



Material Safety Data Sheet

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PRODUCT NAME: 3M™ ESPE™ KETAC™ CEM RADIOPAQUE PERMANENT GLASS IONOMER LUTING CEMENT

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: 09/14/12

Supersedes Date: 02/11/10

Document Group: 16-2592-0

ID Number(s):

70-2011-0043-8, 70-2011-0046-1, 70-2011-0047-9, 70-2011-0339-0

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

26-9894-2, 16-2590-4

Reason for Reissue: The MSDS has been revised because 3M has adopted the 16-section ANSI/ISO format. The potential hazards of the product have not changed. We encourage you to reread the MSDS and review the information.

Revision Changes:

Kit: Component document group number(s) was modified.

Kit: ID Number(s) was modified.

Section 1: Manufacturer name was added.

Section 16: Disclaimer (first paragraph) was added.

Section 16: Disclaimer (second paragraph) was added.

Section 16: Web address was added.

Section 1: Address was added.

Copyright was added.

Company logo was added.
Telephone header was added.
Company Telephone was added.
Section 1: Emergency phone information was added.
Company Logo was deleted.
Copyright was deleted.
Kit: Manufacturer's name was deleted.
Kit: Emergency phone information was deleted.
Kit: Disclaimer (first paragraph) was deleted.
Kit: Disclaimer (second paragraph) was deleted.
Kit: Address line 1 was deleted.
Kit: Address line 2 was deleted.

DISCLAIMER: The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

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3M USA MSDSs are available at www.3M.com



Material Safety Data Sheet

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M™ ESPE™ KETAC™ CEM RADIOPAQUE POWDER

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: 06/28/13

Supersedes Date: 07/11/12

Document Group: 16-2590-4

Product Use:

Intended Use: Dental Product
Limitations on Use: For use by dental professionals
Specific Use: Luting Cement

SECTION 2: INGREDIENTS

| <u>Ingredient</u> | <u>C.A.S. No.</u> | <u>% by Wt</u> |
|------------------------------------|-------------------|----------------|
| GLASS POWDER | 65997-17-3 | 80 - 90 |
| COPOLYMER ACRYLIC ACID-MALEIC ACID | 29132-58-9 | < 20 |

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Powder

Odor, Color, Grade: Odorless, white powder

General Physical Form: Solid

Immediate health, physical, and environmental hazards: 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:

Mechanical eye irritation: Signs/symptoms may include pain, redness, tearing and corneal abrasion.

Skin Contact:

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

Inhalation:

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

Ingestion:

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

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: 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**

Autoignition temperature

No Data Available

Flash Point

Not Applicable

Flammable Limits(LEL)

Not Applicable

Flammable Limits(UEL)

Not Applicable

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

Unusual Fire and Explosion Hazards: Not applicable.

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. Ventilate the area with fresh air.

6.2. Environmental precautions

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

Clean-up methods

Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Collect as much of the spilled material as possible. Clean up residue.

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. Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Avoid prolonged or repeated skin contact.

7.2 STORAGE

Not applicable. Store away from areas where product may come into contact with food or pharmaceuticals.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 ENGINEERING CONTROLS**

Use in an enclosed process area is recommended. Not applicable. Do not use in a confined area or areas with little or no air movement.

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. Avoid prolonged or repeated 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. Gloves not normally required.

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 eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water. Do not ingest.

8.3 EXPOSURE GUIDELINES

| <u>Ingredient</u> | <u>Authority</u> | <u>Type</u> | <u>Limit</u> | <u>Additional Information</u> |
|--------------------------|-------------------------|--------------------|---------------------|--------------------------------------|
|--------------------------|-------------------------|--------------------|---------------------|--------------------------------------|

GLASS POWDER

Manufacturer
determined

TWA, as dust

10 mg/m3

SOURCE OF EXPOSURE LIMIT DATA:

ACGIH: American Conference of Governmental Industrial Hygienists

CMRG: Chemical Manufacturer Recommended Guideline

OSHA: Occupational Safety and Health Administration

AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

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| SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES |
|--|

| | |
|---|----------------------------|
| Specific Physical Form: | Powder |
| Odor, Color, Grade: | Odorless, white powder |
| General Physical Form: | Solid |
| Autoignition temperature | <i>No Data Available</i> |
| Flash Point | <i>Not Applicable</i> |
| Flammable Limits(LEL) | <i>Not Applicable</i> |
| Flammable Limits(UEL) | <i>Not Applicable</i> |
| Boiling Point | <i>Not Applicable</i> |
| Density | <i>No Data Available</i> |
| Vapor Density | <i>Not Applicable</i> |
| Vapor Pressure | <i>Not Applicable</i> |
| Specific Gravity | >=1 [Ref Std: WATER=1] |
| pH | <i>Not Applicable</i> |
| Melting point | <i>No Data Available</i> |
| Solubility in Water | Nil |
| Evaporation rate | <i>No Data Available</i> |
| Volatile Organic Compounds | <i>No Data Available</i> |
| Kow - Oct/Water partition coef | <i>No Data Available</i> |
| Percent volatile | <i>No Data Available</i> |
| VOC Less H2O & Exempt Solvents | <i>No Data Available</i> |
| Viscosity | <i>Not Applicable</i> |

| |
|---|
| 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

Substance

Carbon monoxide
Carbon dioxide

Condition

Not Specified
Not Specified

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: For quantities <100 lbs. (50kg): dispose of waste product in a sanitary landfill. As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste.

