Material Safety Data Sheet

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PRODUCT NAME: 3M™ ESPE™ Filtek™ Bulk Fill Syringe Kit
MANUFACTURER: 3M
DIVISION: 3M ESPE Dental Products
ADDRESS: 3M Center, St. Paul, MN 55144-1000, USA
Telephone: 1-888-3M HELPS (1-888-364-3577)

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 07/11/14
Supersedes Date: 07/09/14
Document Group: 33-7302-4

ID Number(s):
70-2010-9879-8

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:

31-0063-3, 29-8287-4, 33-1594-2

Revision Changes:
Page Heading: Product name information was modified.
Kit: Product name information was modified.

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M™ ESPE™ Scotchbond™ Universal
MANUFACTURER: 3M
DIVISION: 3M ESPE Dental Products
ADDRESS: 3M Center, St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 07/13/11
Supercedes Date: 07/12/11

Document Group: 29-8287-4

Product Use:
Intended Use: Dental Product
Limitations on Use: For use only by dental professionals.
Specific Use: Dental Adhesive

SECTION 2: INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>% by Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>BISPHENOL A DIGLYCIDYL ETHER DIMETHACRYLATE (BISGMA)</td>
<td>1565-94-2</td>
<td>15 - 25</td>
</tr>
<tr>
<td>2-HYDROXYETHYL METHACRYLATE</td>
<td>868-77-9</td>
<td>15 - 25</td>
</tr>
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<td>DECAMETHYLENE DIMETHACRYLATE</td>
<td>6701-13-9</td>
<td>5 - 15</td>
</tr>
<tr>
<td>ETHANOL</td>
<td>64-17-5</td>
<td>10 - 15</td>
</tr>
<tr>
<td>WATER</td>
<td>7732-18-5</td>
<td>10 - 15</td>
</tr>
<tr>
<td>SILANE TREATED SILICA</td>
<td>122334-95-6</td>
<td>5 - 15</td>
</tr>
<tr>
<td>2-PROPENOIC ACID, 2-METHYL-, REACTION PRODUCTS WITH 1,10-DECANEDIOL AND PHOSPHOROUS OXIDE (P2O5)</td>
<td>1207736-18-2</td>
<td>1 - 10</td>
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<tr>
<td>COPOLYMER OF ACRYLIC AND ITACONIC ACID</td>
<td>25948-33-8</td>
<td>1 - 5</td>
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<tr>
<td>DIMETHYLAMINOBENZOAT(-4)</td>
<td>10287-53-3</td>
<td>&lt; 2</td>
</tr>
<tr>
<td>CAMPHORQUINONE</td>
<td>10373-78-1</td>
<td>&lt; 2</td>
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<tr>
<td>(DIMETHYLAMINO)ETHYL METHACRYLATE</td>
<td>2867-47-2</td>
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<tr>
<td>METHYL ETHYL KETONE</td>
<td>78-93-3</td>
<td>&lt; 0.5</td>
</tr>
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</table>

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW
Specific Physical Form: Viscous Liquid
Odor, Color, Grade: Characteristic odor, yellow liquid
General Physical Form: Liquid
Immediate health, physical, and environmental hazards: Flammable liquid and vapor. May cause chemical eye burns. May cause allergic skin reaction. May cause target organ effects. Contains a chemical or chemicals which can cause birth defects or other reproductive harm. Contains a chemical or chemicals which can cause cancer. This document has been prepared in accordance with the U.S. OSHA Hazard Communication Standard, which requires the inclusion of all known hazards of the product or ingredients regardless of the potential risk. The risks of the hazards communicated in this document may vary depending on the potential for exposure.

3.2 POTENTIAL HEALTH EFFECTS

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

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

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

May be absorbed following inhalation and cause target organ effects.

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

May be absorbed following ingestion and cause target organ effects.

Target Organ Effects:
Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

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

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

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

NOTE: This product contains ethanol. In IARC published Monograph No. 44, entitled, "Alcohol Drinking", the carcinogenicity of ethanol was determined based on chronic exposure to ethanol through human consumption of alcoholic beverages. This is not an expected effect during the foreseeable use of this product.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>Class Description</th>
<th>Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETHANOL</td>
<td>64-17-5</td>
<td>Grp. 1: Carcinogenic to humans</td>
<td>International Agency for Research on Cancer</td>
</tr>
</tbody>
</table>

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES
The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

**Eye Contact:** Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention.

**Skin Contact:** Remove contaminated clothing and shoes. Immediately flush skin with large amounts of water. Get medical attention. Wash contaminated clothing and clean shoes before reuse.

