OECD 301B - Mod. Sturm or CO2

Bis(3-Aminopropyl) Ether of Diethylene Glycol	4246-51-9	Estimated Photolysis		Photolytic half-life (in air)	2.96 hours (t 1/2)	
Epoxy Copolymer	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Acrylic Copolymer	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
2-Propenenitrile, Polymer with 1,3-Butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	68683-29-4	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Aluminum	7429-90-5	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Methylenedi(cyclohexylamine)	1761-71-3	Analogous Compound Biodegradation	28 days	Biological Oxygen Demand	0 %BOD/ThOD	OECD 301C - MITI (I)
Methylenedi(cyclohexylamine)	1761-71-3	Analogous Compound Aquatic Inherent Biodegrad.	28 days	Percent degraded	<1 %removal of DOC	OECD 302B Zahn-Wellens/EVPA
Treated Inorganic Filler	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Inorganic Filler	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Mineral Filler	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Treated Filler	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
2,4,6-Tris(dimethylaminomonomethyl)phenol	90-72-2	Experimental Biodegradation	28 days	Biological Oxygen Demand	4 %BOD/ThOD	OECD 301D - Closed Bottle Test
Formaldehyde, Polymer with Benzenamine, Hydrogenated	135108-88-2	Experimental Biodegradation	28 days	Biological Oxygen Demand	0 %BOD/ThOD	
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)
N-Aminoethylpiperazine	140-31-8	Experimental Biodegradation	28 days	Biological Oxygen Demand	0 %BOD/ThOD	OECD 301C - MITI (I)
Quartz Silica	14808-60-7	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
Bis(3-Aminopropyl) Ether of Diethylene Glycol	4246-51-9	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	-1.25	
Epoxy Copolymer	Trade Secret	Estimated Bioconcentration		Bioaccumulation Factor	2.9	
Acrylic Copolymer	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
2-Propenenitrile, Polymer with 1,3-	68683-29-4	Data not available or insufficient for	N/A	N/A	N/A	N/A

Butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated		classification				
Aluminum	7429-90-5	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Methylenedi(cyclohexylamine)	1761-71-3	Analogous Compound BCF - Fish		Bioaccumulation Factor	<60	OECD305-Bioconcentration
Methylenedi(cyclohexylamine)	1761-71-3	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	2.03	OECD 107 log Kow shke flsk mtd
Treated Inorganic Filler	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Inorganic Filler	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Mineral Filler	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Treated Filler	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
2,4,6-Tris(dimethylaminomonomethyl)phenol	90-72-2	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	-0.66	830.7550 Part.Coef Shake Flask
Formaldehyde, Polymer with Benzenamine, Hydrogenated	135108-88-2	Experimental BCF - Fish	56 days	Bioaccumulation Factor	≤ 219	OECD305-Bioconcentration
Formaldehyde, Polymer with Benzenamine, Hydrogenated	135108-88-2	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	2.68	EC A.8 Partition Coefficient
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
N-Aminoethylpiperazine	140-31-8	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	0.3	
Quartz Silica	14808-60-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

12.4. Mobility in soil
Please contact manufacturer for more details

12.5 Other adverse effects
No information available

SECTION 13: Disposal considerations

13.1. Disposal methods

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

SECTION 14: Transport Information

Marine Transport (IMDG)

UN Number:UN2735
Proper Shipping Name:AMINES, LIQUID, CORROSIVE, N.O.S.
Technical Name: None assigned.
Hazard Class/Division:8
Subsidiary Risk: None assigned.
Packing Group:II
Limited Quantity: None assigned.
Marine Pollutant: Yes
Marine Pollutant Technical Name: None assigned.
Other Dangerous Goods Descriptions:
None assigned.

Air Transport (IATA)

UN Number:UN2735
Proper Shipping Name:AMINES, LIQUID, CORROSIVE, N.O.S.
Technical Name: None assigned.
Hazard Class/Division:8
Subsidiary Risk: None assigned.
Packing Group:II
Limited Quantity: None assigned.
Marine Pollutant: Yes
Marine Pollutant Technical Name: None assigned.
Other Dangerous Goods Descriptions:
None assigned.

