



Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the SS586 Specification for Hazard Communication for Hazardous Chemicals and Dangerous Goods.

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SECTION 1: Identification

1.1. Product identifier

3M™ Fire Barrier Moldable Putty Stix MP+

1.2. Recommended use and restrictions on use

Recommended use

Passive fire protection in industrial applications

1.3. Supplier's details

Address: 3M Technologies (S) Pte Ltd,10 Ang Mo Kio Street 65, Singapore 569059
Telephone: +65 6450 8888
Website: www.3m.com.sg

1.4. Emergency telephone number

+65 6591 6601 (8.15am - 5.00pm, Monday - Friday)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Skin Corrosion/Irritation: Category 2.
Serious Eye Damage/Irritation: Category 1.
Germ Cell Mutagenicity: Category 2.
Carcinogenicity: Category 2.
Reproductive Toxicity: Category 2.
Specific Target Organ Toxicity (repeated exposure): Category 2.
Chronic Aquatic Toxicity: Category 2.

2.2. Label elements

SIGNAL WORD

DANGER!

Symbols

Corrosion | Health Hazard | Environment |

Pictograms

**HAZARD STATEMENTS**

H315	Causes skin irritation.
H318	Causes serious eye damage.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure: kidney/urinary tract.
H411	Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS**Prevention:**

P273	Avoid release to the environment.
P280B	Wear protective gloves and eye/face protection.

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.
P310	Immediately call a POISON CENTER or doctor/physician.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P391	Collect spillage.

Storage:

P405	Store locked up.
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Disposal:

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

None known.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Wt
Boron zinc hydroxide oxide	138265-88-0	< 25
Styrene-Butadiene Polymer	9003-55-8	10 - 20
Petrolatum	8009-03-8	10 - 20
Polyisobutylene	9003-27-4	10 - 20
Silicic acid, sodium salt	1344-09-8	10 - 19
Melamine Phosphate	41583-09-9	< 10
Oxide Glass Chemicals	65997-17-3	1 - 10
Butadiene-Styrene-Meta-Divinylbenzene Polymer	26471-45-4	1 - 5
Fatty Acids, C14-18 and C16-C18-Unsatd.	67701-06-8	< 3

Alpha-Methylstyrene-Isoamylene-Piperylene Polymer	62258-49-5	< 3
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	25036-25-3	< 3
Regenerated Cellulose	68442-85-3	< 3
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	< 3
Water	7732-18-5	< 3
Rayon Fiber	None	< 3

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 for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately 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

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

Use a fire fighting agent suitable for the surrounding fire.

5.2. Special hazards arising from the substance or mixture

None inherent in this product.

Hazardous Decomposition or By-Products

Substance

Aldehydes.
Carbon monoxide.
Carbon dioxide.
Hydrogen Chloride

Condition

During combustion.
During combustion.
During combustion.
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. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

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/vapours/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. Avoid release to the environment. Use personal protective equipment (eg. gloves, respirators...) as required.

7.2. Conditions for safe storage including any incompatibilities

No special storage requirements.

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	CAS Nbr	Agency	Limit type	Additional comments
CAS NO SEQ806440	65997-17-3	Singapore PELs	TWA(as fiber)(8 hours):10 mg/m ³	
Oxide Glass Chemicals	65997-17-3	Manufacturer determined	TWA(as non-fibrous, respirable)(8 hours):3 mg/m ³ ;TWA(as non-fibrous, inhalable fraction)(8 hours):10 mg/m ³	
MINERAL OILS, HIGHLY-REFINED OILS	8009-03-8	ACGIH	TWA(inhalable fraction):5 mg/m ³	A4: Not class. as human carcin
Oil mist mineral	8009-03-8	Singapore PELs	TWA(as mist)(8 hours):5 mg/m ³ ;STEL(as mist)(15 minutes):10 mg/m ³	

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association

CMRG : Chemical Manufacturer's Recommended Guidelines

Singapore PELs : Singapore. Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order

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/vapours/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. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.

