Safety Data Sheet

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™ Filtek™ Z250 Universal Restorative (All Shades Except B0.5 and B1)

1.2. Recommended use and restrictions on use

Recommended use
Dental product, Restorative

Restrictions on use
For use by dental professionals only.

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 Sensitizer: Category 1.

2.2. Label elements
SIGNAL WORD
WARNING!

Symbols
Exclamation mark |

Pictograms

HAZARD STATEMENTS

H317 May cause an allergic skin reaction.

PRECAUTIONARY STATEMENTS

Prevention:

P280E Wear protective gloves.

Response:

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

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Wt
Silane Treated Ceramic	444758-98-9	75 - 85
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	1565-94-2	1 - 10
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	41637-38-1	1 - 10
Diurethane Dimethacrylate (UDMA)	72869-86-4	1 - 10
Triethylene Glycol Dimethacrylate (TEGDMA)	109-16-0	< 5
Aluminium oxide	1344-28-1	<= 1
N,N-DIMETHYLBENZOCAINE	10287-53-3	< 0.3

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

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

If swallowed

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

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

Allergic skin reaction (redness, swelling, blistering, and itching).

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

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

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

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide.	During combustion.
Carbon dioxide.	During combustion.

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.

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
Avoid breathing of dust created by cutting, sanding, grinding or machining. A no-touch technique is recommended. If skin contact occurs, wash skin with soap and water. Acrylates may penetrate commonly-used gloves. If product contacts glove, remove and discard glove, wash hands immediately with soap and water and then re-glove. Do not handle until all safety precautions have been read and understood. 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. Wash contaminated clothing before reuse. Do not get in eyes. 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
Aluminium oxide	1344-28-1	Singapore PELs	TWA(8 hours):10 mg/m3	
Aluminum, insoluble compounds	1344-28-1	ACGIH	TWA(respirable fraction):1 mg/m3	A4: Not class. as human carcin

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 in a well-ventilated area.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Safety glasses with side shields.

Skin/hand protection
See Section 7.1 for additional information on skin protection.

Respiratory protection
None required.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid.
Specific Physical Form:	Paste
Color	White
Odor	Slight Acrylate
Odour threshold	*No data available.*
pH	*Not applicable.*
Melting point/Freezing point	*No data available.*
Boiling point/Initial boiling point/Boiling range	*Not applicable.*
Flash point	No flash point
Evaporation rate	*Not applicable.*
Flammability	Not applicable.
Flammable Limits(LEL)	*Not applicable.*
Flammable Limits(UEL)	*Not applicable.*
Vapour pressure	*Not applicable.*
Vapor Density and/or Relative Vapor Density	*Not applicable.*
Density	2.1 g/cm3
Relative density	2.1 [*Ref Std:*WATER=1]

Water solubility	Negligible
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*Not applicable.*
Autoignition temperature	*No data available.*
Decomposition temperature	*No data available.*
Kinematic Viscosity	142,857 mm²/sec
Volatile organic compounds (VOC)	*No data available.*
Percent volatile	*No data available.*
VOC less H2O & exempt solvents	*No data available.*
Molecular weight	*No data available.*

Particle Characteristics	*Not applicable.*

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

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

Ingestion
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:

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

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

Acute Toxicity

Name	Route	Species	Value
Overall product	Ingestion		No data available; calculated ATE >2,000 - =5,000 mg/kg
Silane Treated Ceramic	Dermal		LD50 estimated to be > 5,000 mg/kg
Silane Treated Ceramic	Ingestion		LD50 estimated to be 2,000 - 5,000 mg/kg
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	Dermal	Rat	LD50 > 2,000 mg/kg
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	Ingestion	Rat	LD50 > 2,000 mg/kg
Diurethane Dimethacrylate (UDMA)	Dermal	Rat	LD50 > 2,000 mg/kg
Diurethane Dimethacrylate (UDMA)	Ingestion	Rat	LD50 > 5,000 mg/kg
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	Dermal	Professional judgement	LD50 estimated to be > 5,000 mg/kg
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	Ingestion	Rat	LD50 > 11,700 mg/kg
Triethylene Glycol Dimethacrylate (TEGDMA)	Dermal	Mouse	LD50 > 2,000
Triethylene Glycol Dimethacrylate (TEGDMA)	Ingestion	Rat	LD50 10,837 mg/kg
Aluminium oxide	Dermal		LD50 estimated to be > 5,000 mg/kg
Aluminium oxide	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 2.3 mg/l
Aluminium oxide	Ingestion	Rat	LD50 > 5,000 mg/kg
N,N-DIMETHYLBENZOCAINE	Dermal	Rat	LD50 > 2,000 mg/kg
N,N-DIMETHYLBENZOCAINE	Ingestion	Rat	LD50 > 2,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Silane Treated Ceramic	similar compounds	No significant irritation
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	In vitro data	No significant irritation
Diurethane Dimethacrylate (UDMA)	Rabbit	No significant irritation
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	Rabbit	No significant irritation