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

SECTION 15: Regulatory information

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

Global inventory status
Contact 3M for more information. The components of this material are in compliance with the provisions of the Korea Chemical Control Act. Certain restrictions may apply. Contact the selling division for additional information. The components of this product are in compliance with the new substance notification requirements of CEPA. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

SECTION 16: Other information

DISCLAIMER: The information in this Safety Data Sheet (SDS) is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use

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

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™ Impact Resistant Structural Adhesive (Part B) PNs 07333, 57333

Product Identification Numbers
UU-0127-4525-1

1.2. Recommended use and restrictions on use

Recommended use
Automotive, Base side of two-part color changing adhesive with optimized shear, peel and impact performance.

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
Serious Eye Damage/Irritation: Category 2.
Skin Sensitizer: Category 1.
Germ Cell Mutagenicity: Category 2.
Carcinogenicity: Category 1B.
Chronic Aquatic Toxicity: Category 2.

2.2. Label elements
Signal word
Danger

Symbols
Exclamation mark |Health Hazard |Environment |

Pictograms



Hazard Statements:

H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements
General:

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

Prevention:

P201	Obtain special instructions before use.
P273	Avoid release to the environment.
P280E	Wear protective gloves.
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.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

Storage:

P405	Store locked up.

Disposal:

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

2.3. Other hazards
None known

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	25068-38-6	70 - 90
Synthetic Rubber	Trade Secret	4 - 20
Treated Filler	Trade Secret	1 - 5
Treated Inorganic Filler	Trade Secret	1 - 5

Inorganic Filler	Trade Secret	1 - 5
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	1 - 5
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	14228-73-0	1 - 5
3-(Trimethoxysilyl)Propyl Glycidyl Ether	2530-83-8	< 3
Phenolphthalein	77-09-8	0.1 - 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 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
Aldehydes	During Combustion
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion
Hydrogen Chloride	During Combustion

5.3. Special protective actions for fire-fighters
When fire fighting conditions are severe and total thermal decomposition of the product is possible, 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. 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
Keep out of reach of children. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (gloves, respirators, etc.) as required.

7.2. Conditions for safe storage including any incompatibilities
Store away from heat. 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
Inorganic Filler	Trade Secret	ACGIH	TWA(inhalable particulates):10 mg/m3	
Inorganic Filler	Trade Secret	ACGIH	TWA(respirable particles):3 mg/m3	
Inorganic Filler	Trade Secret	Malaysia OELs	TWA (proposed)(respirable particles)(8 hours):3 mg/m3;TWA (proposed)(Inhalable particulate)(8 hours):10 mg/m3	
Treated Filler	Trade Secret	ACGIH	TWA(inhalable particulates):10 mg/m3	
Treated Filler	Trade Secret	ACGIH	TWA(respirable particles):3 mg/m3	
Treated Filler	Trade Secret	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.

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. 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

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
Color	Silver-Gray
Odor	Very Slight Acrylic
Odor threshold	*No Data Available*
pH	*No Data Available*
Melting point/Freezing point	*No Data Available*
Boiling point/Initial boiling point/Boiling range	35 ºC
Flash Point	103.9 ºC [*Test Method:*Closed Cup]
Evaporation rate	*No Data Available*
Flammability	Not Applicable

Flammable Limits(LEL)	*No Data Available*
Flammable Limits(UEL)	*No Data Available*
Vapor Pressure	666.6 Pa
Relative Vapor Density	*No Data Available*
Density	1.132 g/ml
Relative Density	1.132 [*Ref Std:*WATER=1]
Water solubility	*No Data Available*
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	441,696 mm2/sec
Volatile Organic Compounds	0.1 % weight [*Details:*calculated per CARB title 2]
Volatile Organic Compounds	1 g/l [*Details:*calculated per SCAQMD 443.1]
Percent volatile	0.1 % weight
VOC Less H2O & Exempt Solvents	1 g/l [*Details:*calculated per SCAQMD 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
Heat
Sparks and/or flames

10.5. Incompatible materials
Strong acids
Strong oxidizing agents

10.6. Hazardous decomposition products

Substance	**Condition**
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

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

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

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

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

Skin Contact:
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, and dryness. 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.