Gloves made from the following material(s) are recommended: 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 vapours 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	Solid.
Specific Physical Form:	Putty
Color	Red
Odor	Odorless
Odour threshold	<i>No data available.</i>
pH	<i>No data available.</i>
Melting point/Freezing point	<i>Not applicable.</i>
Boiling point/Initial boiling point/Boiling range	<i>Not applicable.</i>
Flash point	Flash point > 93 °C (200 °F)
Evaporation rate	<i>Not applicable.</i>
Flammability	Not applicable.
Flammable Limits(LEL)	<i>Not applicable.</i>
Flammable Limits(UEL)	<i>Not applicable.</i>
Vapour pressure	<i>Not applicable.</i>
Vapor Density and/or Relative Vapor Density	<i>Not applicable.</i>
Density	1.25 g/cm ³
Relative density	1.25 [Ref Std: WATER=1]
Water solubility	<i>No data available.</i>
Solubility- non-water	<i>No data available.</i>
Partition coefficient: n-octanol/water	<i>No data available.</i>

Autoignition temperature	<i>Not applicable.</i>
Decomposition temperature	<i>No data available.</i>
Kinematic Viscosity	<i>No data available.</i>
Volatile organic compounds (VOC)	< 1 % weight
VOC less H ₂ O & exempt solvents	< 1 g/l
Molecular weight	<i>No data available.</i>

Particle Characteristics	<i>Not applicable.</i>
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SECTION 10: Stability and reactivity

10.1 Reactivity

This material is considered to be non reactive under normal use conditions

10.2 Chemical stability

Stable.

10.3 Possibility of hazardous reactions

Hazardous polymerisation will not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

None known.

10.6 Hazardous decomposition products

Substance

Condition

None known.

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

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

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

May be harmful if swallowed.

Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea. May cause additional health effects (see below).

Additional Health Effects:

Prolonged or repeated exposure may cause target organ effects:

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.

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-Vapor(4 hr)		No data available; calculated ATE >50 mg/l
Overall product	Ingestion		No data available; calculated ATE >2,000 - =5,000 mg/kg
Boron zinc hydroxide oxide	Dermal	Rabbit	LD50 > 5,000 mg/kg
Boron zinc hydroxide oxide	Inhalation-Dust/Mist	Rat	LC50 > 4.95 mg/l
Boron zinc hydroxide oxide	Ingestion	Rat	LD50 > 5,000 mg/kg
Silicic acid, sodium salt	Dermal	Rabbit	LD50 > 4,640 mg/kg
Silicic acid, sodium salt	Ingestion	Rat	LD50 500 mg/kg
Petrolatum	Dermal		LD50 estimated to be > 5,000 mg/kg
Petrolatum	Ingestion	Rat	LD50 > 5,000 mg/kg
Styrene-Butadiene Polymer	Dermal	Rabbit	LD50 > 2,000 mg/kg
Styrene-Butadiene Polymer	Ingestion	Rat	LD50 > 5,000 mg/kg
Polyisobutylene	Dermal		LD50 estimated to be > 5,000 mg/kg
Polyisobutylene	Ingestion	Rat	LD50 > 2,000 mg/kg
Melamine Phosphate	Dermal	Professional judgement	LD50 estimated to be > 5,000 mg/kg
Melamine Phosphate	Ingestion	Rat	LD50 > 2,000 mg/kg
Melamine Phosphate	Inhalation-Dust/Mist (4 hours)	similar compounds	LC50 > 5.19 mg/l
Oxide Glass Chemicals	Dermal		LD50 estimated to be > 5,000 mg/kg
Oxide Glass Chemicals	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
Butadiene-Styrene-Meta-Divinylbenzene Polymer	Dermal		LD50 estimated to be > 5,000 mg/kg
Butadiene-Styrene-Meta-Divinylbenzene Polymer	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
Synthetic amorphous silica, fumed, crystalline-free	Dermal	Rabbit	LD50 > 5,000 mg/kg

3M™ Fire Barrier Moldable Putty Stix MP+

Synthetic amorphous silica, fumed, crystalline-free	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Synthetic amorphous silica, fumed, crystalline-free	Ingestion	Rat	LD50 > 5,110 mg/kg
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Dermal	Rat	LD50 > 1,600 mg/kg
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	Rat	LD50 > 1,000 mg/kg
Alpha-Methylstyrene-Isoamylene-Piperylene Polymer	Dermal		LD50 estimated to be > 5,000 mg/kg
Alpha-Methylstyrene-Isoamylene-Piperylene Polymer	Ingestion	Rat	LD50 > 40,000 mg/kg
Fatty Acids, C14-18 and C16-C18-Unsatd.	Ingestion	Rat	LD50 > 2,000 mg/kg
Fatty Acids, C14-18 and C16-C18-Unsatd.	Dermal	similar compounds	LD50 > 2,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Boron zinc hydroxide oxide	Rabbit	No significant irritation
Silicic acid, sodium salt	Rabbit	Corrosive
Styrene-Butadiene Polymer	Professional judgement	No significant irritation
Polyisobutylene	Rabbit	No significant irritation
Melamine Phosphate	In vitro data	No significant irritation
Oxide Glass Chemicals	Professional judgement	No significant irritation
Butadiene-Styrene-Meta-Divinylbenzene Polymer	Professional judgement	Minimal irritation
Synthetic amorphous silica, fumed, crystalline-free	Rabbit	No significant irritation
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Rabbit	No significant irritation
Fatty Acids, C14-18 and C16-C18-Unsatd.	similar compounds	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Boron zinc hydroxide oxide	Rabbit	Severe irritant
Silicic acid, sodium salt	In vitro data	Corrosive
Polyisobutylene	Rabbit	No significant irritation
Melamine Phosphate	Rabbit	Mild irritant
Oxide Glass Chemicals	Professional judgement	No significant irritation
Synthetic amorphous silica, fumed, crystalline-free	Rabbit	No significant irritation
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Rabbit	Mild irritant
Fatty Acids, C14-18 and C16-C18-Unsatd.	similar compounds	Mild irritant