Triethylene Glycol Dimethacrylate (TEGDMA)	Rabbit	No significant irritation
Aluminium oxide	Rabbit	No significant irritation
N,N-DIMETHYLBENZOCAINE	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Silane Treated Ceramic	similar compounds	Mild irritant
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	In vitro data	No significant irritation
Diurethane Dimethacrylate (UDMA)	Rabbit	No significant irritation
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	In vitro data	No significant irritation
Triethylene Glycol Dimethacrylate (TEGDMA)	Rabbit	No significant irritation
Aluminium oxide	Rabbit	No significant irritation
N,N-DIMETHYLBENZOCAINE	Rabbit	No significant irritation

Sensitization:

Skin Sensitisation

Name	Species	Value
Silane Treated Ceramic	similar compounds	Not classified
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	Multiple animal species	Not classified
Diurethane Dimethacrylate (UDMA)	Multiple animal species	Sensitising
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	Mouse	Not classified
Triethylene Glycol Dimethacrylate (TEGDMA)	Mouse	Sensitising
N,N-DIMETHYLBENZOCAINE		Not classified

Respiratory Sensitisation

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

Germ Cell Mutagenicity

Name	Route	Value
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	In Vitro	Not mutagenic
Diurethane Dimethacrylate (UDMA)	In Vitro	Not mutagenic
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	In Vitro	Not mutagenic
Triethylene Glycol Dimethacrylate (TEGDMA)	In Vitro	Some positive data exist, but the data are not sufficient for classification
Aluminium oxide	In Vitro	Not mutagenic
N,N-DIMETHYLBENZOCAINE	In vivo	Not mutagenic
N,N-DIMETHYLBENZOCAINE	In Vitro	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
Silane Treated Ceramic	Inhalation	similar compounds	Some positive data exist, but the data are not sufficient for classification
Triethylene Glycol Dimethacrylate (TEGDMA)	Dermal	Mouse	Not carcinogenic
Aluminium oxide	Inhalation	Rat	Not carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	28 days
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	during gestation
Diurethane Dimethacrylate (UDMA)	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
Diurethane Dimethacrylate (UDMA)	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	56 days
Diurethane Dimethacrylate (UDMA)	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	during gestation
Triethylene Glycol Dimethacrylate (TEGDMA)	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
Triethylene Glycol Dimethacrylate (TEGDMA)	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,000 mg/kg/day	5 weeks
Triethylene Glycol Dimethacrylate (TEGDMA)	Ingestion	Not classified for development	Rat	NOAEL 1,000 mg/kg/day	premating into lactation
N,N-DIMETHYLBENZOCAINE	Ingestion	Not classified for female reproduction	Rat	NOAEL 600 mg/kg/day	premating into lactation
N,N-DIMETHYLBENZOCAINE	Ingestion	Not classified for development	Rat	NOAEL 50 mg/kg/day	premating into lactation
N,N-DIMETHYLBENZOCAINE	Ingestion	Toxic to male reproduction	Rat	NOAEL 50 mg/kg/day	53 days

Target Organ(s)