EPA Hazardous Waste Number (RCRA): Not regulated

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

SECTION 14: TRANSPORT INFORMATION

ID Number(s):

LE-F100-1399-4, 70-2011-0044-6, 70-2011-0340-8

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.

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.

Reason for Reissue: The MSDS has been revised because 3M has adopted the 16-section ANSI/ISO format. The potential hazards of the product have not changed. We encourage you to reread the MSDS and review the information.

Revision Changes:

Section 7: Handling information was modified.

Section 7: Storage information was modified.

Section 8: Engineering controls information was modified.

Section 8: Prevention of swallowing information was modified.

Section 14: ID Number(s) Template 1 was modified.

Copyright was modified.

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M™ ESPE™ KETAC™ CEM RADIOPAQUE LIQUID

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: 07/11/12

Supersedes Date: 07/05/12

Document Group: 26-9894-2

Product Use:

Intended Use: Dental Product
Limitations on Use: For use only by dental professionals.
Specific Use: Part of a luting material

SECTION 2: INGREDIENTS

| <u>Ingredient</u> | <u>C.A.S. No.</u> | <u>% by Wt</u> |
|-------------------|-------------------|----------------|
| WATER | 7732-18-5 | 80 - 90 |
| TARTARIC ACID | 87-69-4 | < 20 |

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Liquid

Odor, Color, Grade: slight characteristic odor, colorless liquid

General Physical Form: Liquid

Immediate health, physical, and environmental hazards: 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:

Mild Eye Irritation: Signs/symptoms may include redness, pain, and tearing.

Skin Contact:

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

Inhalation:

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

Ingestion:

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

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: 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**

Autoignition temperature

No Data Available

Flash Point

No flash point

Flammable Limits(LEL)

Not Applicable

Flammable Limits(UEL)

Not Applicable

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

Unusual Fire and Explosion Hazards: Not applicable.

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. 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.

6.2. Environmental precautions

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

Clean-up methods

Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Collect as much of the spilled material as possible.

Clean up residue with water.

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. Avoid breathing of vapors, mists or spray.

7.2 STORAGE

Store away from heat. Store out of direct sunlight.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 ENGINEERING CONTROLS**

Use with appropriate local exhaust ventilation.

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. Avoid breathing of vapors, mists or spray.

8.2.4 Prevention of Swallowing

Do not ingest.

8.3 EXPOSURE GUIDELINES

None Established

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--------------------------------|--|
| Specific Physical Form: | Liquid |
| Odor, Color, Grade: | slight characteristic odor, colorless liquid |
| General Physical Form: | Liquid |
| Autoignition temperature | <i>No Data Available</i> |
| Flash Point | No flash point |
| Flammable Limits(LEL) | <i>Not Applicable</i> |
| Flammable Limits(UEL) | <i>Not Applicable</i> |
| Boiling Point | Approximately 100 |
| Vapor Density | ≤ 1.0 [Ref Std: AIR=1] |
| Vapor Pressure | 16 mmHg [Ref Std: AIR=1] |
| Specific Gravity | ≥ 1.0 [Ref Std: WATER=1] |
| pH | <i>No Data Available</i> |
| Melting point | Approximately 0 |
| Solubility in Water | Complete |
| Evaporation rate | ≤ 1.0 [Ref Std: BUOAC=1] |
| Volatile Organic Compounds | <i>No Data Available</i> |
| Kow - Oct/Water partition coef | <i>No Data Available</i> |
| Percent volatile | <i>No Data Available</i> |
| VOC Less H2O & Exempt Solvents | <i>No Data Available</i> |
| Viscosity | <i>No Data Available</i> |

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

Substance

Carbon monoxide
Carbon dioxide

Condition

During Combustion
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 waste product in a facility permitted to accept chemical waste. As a disposal alternative, incinerate in an industrial or commercial facility in the presence of a combustible material.

EPA Hazardous Waste Number (RCRA): Not regulated

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

SECTION 14: TRANSPORT INFORMATION

ID Number(s):

LE-F100-0706-7, 70-2011-0045-3, 70-2011-0341-6

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

All applicable chemical ingredients in this material are listed on the European Inventory of Existing Chemical Substances (EINECS), or are exempt polymers whose monomers are listed on EINECS. 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: 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 7: Storage information was modified.

Section 8: Engineering controls information was modified.

Section 2: Ingredient table was modified.

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