**Inhalation:** Remove person to fresh air. If signs/symptoms develop, get medical attention.

**If Swallowed:** Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

### SECTION 5: FIRE FIGHTING MEASURES

#### 5.1 FLAMMABLE PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoignition temperature</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>34 °C [Test Method: Closed Cup]</td>
</tr>
<tr>
<td>Flammable Limits(LEL)</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Flammable Limits(UEL)</td>
<td>No Data Available</td>
</tr>
</tbody>
</table>

#### 5.2 EXTINGUISHING MEDIA

Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide).

#### 5.3 PROTECTION OF FIRE FIGHTERS

**Special Fire Fighting Procedures:** Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture. Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

**Unusual Fire and Explosion Hazards:** Flammable liquid and vapor. Closed containers exposed to heat from fire may build pressure and explode.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal precautions, protective equipment and emergency procedures

Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Remove all ignition sources such as flames, smoking materials, and electrical spark sources. Use only non-sparking tools. 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. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Remember, adding an absorbent material does not remove a toxic, corrosivity or flammability hazard.

#### 6.2. Environmental precautions

Place in a metal container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

**Clean-up methods**

Refer to other sections of this MSDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment. Call 3M-HELPS line (1-800-364-3577) for more information on handling and managing the spill. Contain spill. Cover spill area with a fire-extinguishing foam designed for use on solvents, such as alcohols and acetone, that can dissolve in water. An AR - AFFF type foam is recommended. 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. Collect as much of the spilled material as possible using non-sparking tools. Clean up residue with detergent and water. Seal the container.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING
Keep away from heat, sparks, open flame, pilot lights and other sources of ignition. Avoid static discharge. Avoid eye contact. Avoid breathing of vapors. Avoid skin contact. 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. Wash hands after handling and before eating.

7.2 STORAGE
Store under normal warehouse conditions. Keep container tightly closed. Store away from heat. Store out of direct sunlight.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS
Use in a well-ventilated area.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection
Avoid eye contact.
The following eye protection(s) are recommended: Safety Glasses with side shields.

8.2.2 Skin Protection
Avoid skin contact. Select and use gloves and/or protective clothing to prevent skin contact based on the results of an exposure assessment. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible materials.

8.2.3 Respiratory Protection
Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.

8.2.4 Prevention of Swallowing
Do not ingest. Wash hands after handling and before eating.

8.3 EXPOSURE GUIDELINES

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Authority</th>
<th>Type</th>
<th>Limit</th>
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<tr>
<td>2-Butanone</td>
<td>ACGIH</td>
<td>TWA</td>
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<tr>
<td>2-Butanone</td>
<td>ACGIH</td>
<td>STEL</td>
<td>300 ppm</td>
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<tr>
<td>2-Butanone</td>
<td>OSHA</td>
<td>TWA</td>
<td>590 mg/m3</td>
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<tr>
<td>ALUMINUM OXIDE (FIBROUS FORMS</td>
<td>OSHA</td>
<td>TWA, respirable</td>
<td>5 mg/m3</td>
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</tr>
<tr>
<td>ONLY)</td>
<td></td>
<td>fraction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALUMINUM OXIDE (FIBROUS FORMS</td>
<td>OSHA</td>
<td>TWA, as total dust</td>
<td>15 mg/m3</td>
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<tr>
<td>ONLY)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ETHANOL</td>
<td>ACGIH</td>
<td>STEL</td>
<td>1000 ppm</td>
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</table>
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form: Viscous Liquid
Odor, Color, Grade: Characteristic odor, yellow liquid
General Physical Form: Liquid
Autoignition temperature: No Data Available
Flash Point: 34 °C [Test Method: Closed Cup]
Flammable Limits(LEL): No Data Available
Flammable Limits(UEL): No Data Available
Boiling Point: >= 78 ºC
Density: 1 - 1.2 g/cm³
Vapor Density: No Data Available
Vapor Pressure: No Data Available
Specific Gravity: 1 - 1.2 [Ref Std: WATER=1]
pH: Not Applicable
Melting point: No Data Available
Solubility in Water: Appreciable
Evaporation rate: No Data Available
Kow - Oct/Water partition coef: No Data Available
Viscosity: Not Applicable

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid:
10.1 Conditions to avoid
Heat

10.2 Materials to avoid
None known

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

<table>
<thead>
<tr>
<th>Substance</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Formaldehyde During Combustion
Carbon monoxide During Combustion
Carbon dioxide During Combustion
Irritant Vapors or Gases During Combustion
Oxides of Nitrogen During Combustion

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION
Not determined.