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.

Genotoxicity:
Genotoxicity and Mutagenicity: May interact with genetic material and possibly alter gene expression.

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

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

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE >5,000 mg/kg
Overall product	Inhalation-Dust/Mist(4 hr)		No data available; calculated ATE >5 - =12.5 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	Dermal	Rat	LD50 > 1,600 mg/kg
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	Ingestion	Rat	LD50 > 1,000 mg/kg
Treated Filler	Dermal	Rat	LD50 > 2,000 mg/kg
Treated Filler	Inhalation-Dust/Mist (4 hours)	Rat	LC50 3 mg/l
Treated Filler	Ingestion	Rat	LD50 6,450 mg/kg
Benzoic Acid, C9-C11-Branched Alkyl Esters	Dermal	Rabbit	LD50 > 2,000 mg/kg
Benzoic Acid, C9-C11-Branched Alkyl Esters	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.5 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	Ingestion	Rat	LD50 > 5,000 mg/kg
Treated Inorganic Filler	Dermal	Rabbit	LD50 > 5,000 mg/kg

Treated Inorganic Filler	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Treated Inorganic Filler	Ingestion	Rat	LD50 > 5,110 mg/kg
Inorganic Filler	Dermal	Rabbit	LD50 > 5,000 mg/kg
Inorganic Filler	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Inorganic Filler	Ingestion	Rat	LD50 > 5,110 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
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	Ingestion	Rat	LD50 1,000 mg/kg
Phenolphthalein	Ingestion	Rat	LD50 > 10,500 mg/kg
Phenolphthalein	Dermal	similar health hazards	LD50 estimated to be > 5,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	Rabbit	Mild irritant
Treated Filler	Rabbit	No significant irritation
Benzoic Acid, C9-C11-Branched Alkyl Esters	Rabbit	Minimal irritation
Treated Inorganic Filler	Rabbit	No significant irritation
Inorganic Filler	Rabbit	No significant irritation
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Rabbit	Mild irritant
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	In vitro data	Irritant
Phenolphthalein	In vitro data	Irritant

Serious Eye Damage/Irritation

Name	Species	Value
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	Rabbit	Moderate irritant
Treated Filler	Rabbit	No significant irritation
Benzoic Acid, C9-C11-Branched Alkyl Esters	Rabbit	Mild irritant
Treated Inorganic Filler	Rabbit	No significant irritation
Inorganic Filler	Rabbit	No significant irritation
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Rabbit	Corrosive
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	In vitro data	No significant irritation
Phenolphthalein	In vitro data	No significant irritation

Sensitization:

Skin Sensitization

Name	Species	Value
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	Human and animal	Sensitizing
Benzoic Acid, C9-C11-Branched Alkyl Esters	Guinea pig	Not classified
Treated Inorganic Filler	Human and animal	Not classified
Inorganic Filler	Human and	Not classified

	animal	
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Guinea pig	Not classified
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	similar compounds	Sensitizing
Phenolphthalein	Mouse	Not classified

Respiratory Sensitization

Name	Species	Value
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
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
Benzoic Acid, C9-C11-Branched Alkyl Esters	In Vitro	Not mutagenic
Benzoic Acid, C9-C11-Branched Alkyl Esters	In vivo	Not mutagenic
Treated Inorganic Filler	In Vitro	Not mutagenic
Inorganic Filler	In Vitro	Not mutagenic
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
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	In Vitro	Mutagenic; structurally related to germ cell mutagens
Phenolphthalein	In Vitro	Some positive data exist, but the data are not sufficient for classification
Phenolphthalein	In vivo	Mutagenic