Specific Target Organ Toxicity - single exposure

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

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Silane Treated Ceramic	Inhalation	pulmonary fibrosis	Not classified	similar compounds	NOAEL Not available	
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	Ingestion	hematopoietic system | liver | immune system | kidney and/or bladder | endocrine system | eyes	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
Diurethane Dimethacrylate (UDMA)	Ingestion	liver | kidney and/or bladder | heart | skin | endocrine system | gastrointestinal tract | bone, teeth, nails,	Not classified	Rat	NOAEL 1,000 mg/kg/day	56 days

		and/or hair | hematopoietic system | immune system | muscles | nervous system | eyes | respiratory system | vascular system				
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	Ingestion	endocrine system | hematopoietic system | liver | heart | skin | gastrointestinal tract | bone, teeth, nails, and/or hair | immune system | muscles | nervous system | eyes | kidney and/or bladder | respiratory system | vascular system	Not classified	Rat	NOAEL 1,000 mg/kg/day	90 days
Triethylene Glycol Dimethacrylate (TEGDMA)	Dermal	liver	Not classified	Mouse	NOAEL 2,000 mg/kg/day	13 weeks
Triethylene Glycol Dimethacrylate (TEGDMA)	Dermal	skin	Not classified	Mouse	NOAEL 100 mg/kg/day	13 weeks
Triethylene Glycol Dimethacrylate (TEGDMA)	Dermal	gastrointestinal tract | hematopoietic system | nervous system | kidney and/or bladder | respiratory system	Not classified	Mouse	NOAEL 2,000 mg/kg/day	13 weeks
Triethylene Glycol Dimethacrylate (TEGDMA)	Ingestion	hematopoietic system | liver | nervous system | kidney and/or bladder | eyes	Not classified	Rat	NOAEL 3,849 mg/kg/day	13 weeks
Aluminium oxide	Inhalation	pneumoconiosis	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	occupational exposure
Aluminium oxide	Inhalation	pulmonary fibrosis	Not classified	Human	NOAEL Not available	occupational exposure
N,N-DIMETHYLBENZOCAINE	Ingestion	hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 74 mg/kg/day	28 days
N,N-DIMETHYLBENZOCAINE	Ingestion	liver | heart | endocrine system | gastrointestinal tract | bone, teeth, nails, and/or hair | immune system | muscles | nervous system | eyes | kidney and/or bladder | respiratory system | vascular system	Not classified	Rat	NOAEL 900 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:
Not acutely toxic to aquatic life by GHS criteria.

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

No product test data available.

Material	CAS Nbr	Organism	Type	Exposure	Test endpoint	Test result
Silane Treated Ceramic	444758-98-9	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	1565-94-2	Common Carp	Analogous Compound	96 hours	No tox obs at lmt of water sol	>100 mg/l
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	1565-94-2	Green algae	Endpoint not reached	96 hours	EC50	>100 mg/l
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	1565-94-2	Green algae	Experimental	96 hours	EC10	1.1 mg/l
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	41637-38-1	Green algae	Analogous Compound	72 hours	No tox obs at lmt of water sol	>100 mg/l
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	41637-38-1	Rainbow trout	Analogous Compound	96 hours	No tox obs at lmt of water sol	>100 mg/l
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	41637-38-1	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	41637-38-1	Green algae	Analogous Compound	72 hours	No tox obs at lmt of water sol	100 mg/l
Bisphenol A	41637-38-1	Water flea	Analogous	21 days	No tox obs at lmt	100 mg/l