CHEMICAL FATE INFORMATION
Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of completely cured (or polymerized) wastes in a sanitary landfill. Incinerate uncured product in a permitted hazardous waste incinerator.

EPA Hazardous Waste Number (RCRA): D001 (Ignitable), D035 (Methyl ethyl ketone)

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14: TRANSPORT INFORMATION

ID Number(s):
LE-F100-1014-6, LE-F100-1014-7, LE-F100-1014-9, 70-2011-3903-0

For Transport Information, please visit http://3M.com/Transportinfo or call 1-800-364-3577 or 651-737-6501.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS
Contact 3M for more information.

311/312 Hazard Categories:
Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - Yes

STATE REGULATIONS
Contact 3M for more information.

CHEMICAL INVENTORIES
This material contains one or more substances not listed on the TSCA Inventory. Commercial use of this material is regulated by the FDA.

Contact 3M for more information.

INTERNATIONAL REGULATIONS
Contact 3M for more information.

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification
Health: 3 Flammability: 2 Reactivity: 0 Special Hazards: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

Revision Changes:
Section 1: Product name was modified.
Section 3: Carcinogenicity phrase was modified.
Page Heading: Product name was modified.
Section 1: Initial issue message was modified.
Section 14: ID Number(s) Template 1 was modified.

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 5080/5081 3M™ ESPE™ SOF-LEX™ SPIRAL FINISHING AND POLISHING WHEELS
MANUFACTURER: 3M
DIVISION: 3M ESPE Dental Products
ADDRESS: 3M Center, St. Paul, MN  55144-1000

 Issue Date: 01/16/13
Supercedes Date: 06/12/12
Document Group: 31-0063-3

Product Use:
Intended Use: Dental Product
Limitations on Use: For use only by dental professionals
Specific Use: Finishing and polishing wheel

SECTION 2: INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>% by Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>THERMO PLASTIC ABRASIVE WHEEL W/ALUMINUM OXIDE</td>
<td>None</td>
<td>100</td>
</tr>
</tbody>
</table>

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Molded radial bristle wheel
Odor, Color, Grade: White or tan, odorless
General Physical Form: Solid
Immediate health, physical, and environmental hazards: No immediate health, physical, and environmental hazards are anticipated.

3.2 POTENTIAL HEALTH EFFECTS
Eye Contact:
Dust created by cutting, grinding, sanding, or machining may cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin Contact:
Mechanical Skin irritation: Signs/symptoms may include abrasion, redness, pain, and itching.

Inhalation:
No health effects are expected.

Ingestion:
No health effects are expected.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact:  Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.
Skin Contact:  Wash affected area with soap and water. If signs/symptoms develop, get medical attention.
Inhalation:  No need for first aid is anticipated.
If Swallowed:  No need for first aid is anticipated.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoignition temperature</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammable Limits(LEL)</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammable Limits(UEL)</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

5.2 EXTINGUISHING MEDIA

Ordinary combustible material. Use fire extinguishers with class A extinguishing agents (e.g., water, foam).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures:  Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards:  No unusual fire or explosion hazards are anticipated.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Not applicable.

6.2. Environmental precautions
Not applicable.

Clean-up methods
Not applicable.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING
Avoid eye contact with dust or airborne particles.

7.2 STORAGE
Store under normal warehouse conditions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS
Use in a well-ventilated area.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection
Avoid eye contact.
The following eye protection(s) are recommended: Safety Glasses with side shields.

8.2.2 Skin Protection
Not applicable.

8.2.3 Respiratory Protection
Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.

8.2.4 Prevention of Swallowing
Do not ingest.

8.3 EXPOSURE GUIDELINES
None Established

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form: Molded radial bristle wheel
Odor, Color, Grade: White or tan, odorless
SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid:
10.1 Conditions to avoid
None known

10.2 Materials to avoid
None known

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

<table>
<thead>
<tr>
<th>Substance</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon monoxide</td>
<td>During Combustion</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>During Combustion</td>
</tr>
</tbody>
</table>

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION
ECOTOXICOLOGICAL INFORMATION
Not determined.

CHEMICAL FATE INFORMATION
Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of waste product in a sanitary landfill. As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste.