Carcinogenicity

Name	Route	Species	Value
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Treated Inorganic Filler	Not Specified	Mouse	Some positive data exist, but the data are not sufficient for classification
Inorganic Filler	Not Specified	Mouse	Some positive data exist, but the data are not sufficient for classification
3-(Trimethoxysilyl)Propyl Glycidyl Ether	Dermal	Mouse	Not carcinogenic
Phenolphthalein	Ingestion	Multiple animal species	Carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
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
Treated Filler	Ingestion	Not classified for development	Rat	NOAEL 625 mg/kg/day	premating & during gestation
Benzoic Acid, C9-C11-Branched Alkyl Esters	Ingestion	Not classified for female reproduction	Rat	NOAEL 641 mg/kg/day	2 generation

Benzoic Acid, C9-C11-Branched Alkyl Esters	Ingestion	Not classified for male reproduction	Rat	NOAEL 676 mg/kg/day	2 generation
Benzoic Acid, C9-C11-Branched Alkyl Esters	Ingestion	Not classified for development	Rat	NOAEL 191 mg/kg/day	2 generation
Treated Inorganic Filler	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Treated Inorganic Filler	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Treated Inorganic Filler	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
Inorganic Filler	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Inorganic Filler	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Inorganic Filler	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	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
Phenolphthalein	Ingestion	Toxic to female reproduction	Mouse	NOAEL 150 mg/kg/day	1 generation
Phenolphthalein	Ingestion	Toxic to male reproduction	Mouse	NOAEL 150 mg/kg/day	1 generation
Phenolphthalein	Ingestion	Toxic to development	Mouse	NOAEL 150 mg/kg/day	1 generation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Treated Filler	Inhalation	respiratory system	Not classified	Rat	NOAEL 0.812 mg/l	90 minutes
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
Phenolphthalein	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
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 | heart | endocrine system | hematopoietic system | liver | eyes | kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Treated Filler	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure

Benzoic Acid, C9-C11-Branched Alkyl Esters	Ingestion	heart | skin | endocrine system | gastrointestinal tract | bone, teeth, nails, and/or hair | hematopoietic system | liver | immune system | muscles | nervous system | eyes | kidney and/or bladder | respiratory system | vascular system	Not classified	Rat	NOAEL 619 mg/kg/day	91 days
Treated Inorganic Filler	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure
Inorganic Filler	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure
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
Phenolphthalein	Ingestion	liver | heart | skin | endocrine system | gastrointestinal tract | bone, teeth, nails, and/or hair | hematopoietic system | immune system | nervous system | kidney and/or bladder | respiratory system	Not classified	Rat	NOAEL 3,500 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 2: Toxic to aquatic life.

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

No product test data available

Material	Cas #	Organism	Type	Exposure	Test Endpoint	Test Result
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	25068-38-6	Activated sludge	Estimated	3 hours	IC50	>100 mg/l
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	25068-38-6	Green algae	Estimated	72 hours	EC50	>11 mg/l
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	25068-38-6	Rainbow Trout	Estimated	96 hours	LC50	2 mg/l
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	25068-38-6	Water flea	Estimated	48 hours	EC50	1.8 mg/l
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	25068-38-6	Green algae	Estimated	72 hours	NOEC	4.2 mg/l
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	25068-38-6	Water flea	Estimated	21 days	NOEC	0.3 mg/l
Synthetic Rubber	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	14228-73-0	Bacteria	Estimated	18 hours	EC50	10,264 mg/l
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	14228-73-0	N/A	Experimental	72 hours	EC50	38 mg/l
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	14228-73-0	Water flea	Experimental	48 hours	EC50	71 mg/l
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	14228-73-0	N/A	Experimental	72 hours	EC10	18 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Green algae	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Rainbow Trout	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Fathead Minnow	Experimental	33 days	No tox obs at lmt of water sol	>100 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Green algae	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Midge	Experimental	28 days	NOEC	64.7 mg/kg (Dry Weight)
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Water flea	Experimental	21 days	No tox obs at lmt of water sol	>100 mg/l

Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Activated sludge	Experimental	3 hours	EC50	>100 mg/l
Inorganic Filler	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Treated Filler	Trade Secret	Green algae	Estimated	72 hours	EC50	>100 mg/l
Treated Filler	Trade Secret	Rainbow Trout	Estimated	96 hours	LC50	>100 mg/l
Treated Filler	Trade Secret	Water flea	Estimated	48 hours	EC50	>100 mg/l
Treated Filler	Trade Secret	Green algae	Estimated	72 hours	EC10	>100 mg/l
Treated Inorganic Filler	Trade Secret	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
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
Phenolphthalein	77-09-8	Green algae	Experimental	72 hours	ErC50	>3.33 mg/l
Phenolphthalein	77-09-8	Water flea	Experimental	48 hours	EC50	6.72 mg/l
Phenolphthalein	77-09-8	Green algae	Experimental	72 hours	ErC10	0.74 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	25068-38-6	Estimated Biodegradation	28 days	Biological Oxygen Demand	5 %BOD/COD	OECD 301F - Manometric Respiro
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	25068-38-6	Estimated Hydrolysis		Hydrolytic half-life	117 hours (t 1/2)	
Synthetic Rubber	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	14228-73-0	Experimental Biodegradation	28 days	Carbon dioxide evolution	1.3 %CO2 evolution/THCO2 evolution	OECD 301B - Mod. Sturm or CO2
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Experimental Biodegradation	28 days	Biological Oxygen Demand	77.7 %BOD/ThOD	OECD 301F - Manometric Respiro
Inorganic Filler	Trade Secret	Data not availbl-	N/A	N/A	N/A	N/A

		insufficient				
Treated Filler	Trade Secret	Data not availbl-insufficient	N/A	N/A	N/A	N/A
Treated Inorganic Filler	Trade Secret	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
Phenolphthalein	77-09-8	Experimental Biodegradation	28 days	Biological Oxygen Demand	76 %BOD/ThOD	OECD 301F - Manometric Respiro

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
4,4'-Isopropylidenediphenol-Epichlorohydrin Polymer	25068-38-6	Estimated Bioconcentration		Log of Octanol/H2O part. coeff	3.242	
Synthetic Rubber	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
1,4-Bis[(2,3-Epoxypropoxy)Methyl]Cyclohexane	14228-73-0	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	2.05	
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Modeled Bioconcentration		Bioaccumulation Factor	288	Catalogic™
Benzoic Acid, C9-C11-Branched Alkyl Esters	131298-44-7	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	4.61	EC A.8 Partition Coefficient
Inorganic Filler	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Treated Filler	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Treated Inorganic Filler	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
3-(Trimethoxysilyl)Propyl Glycidyl Ether	2530-83-8	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	0.5	Episuite™
Phenolphthalein	77-09-8	Experimental Bioconcentration		Log of Octanol/H2O part. coeff	0.9	EC A.8 Partition Coefficient

12.4. Mobility in soil
Please contact manufacturer for more details

12.5 Other adverse effects
No information available

SECTION 13: Disposal considerations

13.1. Disposal methods

According to the Environmental Quality (Scheduled Wastes) Regulations 2005, scheduled waste has to be sent to a prescribed

premise for recycling, treatment or disposal. Please approach Kualiti Alam for proper schedule waste classification and disposal.

SECTION 14: Transport Information

Marine Transport (IMDG)

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

Air Transport (IATA)

UN Number:UN3082
Proper Shipping Name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name: None assigned.
Hazard Class/Division:9
Subsidiary Risk: None assigned.
Packing Group:III
Limited Quantity: None assigned.
Marine Pollutant: 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 Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of Japan Industrial Safety and Health Law. 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. 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