Sensitization:**Skin Sensitisation**

Name	Species	Value
Boron zinc hydroxide oxide	Guinea	Not classified

	pig	
Silicic acid, sodium salt	Mouse	Not classified
Melamine Phosphate	similar compounds	Not classified
Synthetic amorphous silica, fumed, crystalline-free	Human and animal	Not classified
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Guinea pig	Not classified
Fatty Acids, C14-18 and C16-C18-Unsatd.	similar compounds	Not classified

Respiratory Sensitisation

Name	Species	Value
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
Boron zinc hydroxide oxide	In Vitro	Some positive data exist, but the data are not sufficient for classification
Boron zinc hydroxide oxide	In vivo	Mutagenic
Silicic acid, sodium salt	In Vitro	Not mutagenic
Silicic acid, sodium salt	In vivo	Not mutagenic
Melamine Phosphate	In Vitro	Not mutagenic
Oxide Glass Chemicals	In Vitro	Some positive data exist, but the data are not sufficient for classification
Synthetic amorphous silica, fumed, crystalline-free	In Vitro	Not mutagenic
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	In vivo	Not mutagenic
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	In Vitro	Some positive data exist, but the data are not sufficient for classification
Fatty Acids, C14-18 and C16-C18-Unsatd.	In Vitro	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
Melamine Phosphate	Ingestion	similar compounds	Carcinogenic.
Oxide Glass Chemicals	Inhalation	Multiple animal species	Some positive data exist, but the data are not sufficient for classification
Synthetic amorphous silica, fumed, crystalline-free	Not specified.	Mouse	Some positive data exist, but the data are not sufficient for classification
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Boron zinc hydroxide oxide	Ingestion	Toxic to male reproduction	Rat	NOAEL 100 mg/kg/day	92 days
Boron zinc hydroxide oxide	Ingestion	Toxic to development	Rat	LOAEL 100 mg/kg/day	during gestation
Silicic acid, sodium salt	Ingestion	Not classified for development	Mouse	NOAEL 200 mg/kg/day	during gestation
Melamine Phosphate	Ingestion	Toxic to male reproduction	similar compounds	NOAEL Not available	2 generation
Synthetic amorphous silica, fumed,	Ingestion	Not classified for female reproduction	Rat	NOAEL 509	1 generation

crystalline-free					mg/kg/day	
Synthetic amorphous silica, fumed, crystalline-free	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation	
Synthetic amorphous silica, fumed, crystalline-free	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis	
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation	
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation	
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis	
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation	

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Boron zinc hydroxide oxide	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
Silicic acid, sodium salt	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
Boron zinc hydroxide oxide	Inhalation	immune system respiratory system heart endocrine system hematopoietic system liver nervous system kidney and/or bladder	Not classified	Rat	NOAEL 0.15 mg/l	2 weeks
Boron zinc hydroxide oxide	Ingestion	endocrine system liver kidney and/or bladder heart skin bone, teeth, nails, and/or hair hematopoietic system immune system nervous system eyes respiratory system vascular system	Not classified	Rat	NOAEL 375 mg/kg/day	92 days
Silicic acid, sodium salt	Ingestion	kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Dog	LOAEL 2,400 mg/kg/day	4 weeks
Silicic acid, sodium salt	Ingestion	endocrine system blood	Not classified	Rat	NOAEL 804 mg/kg/day	3 months
Silicic acid, sodium salt	Ingestion	heart liver	Not classified	Rat	NOAEL 1,259 mg/kg/day	8 weeks
Melamine Phosphate	Ingestion	kidney and/or bladder	Causes damage to organs through prolonged or repeated exposure	similar compounds	NOAEL Not available	90 days
Oxide Glass Chemicals	Inhalation	respiratory system	Not classified	Human	NOAEL not available	occupational exposure
Synthetic amorphous silica, fumed, crystalline-free	Inhalation	respiratory system silicosis	Not classified	Human	NOAEL Not available	occupational exposure

Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	Ingestion	auditory system heart endocrine system hematopoietic system liver eyes kidney and/or bladder	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 labelling, 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 Nbr	Organism	Type	Exposure	Test endpoint	Test result
Boron zinc hydroxide oxide	138265-88-0	Activated sludge	Estimated	4 hours	NOEC	0.33 mg/l
Boron zinc hydroxide oxide	138265-88-0	Green algae	Estimated	72 hours	IC50	0.45 mg/l
Boron zinc hydroxide oxide	138265-88-0	Rainbow trout	Estimated	96 hours	LC50	0.56 mg/l
Boron zinc hydroxide oxide	138265-88-0	Water flea	Estimated	48 hours	EC50	0.33 mg/l
Boron zinc hydroxide oxide	138265-88-0	Green algae	Estimated	72 hours	NOEC	0.02 mg/l
Boron zinc hydroxide oxide	138265-88-0	Invertebrate	Estimated	24 days	NOEC	0.02 mg/l
Boron zinc hydroxide oxide	138265-88-0	Rainbow trout	Estimated	25 days	NOEC	0.08 mg/l
Boron zinc hydroxide oxide	138265-88-0	Water flea	Estimated	21 days	NOEC	0.12 mg/l
Petrolatum	8009-03-8	Fathead minnow	Estimated	96 hours	LL50	>100 mg/l
Petrolatum	8009-03-8	Water flea	Estimated	48 hours	EL50	>10,000 mg/l
Petrolatum	8009-03-8	Green algae	Estimated	72 hours	NOEL	100 mg/l
Petrolatum	8009-03-8	Water flea	Estimated	21 days	NOEL	10 mg/l
Polyisobutylene	9003-27-4	N/A	Data not available or insufficient for	N/A	N/A	N/A

3M™ Fire Barrier Moldable Putty Stix MP+

			classification			
Styrene-Butadiene Polymer	9003-55-8	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Silicic acid, sodium salt	1344-09-8	Bacteria	Experimental	30 minutes	NOEC	>3,454 mg/l
Silicic acid, sodium salt	1344-09-8	Green algae	Experimental	72 hours	EC50	>345.4 mg/l
Silicic acid, sodium salt	1344-09-8	Rainbow trout	Experimental	96 hours	LC50	281 mg/l
Silicic acid, sodium salt	1344-09-8	Water flea	Experimental	48 hours	EC50	1,700 mg/l
Silicic acid, sodium salt	1344-09-8	Green algae	Experimental	72 hours	NOEC	35 mg/l
Melamine Phosphate	41583-09-9	Green algae	Analogous Compound	96 hours	EC50	1,700 mg/l
Melamine Phosphate	41583-09-9	Guppy	Analogous Compound	96 hours	LC50	>5,300 mg/l
Melamine Phosphate	41583-09-9	Water flea	Analogous Compound	48 hours	EC50	85 mg/l
Melamine Phosphate	41583-09-9	Green algae	Analogous Compound	96 hours	NOEC	>570 mg/l
Melamine Phosphate	41583-09-9	Water flea	Analogous Compound	21 days	NOEC	32 mg/l
Oxide Glass Chemicals	65997-17-3	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
Oxide Glass Chemicals	65997-17-3	Water flea	Experimental	72 hours	EC50	>1,000 mg/l
Oxide Glass Chemicals	65997-17-3	Zebra Fish	Experimental	96 hours	LC50	>1,000 mg/l
Oxide Glass Chemicals	65997-17-3	Green algae	Experimental	72 hours	NOEC	>=1,000 mg/l
Butadiene-Styrene-Meta-Divinylbenzene Polymer	26471-45-4	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Alpha-Methylstyrene-Isoamylene-Piperylene Polymer	62258-49-5	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	25036-25-3	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Fatty Acids, C14-18 and C16-C18-Unsatd.	67701-06-8	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Regenerated Cellulose	68442-85-3	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Green algae	Analogous Compound	72 hours	ErC50	>173.1 mg/l
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Sediment organism	Analogous Compound	96 hours	EC50	8,500 mg/kg (Dry Weight)
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Water flea	Analogous Compound	24 hours	EL50	>10,000 mg/l
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Zebra Fish	Analogous Compound	96 hours	LL50	>10,000 mg/l
Synthetic amorphous silica,	112945-52-5	Green algae	Analogous Compound	72 hours	NOEC	173.1 mg/l