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14: TRANSPORT INFORMATION

ID Number(s):
70-2010-8827-8, 70-2010-8830-2, 70-2010-8831-0, 70-2010-8832-8, 70-2010-8864-1, 70-2010-8865-8

For Transport Information, please visit http://3M.com/TransportInfo or call 1-800-364-3577 or 651-737-6501.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS
Contact 3M for more information.

311/312 Hazard Categories:
Fire Hazard - No  Pressure Hazard - No  Reactivity Hazard - No  Immediate Hazard - Yes  Delayed Hazard - No

STATE REGULATIONS
Contact 3M for more information.

CHEMICAL INVENTORIES
This material contains one or more substances not listed on the TSCA Inventory. Commercial use of this material is regulated by the FDA.

This product is an article as defined by TSCA regulations, and is exempt from TSCA Inventory listing requirements.

Contact 3M for more information.

INTERNATIONAL REGULATIONS
Contact 3M for more information.

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION
NFPA Hazard Classification

Health: 1  Flammability: 1  Reactivity: 0  Special Hazards: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

Revision Changes:
Section 1: Initial issue message was modified.
Copyright was modified.

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Safety Data Sheet

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SECTION 1: Identification

1.1. Product identifier
3M™ ESPE™ FILTEK™ BULK FILL POSTERIOR RESTORATIVE

1.2. Recommended use and restrictions on use

Recommended use
Dental Product, Restorative

Restrictions on use
For use only by dental professionals

1.3. Supplier’s details

MANUFACTURER: 3M
DIVISION: 3M ESPE Dental Products
ADDRESS: 3M Center, St. Paul, MN 55144-1000, USA
Telephone: 1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

This document has been prepared in accordance with the U.S. OSHA Hazard Communication Standard, which requires the inclusion of all known hazards of the product or ingredients regardless of the potential risk. The risks of the hazards communicated in this document may vary depending on the potential for exposure.

2.1. Hazard classification
Skin Sensitizer: Category 1.

2.2. Label elements
Signal word
Warning

Symbols
Exclamation mark |

Pictograms
Hazard Statements
May cause an allergic skin reaction.

Precautionary Statements

Prevention:
Avoid breathing dust/fume/gas/mist/vapors/spray.
Contaminated work clothing must not be allowed out of the workplace.

Response:
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.

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

2.3. Hazards not otherwise classified
None.

31% of the mixture consists of ingredients of unknown acute oral toxicity.

SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>% by Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILANE TREATED CERAMIC</td>
<td>444758-98-9</td>
<td>60 - 70</td>
</tr>
<tr>
<td>AROMATIC URETHANE DIMETHACRYLATE</td>
<td>1431303-59-1</td>
<td>10 - 20</td>
</tr>
<tr>
<td>YTTERBIUM FLUORIDE (YbF3)</td>
<td>13760-80-0</td>
<td>1 - 10</td>
</tr>
<tr>
<td>DIURETHANE DIMETHACRYLATE (UDMA)</td>
<td>72869-86-4</td>
<td>1 - 10</td>
</tr>
<tr>
<td>SILANE TREATED SILICA</td>
<td>248596-91-0</td>
<td>1 - 10</td>
</tr>
<tr>
<td>1,12-DODECANE DIMETHACRYLATE (DDDMA)</td>
<td>72829-09-5</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>SILANE TREATED ZIRCONIA</td>
<td>Unknown</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>WATER</td>
<td>7732-18-5</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>Pentanedioc acid, 2,2-dimethyl-4-methylene-, reaction products with glycidyl methacrylate</td>
<td>1429648-13-4</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>ETHYL 4-DIMETHYL AMINOBENZOATE (EDMAB)</td>
<td>10287-53-3</td>
<td>&lt; 0.5</td>
</tr>
<tr>
<td>BENZOTRIAZOL</td>
<td>96478-09-0</td>
<td>&lt; 0.5</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>&lt; 0.2</td>
</tr>
</tbody>
</table>

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

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**
See Section 11.1. Information on toxicological effects.

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**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon monoxide</td>
<td>During Combustion</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>During Combustion</td>
</tr>
</tbody>
</table>

5.3. **Special protective actions for fire-fighters**
No special protective actions for fire-fighters are anticipated.

**SECTION 6: Accidental release measures**

6.1. **Personal precautions, protective equipment and emergency procedures**
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**
Contain spill. 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.

**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. Avoid breathing
dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this
product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid
release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (eg. chlorine,
chormic acid etc.)

