

# MATERIAL SAFETY DATA SHEET

## SECTION I – Product/Company Identification

**1.1 Product Trade Name:** **IRM<sup>®</sup> LIQUID Zinc Oxide Eugenol**  
**Intermediate Restorative Material**  
**1.2 Part (Item) Number:** **610004, 610007 All Package Configurations**  
**1.3 Division Name:** DENTSPLY Caulk  
**1.4 Address:** 38 West Clarke Avenue  
**City State Zip:** Milford DE 19963-0359  
**Internet Address:** <http://www.caulk.com>  
**1.5 Emergency Telephone Number:** (800) 424-9300 (Chemtrec)  
**1.6 Telephone Number for Information:** (302) 422-4511 (8:00 AM – 4:30 PM Eastern Time)  
**1.7 Date Prepared:** 11/13/98 **Date Revised:** 11/12/01

## SECTION II - Hazardous Ingredients/Identity Information

<u>Hazardous Components</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>CAS #</u>	<u>Percent</u>
Eugenol	N. A.	N A	99-53-0	greater than 99 %
Acetic Acid	10 ppm	10 ppm	64-19-7	less than 1 %

## SECTION III - Physical/Chemical Characteristics

**3.1 Boiling point:** 254°C/489°F  
**3.2 Vapor pressure:** 0.1 mm Hg@ 20°C  
**3.3 Vapor density:** N. E.  
**3.4 Solubility in water:** Slightly Soluble  
**3.5 Appearance and odor:** Colorless or pale yellow liquid. Odor is oil of cloves.  
**3.6 Specific Gravity:** 1.0 g/cm<sup>3</sup>  
**3.7 Melting Point:** -9°C/-16°F  
**3.8 Evaporation rate:** N. E.

## SECTION IV - Fire and Explosion Hazard Data

**4.1 Flash point (method used):** Approximately 252°F closed cup  
**4.2 Flammability (explosive limits):** **LEL: N.E.** **UEL: N.E.**  
**4.3 Extinguishing media:** Carbon dioxide, dry chemical or foam extinguishers.  
**4.4 Special fire fighting procedures:** Fire fighters should wear full protective clothing including self-contained breathing apparatus. Cool containers exposed to flame with water.  
**4.5 Unusual fire and explosion hazards:** None, Material is not pyrophoric, does not react with water, not oxygen donor, material is shock stable.

## SECTION V – Reactivity Data

**5.1 Stability:** **Unstable:** **Stable: X**  
**5.2 Conditions to avoid (stability):** Excessive heat greater than 37°C/100°F.  
**5.3 Incompatibility (materials to avoid):** Keep separated from strong bases, and strong oxidizing agents. Ferric chloride and potassium permanganate  
**5.4 Hazardous decomposition or byproducts:** Forms carbon monoxide and/or carbon dioxide upon burning.  
**5.5 Hazardous polymerization:** **May occur:** **Will not occur: X**  
**5.6 Conditions to avoid (polymerization):** None.

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## SECTION VI - Health Hazard Data

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- 6.1 Route(s) of entry:** **Inhalation?:** Yes **Skin?:** Yes **Ingestion?:** Possible
- 6.2 Health hazards (acute and chronic):** Liquid irritating to skin and eyes. Repeated contact may cause allergic dermatitis. Repeated daily oral doses of large amounts to rats caused liver damage. The effects in humans are unknown.
- 6.3 Carcinogenicity:** **NTP?:** Not listed **IARC monographs?:** Not listed **OSHA Regulated?:** No  
All components of this product are in compliance with the inventory listing requirements of the U. S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.
- 6.4 Signs and symptoms of exposure:** Product may irritate the eyes and skin. **Eye contact:** Redness or irritation.  
**Skin contact:** Redness or irritation.
- 6.5 Medical conditions generally aggravated by exposure:** Persons with known sensitization to eugenol. Open sores or wounds of the skin.
- 6.6 Emergency first aid procedures:** **Eyes:** In case of eye contact, flush with flowing water for 15 minutes, including under the eyelids and get medical attention. **Skin:** Flush with flowing water then wash area with mild soap and water. **Ingestion:** Consult a physician.
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## SECTION VII – Precautions for Safe Handling and Use

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- 7.1 Steps to be taken in case material is released or spilled:** Absorb liquid with inert materials (sand, soda ash, vermiculite) and transfer to an appropriate closed container for disposal.
- 7.2 Waste disposal methods:** Dispose of in accordance with Federal, State and Local regulations.
- 7.3 Precautions to be taken in handling and storage:** Always close container immediately after use to prevent water absorption and contamination. Store at ambient temperature out of direct sunlight and heat. Do not store above 77°F (25°C). Do not expose to temperatures above 35°C Store in a dry area. Keep away from foodstuff and beverages.
- 7.4 Other precautions:** Eugenol darkens and thickens upon exposure to air. Observe normal warehouse handling procedures. Handling of this product should be by trained dental healthcare professionals only.
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## SECTION VIII – Control Measures/ Personal Protection

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- 8.1 Respiratory protection:** None required during normal use of this product. Avoid casual breathing of vapors.
- 8.2 Ventilation:** Local exhaust recommended.
- 8.3 Protective gloves:** Rubber gloves.
- 8.4 Eye protection:** Close fitting protective goggles.
- 8.5 Other protective clothing or equipment:** Rubber apron.
- 8.6 Work/Hygienic practices:** Avoid eye and skin contact, inhalation and ingestion. Observe normal care when working with chemicals. Do not eat, drink or smoke when using.