Polyethylene Glycol Diether Dimethacrylate (BISEMA6)			Compound		of water sol	
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	41637-38-1	Zebra Fish	Analogous Compound	34 days	No tox obs at lmt of water sol	100 mg/l
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	41637-38-1	Activated sludge	Experimental	3 hours	EC50	>1,000 mg/l
Diurethane Dimethacrylate (UDMA)	72869-86-4	Green algae	Endpoint not reached	72 hours	ErC50	>100 mg/l
Diurethane Dimethacrylate (UDMA)	72869-86-4	Water flea	Experimental	48 hours	EC50	>100 mg/l
Diurethane Dimethacrylate (UDMA)	72869-86-4	Zebra Fish	Experimental	96 hours	LC50	10.1 mg/l
Diurethane Dimethacrylate (UDMA)	72869-86-4	Green algae	Endpoint not reached	72 hours	ErC10	>100 mg/l
Triethylene Glycol Dimethacrylate (TEGDMA)	109-16-0	Green algae	Experimental	72 hours	ErC50	>100 mg/l
Triethylene Glycol Dimethacrylate (TEGDMA)	109-16-0	Zebra Fish	Experimental	96 hours	LC50	16.4 mg/l
Triethylene Glycol Dimethacrylate (TEGDMA)	109-16-0	Green algae	Experimental	72 hours	NOEC	18.6 mg/l
Triethylene Glycol Dimethacrylate (TEGDMA)	109-16-0	Water flea	Experimental	21 days	NOEC	32 mg/l
Aluminium oxide	1344-28-1	Fish	Experimental	96 hours	LC50	>100 mg/l
Aluminium oxide	1344-28-1	Green algae	Experimental	72 hours	EC50	>100 mg/l
Aluminium oxide	1344-28-1	Water flea	Experimental	48 hours	LC50	>100 mg/l
Aluminium oxide	1344-28-1	Green algae	Experimental	72 hours	NOEC	>100 mg/l
N,N-DIMETHYLBENZOCAINE	10287-53-3	Activated sludge	Experimental	3 hours	EC50	>1,000 mg/l
N,N-DIMETHYLBENZOCAINE	10287-53-3	Green algae	Experimental	72 hours	EL50	2.8 mg/l
N,N-DIMETHYLBENZOCAINE	10287-53-3	Rainbow trout	Experimental	96 hours	LC50	1.9 mg/l
N,N-DIMETHYLBENZOCAINE	10287-53-3	Water flea	Experimental	48 hours	EC50	4.5 mg/l
N,N-DIMETHYLBENZOCAINE	10287-53-3	Green algae	Experimental	72 hours	ErC10	0.71 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Silane Treated Ceramic	444758-98-9	Data not available-	N/A	N/A	N/A	N/A

		insufficient				
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	1565-94-2	Experimental Biodegradation	28 days	BOD	21 %BOD/ThOD	similar to OECD 301F
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	1565-94-2	Experimental Hydrolysis		Hydrolytic half-life (pH 7)	29 days (t 1/2)	
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	41637-38-1	Experimental Biodegradation	28 days	BOD	24 %BOD/ThOD	OECD 301D - Closed bottle test
Diurethane Dimethacrylate (UDMA)	72869-86-4	Experimental Biodegradation	28 days	CO2 evolution	22 %CO2 evolution/THCO2 evolution (does not pass 10-day window)	OECD 301B - Modified sturm or CO2
Triethylene Glycol Dimethacrylate (TEGDMA)	109-16-0	Experimental Biodegradation	28 days	CO2 evolution	85 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
Aluminium oxide	1344-28-1	Data not available-insufficient	N/A	N/A	N/A	N/A
N,N-DIMETHYLBENZOCAINE	10287-53-3	Experimental Biodegradation	28 days	CO2 evolution	40 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
N,N-DIMETHYLBENZOCAINE	10287-53-3	Experimental Hydrolysis		Hydrolytic half-life (pH 7)	>1 years (t 1/2)	OECD 111 Hydrolysis func of pH

12.3 : Bioaccumulative potential

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Silane Treated Ceramic	444758-98-9	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
(1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate	1565-94-2	Experimental Bioconcentration		Log Kow	4.63	
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	41637-38-1	Modeled Bioconcentration		Bioaccumulation factor	7	Catalogic™
Bisphenol A Polyethylene Glycol Diether Dimethacrylate (BISEMA6)	41637-38-1	Experimental Bioconcentration		Log Kow	≥4.66	OECD 117 log Kow HPLC method
Diurethane Dimethacrylate (UDMA)	72869-86-4	Experimental Bioconcentration		Log Kow	3.39	
Triethylene Glycol Dimethacrylate (TEGDMA)	109-16-0	Experimental Bioconcentration		Log Kow	2.3	EC A.8 Partition Coefficient

Aluminium oxide	1344-28-1	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
N,N-DIMETHYLBENZOCAINE	10287-53-3	Experimental Bioconcentration		Log Kow	3.2	OECD 117 log Kow HPLC method

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 completely cured (or polymerized) material in a permitted industrial waste facility. As a disposal alternative, incinerate uncured product in a permitted waste incineration facility. If no other disposal options are available, waste product that has been completely cured or polymerized may be placed in a landfill properly designed for industrial waste.

SECTION 14: Transport Information

International Regulations

UN No.: Not restricted for transport.
UN Proper shipping name: Not restricted for transport.

Transportation Class (IMO): None assigned
Transportation Class (IATA): None assigned
Other Dangerous Goods Descriptions (IMO): None assigned
Other Dangerous Goods Descriptions (IATA): None assigned
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.

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