fumed, crystalline-free						
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Water flea	Analogous Compound	21 days	NOEC	68 mg/l
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Activated sludge	Experimental	3 hours	EC50	>1,000 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Boron zinc hydroxide oxide	138265-88-0	Data not available-insufficient	N/A	N/A	N/A	N/A
Petrolatum	8009-03-8	Estimated Biodegradation	28 days	BOD	31 %BOD/COD	OECD 301F - Manometric respirometry
Polyisobutylene	9003-27-4	Estimated Biodegradation	28 days	CO2 evolution	2.8 %CO2 evolution/THCO2 evolution	Modeled
Styrene-Butadiene Polymer	9003-55-8	Data not available-insufficient	N/A	N/A	N/A	N/A
Silicic acid, sodium salt	1344-09-8	Data not available-insufficient	N/A	N/A	N/A	N/A
Melamine Phosphate	41583-09-9	Analogous Compound Biodegradation	14 days	BOD	0 %BOD/ThOD	OECD 301C - MITI test (I)
Oxide Glass Chemicals	65997-17-3	Data not available-insufficient	N/A	N/A	N/A	N/A
Butadiene-Styrene-Meta-Divinylbenzene Polymer	26471-45-4	Data not available-insufficient	N/A	N/A	N/A	N/A
Alpha-Methylstyrene-Isoamylene-Piperylene Polymer	62258-49-5	Estimated Biodegradation	28 days	CO2 evolution	18.7 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	25036-25-3	Estimated Biodegradation	28 days	BOD	7 %BOD/ThOD	OECD 301C - MITI test (I)
Fatty Acids, C14-18 and C16-C18-Unsatd.	67701-06-8	Analogous Compound Biodegradation	28 days	BOD	78 %BOD/ThOD	OECD 301C - MITI test (I)
Regenerated Cellulose	68442-85-3	Data not available-insufficient	N/A	N/A	N/A	N/A
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	Data not available-insufficient	N/A	N/A	N/A	N/A

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Boron zinc hydroxide oxide	138265-88-0	Estimated BCF - Fish	56 days	Bioaccumulation factor	242	OECD305-Bioconcentration

3M™ Fire Barrier Moldable Putty Stix MP+

Petrolatum	8009-03-8	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Polyisobutylene	9003-27-4	Estimated Bioconcentration		Bioaccumulation factor	8.8	
Styrene-Butadiene Polymer	9003-55-8	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Silicic acid, sodium salt	1344-09-8	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Melamine Phosphate	41583-09-9	Analogous Compound BCF - Fish	42 days	Bioaccumulation factor	<3.8	OECD305-Bioconcentration
Oxide Glass Chemicals	65997-17-3	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Butadiene-Styrene-Meta-Divinylbenzene Polymer	26471-45-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Alpha-Methylstyrene-Isoamylene-Piperylene Polymer	62258-49-5	Estimated Bioconcentration		Bioaccumulation factor	7.7	
Bisphenol A Diglycidyl Ether-Bisphenol A Copolymer	25036-25-3	Estimated Bioconcentration		Bioaccumulation factor	7.4	
Fatty Acids, C14-18 and C16-C18-Unsatd.	67701-06-8	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Regenerated Cellulose	68442-85-3	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Synthetic amorphous silica, fumed, crystalline-free	112945-52-5	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**

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

Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include halogen acid (HCl/HF/HBr). Facility must be capable of handling halogenated materials. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

SECTION 14: Transport Information**International Regulations**

UN No.: None assigned

UN Proper shipping name: None assigned

Transportation Class (IMO): None assigned

Transportation Class (IATA): None assigned

Other Dangerous Goods Descriptions (IMO): Not restricted, as per IMDG code 2.10.2.7, marine pollutant exception.

Other Dangerous Goods Descriptions (IATA): Not restricted, as per Special Provision A197, environmentally hazardous substance exception.

Packing Group: None assigned

Marine pollutant: None assigned

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. 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.

This product may contain component(s) that are regulated by the following:

Workplace Safety and Health Act & Workplace Safety and Health (General Provisions) Regulations: this product is subject to SDS, labelling, PEL and other requirements in the Act/Regulations.

Fire Safety (Petroleum and Flammable Materials) Regulations: This product is subject to the requirements in the Regulations
Environmental Protection and Management (Hazardous Substances) Regulations: This product is subject to the requirements in the Regulations

SECTION 16: Other information

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.

3M Singapore SDSs are available at www.3m.com.sg