NFPA HAZARD CLASSIFICATIONS	
Health	2
Flammability	1
Reactivity	0
Specific Hazard	N A

NFPA - National Fire Protection Association

N.A. - Not Applicable

N.E. - Not Established

510897 (R-11/12/01)

# MATERIAL SAFETY DATA SHEET

## SECTION I – Product/Company Identification

1.1 Product Trade Name: **IRM<sup>®</sup> POWDER Zinc Oxide Eugenol**  
**Intermediate Restorative Material**

1.2 Part (Item) Number: **610003, 610007 All Package Configurations**

1.3 Division Name: **DENTSPLY Caulk**

1.4 Address: **38 West Clarke Avenue**  
**City State Zip: Milford DE 19963-0359**  
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## SECTION II - Hazardous Ingredients/Identity Information

<u>Hazardous Components</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>CAS #</u>	<u>Percent</u>
Zinc oxide	10 mg/mm <sup>3</sup>	10 mg/mm <sup>3</sup>	1314-13-2	Greater than 75%

## SECTION III - Physical/Chemical Characteristics

3.1 Boiling point:	N. A.	3.6 Specific Gravity:	5.7 g/cm <sup>3</sup>
3.2 Vapor pressure:	N. A.	3.7 Melting Point:	N. A.
3.3 Vapor density:	N. A.	3.8 Evaporation rate:	N. A.
3.4 Solubility in water:	Not Soluble		
3.5 Appearance and odor:	Whitish powder with faint odor.		

## SECTION IV - Fire and Explosion Hazard Data

4.1 Flash point (method used): N. A.

4.2 Flammability (explosive limits): **LEL: N. A. UEL: N. A.**

4.3 Extinguishing media: Water, carbon dioxide, or dry chemical extinguishers.

4.4 Special fire fighting procedures: Avoid extinguishing methods, which may generate dust clouds. Water stream can disperse dust in air producing a fire hazard and possible explosion hazard if exposed to ignition source. Fire fighters should wear full protective clothing including self-contained breathing apparatus.

4.5 Unusual fire and explosion hazards: Polymer dust is combustible. The explosive limits of the polymer particles suspended in air are approximately those of coal dust.

## SECTION V – Reactivity Data

5.1 Stability:	<b>Unstable:</b>	<b>Stable: X</b>
5.2 Conditions to avoid (stability):	Excessive heat, greater than 50°C/122°F.	
5.3 Incompatibility (materials to avoid):	N. A.	
5.4 Hazardous decomposition or byproducts:	From the polymer – methylmethacrylate and carbon monoxide.	
5.5 Hazardous polymerization:	<b>May occur:</b>	<b>Will not occur: X</b>
5.6 Conditions to avoid (polymerization):	None.	

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## SECTION VI - Health Hazard Data

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- 6.1 Route(s) of entry:** **Inhalation?:** Yes **Skin?:** No **Ingestion?:** Possible
- 6.2 Health hazards (acute and chronic):** It is not known to cause significant health problems. It is considered an inert or nuisance dust. Avoid inhalation of dust. Keep dust out of eyes to prevent possible irritation.
- 6.3 Carcinogenicity:** **NTP?:** Not listed **IARC monographs?:** Not listed **OSHA Regulated?:** No  
All components of this product are in compliance with the inventory listing requirements of the U. S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.
- 6.4 Signs and symptoms of exposure:** Product may irritate the eyes and skin. **Eye contact:** Redness or irritation.  
**Skin contact:** Redness or irritation.
- 6.5 Medical conditions generally aggravated by exposure:** Open sores or wounds of the skin.
- 6.6 Emergency first aid procedures:** **Inhalation:** Remove to fresh air. **Eyes:** In case of eye contact, flush with flowing water for 15 minutes, including under the eyelids and get medical attention. **Skin:** Flush with flowing water then wash area with mild soap and water. **Ingestion:** Rinse mouth with water. Consult a physician if amount was large.
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## SECTION VII – Precautions for Safe Handling and Use

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- 7.1 Steps to be taken in case material is released or spilled:** As with any nuisance dust, avoid excessive dusting. Sweep up spilled powder to avoid slipping hazard and place in an appropriately marked container. Keep airborne particulates to a minimum when cleaning up spills.
- 7.2 Waste disposal methods:** Dispose of in accordance with Federal, State and Local regulations.
- 7.3 Precautions to be taken in handling and storage:** Always close container immediately after use to prevent water absorption and contamination. Store at ambient temperature out of direct sunlight and heat. Store in a dry area. Keep away from foodstuff and beverages.
- 7.4 Other precautions:** Observe normal warehouse handling procedures. Handling of this product should be by trained dental healthcare professionals only.
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## SECTION VIII – Control Measures / Personal Protection

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- 8.1 Respiratory protection:** None required during normal use of this product. Local ventilation or approved nuisance dust mask, if in large quantities.
- 8.2 Ventilation:** Local exhaust recommended.
- 8.3 Protective gloves:** Rubber gloves.
- 8.4 Eye protection:** Safety glasses.
- 8.5 Other protective clothing or equipment:** Rubber apron.
- 8.6 Work/Hygienic practices:** Observe normal care when working with chemicals. Handling of this product should be by trained dental healthcare professionals only. Avoid eye and skin contact, inhalation and ingestion. Do not eat, drink or smoke when using.

NFPA HAZARD CLASSIFICATIONS	
Health	1
Flammability	0
Reactivity	0
Specific Hazard	N A

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