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>Agency</th>
<th>Limit type</th>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>ACGIH</td>
<td>TWA:10 mg/m3</td>
<td>A4: Not class. as human</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>CMRG</td>
<td>TWA(as respirable dust):5 mg/m3</td>
<td></td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>OSHA</td>
<td>TWA(as total dust):15 mg/m3</td>
<td></td>
</tr>
<tr>
<td>FLUORIDES</td>
<td>13760-80-0</td>
<td>ACGIH</td>
<td>TWA(as F):2.5 mg/m3</td>
<td>A4: Not class. as human</td>
</tr>
<tr>
<td>FLUORIDES</td>
<td>13760-80-0</td>
<td>OSHA</td>
<td>TWA(as dust):2.5 mg/m3; TWA(as F):2.5 mg/m3</td>
<td></td>
</tr>
</tbody>
</table>

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
OSHA : United States Department of Labor - Occupational Safety and Health Administration
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure
Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

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

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

Respiratory protection
Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties

General Physical Form: Solid
Specific Physical Form: Paste
Odor, Color, Grade: Slight acrylate odor, tooth colored
Odor threshold: No Data Available
pH: Not Applicable
Melting point: No Data Available
Boiling Point: Not Applicable
Flash Point: No flash point
Evaporation rate: Not Applicable
Flammability (solid, gas): Not Classified
Flammable Limits(LEL): Not Applicable
Flammable Limits(UEL): Not Applicable
Vapor Pressure: Not Applicable
Vapor Density: Not Applicable
Density: 1.9 g/cm³
Specific Gravity: 1.9 [Ref Std: WATER=1]
Solubility in Water: Negligible
Solubility- non-water: No Data Available
Partition coefficient: n-octanol/ water: Not Applicable
Autoignition temperature: No Data Available
Decomposition temperature: Not Applicable
Viscosity: 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
High shear and high temperature conditions

10.5. Incompatible materials
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.

This document has been prepared in accordance with the U.S. OSHA Hazard Communication Standard, which requires the inclusion of all known hazards of the product or ingredients regardless of the potential risk. The risks of the hazards communicated in this document may vary depending on the potential for exposure.

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 diarrhea.

**Carcinogenicity:**
Exposures needed to cause the following health effect(s) are not expected during normal, intended use:
Contains a chemical or chemicals which can cause cancer.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>C.A.S. No.</th>
<th>Class Description</th>
<th>Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>Grp. 2B: Possible human canc.</td>
<td>International Agency for Research on Cancer</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall product</td>
<td>Ingestion</td>
<td>No data available; calculated ATE 2,000 - 5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>SILANE TREATED CERAMIC</td>
<td>Dermal</td>
<td>LD50 estimated to be &gt; 5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>SILANE TREATED CERAMIC</td>
<td>Ingestion</td>
<td>LD50 estimated to be 2,000 - 5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>YTTERBIUM FLUORIDE (YbF3)</td>
<td>Ingestion</td>
<td>Rat LD50 &gt; 5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>DIURETHANE DIMETHACRYLATE (UDMA)</td>
<td>Ingestion</td>
<td>Rat LD50 &gt; 5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>SILANE TREATED SILICA</td>
<td>Dermal</td>
<td>LD50 estimated to be &gt; 5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>SILANE TREATED SILICA</td>
<td>Ingestion</td>
<td>LD50 estimated to be &gt; 5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>1,12-DODECANE DIMETHACRYLATE (DDBMA)</td>
<td>Ingestion</td>
<td>similar compounds</td>
<td>LD50 2000-5000 mg/kg</td>
</tr>
<tr>
<td>ETHYL 4-DIMETHYL AMINOBENZOATE (EDMAB)</td>
<td>Ingestion</td>
<td></td>
<td>LD50 estimated to be 300 - 2,000 mg/kg</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Dermal</td>
<td>Rabbit LD50 &gt; 10,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Inhalation-Dust/Mist (4 hours)</td>
<td>Rat LC50 &gt; 6.82 mg/l</td>
<td></td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Ingestion</td>
<td>Rat LD50 &gt; 10,000 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>
ATE = acute toxicity estimate

### Skin Corrosion/Irritation

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILANE TREATED CERAMIC</td>
<td>similar compounds</td>
<td>No significant irritation</td>
</tr>
<tr>
<td>SILANE TREATED SILICA</td>
<td></td>
<td>No significant irritation</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Rabbit</td>
<td>No significant irritation</td>
</tr>
</tbody>
</table>

### Serious Eye Damage/Irritation

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILANE TREATED CERAMIC</td>
<td>similar compounds</td>
<td>Mild irritant</td>
</tr>
<tr>
<td>SILANE TREATED SILICA</td>
<td></td>
<td>No significant irritation</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Rabbit</td>
<td>No significant irritation</td>
</tr>
</tbody>
</table>

### Skin Sensitization

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILANE TREATED CERAMIC</td>
<td>similar compounds</td>
<td>Some positive data exist, but the data are not sufficient for classification</td>
</tr>
<tr>
<td>Fentanylac acid, 2,2-dimethyl-4-methylene-, reaction products with glycidyl methacrylate</td>
<td>similar compounds</td>
<td>Some positive data exist, but the data are not sufficient for classification</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Human and animal</td>
<td>Not sensitizing</td>
</tr>
</tbody>
</table>

### Respiratory Sensitization

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
</table>

### Germ Cell Mutagenicity

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium Dioxide</td>
<td>In Vitro</td>
<td>Not mutagenic</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>In vivo</td>
<td>Not mutagenic</td>
</tr>
</tbody>
</table>

### Carcinogenicity

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Species</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILANE TREATED CERAMIC</td>
<td>Inhalation</td>
<td>similar compounds</td>
<td>Some positive data exist, but the data are not sufficient for classification</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Ingestion</td>
<td>Multiple animal species</td>
<td>Not carcinogenic</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>Inhalation</td>
<td>Rat</td>
<td>Carcinogenic</td>
</tr>
</tbody>
</table>

### Reproductive Toxicity

### Reproductive and/or Developmental Effects

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Value</th>
<th>Species</th>
<th>Test Result</th>
<th>Exposure Duration</th>
</tr>
</thead>
</table>

### Target Organ(s)

#### Specific Target Organ Toxicity - single exposure

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Target Organ(s)</th>
<th>Value</th>
<th>Species</th>
<th>Test Result</th>
<th>Exposure Duration</th>
</tr>
</thead>
</table>

#### Specific Target Organ Toxicity - repeated exposure

<table>
<thead>
<tr>
<th>Name</th>
<th>Route</th>
<th>Target Organ(s)</th>
<th>Value</th>
<th>Species</th>
<th>Test Result</th>
<th>Exposure</th>
</tr>
</thead>
</table>
### SECTION 12: Ecological information

**Ecotoxicological information**

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

**Chemical fate information**

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

### SECTION 13: Disposal considerations

13.1. Disposal methods

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

Incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. 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.

**EPA Hazardous Waste Number (RCRA): Not regulated**

### SECTION 14: Transport Information

For Transport Information, please visit [http://3M.com/Transportinfo](http://3M.com/Transportinfo) or call 1-800-364-3577 or 651-737-6501.

### SECTION 15: Regulatory information

15.1. US Federal Regulations

Contact 3M for more information.

311/312 Hazard Categories:

- Fire Hazard - No
- Pressure Hazard - No
- Reactivity Hazard - No
- Immediate Hazard - Yes
- Delayed Hazard - No

This material contains a chemical which requires export notification under TSCA Section 12[b]:

---

**Aspiration Hazard**

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Inhalation</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>SILANE TREATED CERAMIC</td>
<td>pulmonary fibrosis</td>
<td>similar compounds, NOAEL Not available</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>respiratory system</td>
<td>Rat, LOAEL 0.010 mg/l, 2 years</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>pulmonary fibrosis</td>
<td>All data are negative, Human, NOAEL Not available, occupational exposure</td>
</tr>
</tbody>
</table>
### Ingredient (Category if applicable) | C.A.S. No | Regulation | Status
--- | --- | --- | ---
BENZOTRIAZOL | 96478-09-0 | Toxic Substances Control Act (TSCA) 5 SNUR or Consent Order Chemicals | Applicable

This material contains a chemical regulated by an EPA Significant New Use Rule (TSCA Section 5)

| Ingredient (Category if applicable) | C.A.S. No | Reference |
--- | --- | ---
BENZOTRIAZOL | 96478-09-0 | 40CFR721.8450

#### 15.2. State Regulations
Contact 3M for more information.

#### 15.3. Chemical Inventories
This material contains one or more substances not listed on the TSCA Inventory. Commercial use of this material is regulated by the FDA.

Contact 3M for more information.

#### 15.4. International Regulations
Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

### SECTION 16: Other information

**NFPA Hazard Classification**
- **Health:** 2
- **Flammability:** 1
- **Instability:** 0
- **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

| Document Group: | Version Number: |
--- | ---
33-1594-2 | 2.00

**Issue Date:** 07/07/14  
**Supersedes Date:** 03/10/14

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