

SAFETY DATA SHEETS

This SDS packet was issued with item:

071737444

The safety data sheets (SDS) in this packet apply to one or more components included in the items listed below. Items listed below may require one or more SDS. Please refer to invoice for specific item number(s).

071737402 071738020 071738608 071891258 078289800 078291200 078291900

MSDS Name: IRM POWDER & LIQUID

Kit Components:

510896 : IRM POWDER

510897 : IRM Liquid Zinc Oxide Eugenol

Dentsply Caulk

IRM Liquid Zinc Oxide Eugenol

Manufacturer MSDS Number: 510897NFPA

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SECTION 1 : Chemical Product and Company Identification

MSDS Name: IRM Liquid Zinc Oxide Eugenol

Manufacturer Name: Dentsply Caulk

Address:

38 West Clarke Avenue

Milford DE 19963-0359

Internet Address: <http://www.caulk.com>

Business Phone: (302) 422-4511

For information in North America, call: (302) 422-4511

For emergencies in the US, call CHEMTREC: 800-424-9300

Hours Of Operation: (8:00 AM - 4:30 PM Eastern Time)

Manufacturer MSDS Creation Date:

11/13/98

Manufacturer MSDS Revision Date:

11/12/01

Trade Names:

IRM« LIQUID Zinc Oxide Eugenol

Intermediate Restorative Material

NFPA

Health: 2

Flammability: 1

Reactivity: 0

Other: N.A.

Product Codes:

610004, 610007 All Package Configurations *

SECTION 2 : Hazardous Ingredients/Identity Information

Chemical Name
Eugenol CAS#
99-53-0 Percent
> 99 %

OSHA PEL TWA: Not Applicable
ACGIH TLV TWA: Not Applicable
Chemical Name
Acetic Acid CAS#
64-19-7 Percent
< 1 %

OSHA PEL TWA: 10 ppm
ACGIH TLV TWA: 10 ppm

SECTION 3 : Physical And Chemical Characteristics

Physical State/Appearance:
Liquid.
Color:
Colorless or pale yellow
Odor:
Odor is oil of cloves.
Vapor Pressure:
0.1 mm Hg @ 20 deg C
Vapor Density:
Not Established
Boiling Point:
254 deg C/489 deg F
Melting Point:
-9 deg C/-16 deg F
Solubility:
In water: Slightly Soluble
Specific Gravity:
1.0 g/cm3
Evaporation Point:
Not Established
FlashPoint:
Approximately 252 deg F
Upper Flammable Explosive Limit:
Not Established
Lower Flammable Explosive Limit:
Not Established

SECTION 4 : Fire And Explosion Hazards

Flash Point:
Approximately 252 deg F
Flash Point Method:
Closed cup
Upper Flammable or Explosive Limit: Not Established

Lower Flammable or Explosive Limit: Not Established

Extinguishing Media:

Carbon dioxide, dry chemical or foam extinguishers.

Fire Fighting Instructions:

Fire fighters should wear full protective clothing including self-contained breathing apparatus. Cool containers exposed to flame with water.

Unusual Fire Hazards:

None, Material is not pyrophoric, does not react with water, not oxygen donor, material is shock stable.

SECTION 5 : Health Hazards

Applies to all ingredients:

Route of Exposure:

Inhalation: Yes

Skin: Yes

Ingestion: Possible

Potential Health Effects:

Acute: 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.

Chronic Health Effects:

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.

Carcinogenicity:

OSHA Designation: Regulated : No

NTP Designation: Not listed

IARC Designation: Monographs: Not listed

Signs/Symptoms:

Product may irritate the eyes and skin.

Eye contact: Redness or irritation.

Skin contact: Redness or irritation.

Eugenol:

Aggravation of Pre-Existing Conditions:

Persons with known sensitization to eugenol. Open sores or wounds of the skin.

SECTION 6 : Emergency And First Aid Procedures

Eye Contact:

In case of eye contact, flush with flowing water for 15 minutes, including under the eyelids and get medical attention.

Skin Contact:

Flush with flowing water then wash area with mild soap and water.

Ingestion:

Consult a physician.

SECTION 7 : Reactivity Data

Chemical Stability:

Stable

Conditions to Avoid:

(Stability): Excessive heat greater than 37 deg C/100 deg F.

Incompatibilities with Other Materials:

(Materials to avoid): Keep separated from strong bases, and strong oxidizing agents. Ferric chloride and potassium permanganate

Hazardous Polymerization:

Will not occur

Conditions to avoid (polymerization): None.

Hazardous Decomposition Products:

Forms carbon monoxide and/or carbon dioxide upon burning.

SECTION 8 : Precautions For Safe Handling

Spill Cleanup Measures:

Absorb liquid with inert materials (sand, soda ash, vermiculite) and transfer to an appropriate closed container for disposal.

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.

Handling:

Always close container immediately after use to prevent water absorption and contamination.

Storage:

Store at ambient temperature out of direct sunlight and heat. Do not store above 77 deg F (25 deg C). Do not expose to temperatures above 35 deg C Store in a dry area. Keep away from foodstuff and beverages.

Hygiene Practices:

Avoid eye and skin contact, inhalation and ingestion. Observe normal care when working with chemicals. Do not eat, drink or smoke when using.

Waste Disposal:

Dispose of in accordance with Federal, State and Local regulations.

SECTION 9 : Control Measures

Ventilation System:

Local exhaust recommended.

Hand Protection Description:

Protective gloves: Rubber gloves.

Eye/Face Protection:

Close fitting protective goggles.

Protective Clothing/Body Protection:

Rubber apron.

Respiratory Protection:

None required during normal use of this product. Avoid casual breathing of vapors.

SECTION 10 : Other Information

Applies to all ingredients:

TSCA 8(b): Inventory Status

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.

NFPA:

Fire Hazard: 1

Health: 2

Reactivity: 0

Specific Hazard: Not Applicable

MSDS Preparation Date: 11/13/98

MSDS Revision Date:

11/12/01

Abbreviations:

NFPA - National Fire Protection Association

N.A. - Not Applicable

N.E. - Not Established

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Dentsply Caulk

IRM POWDER

Manufacturer MSDS Number: 510896NFPA

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SECTION 1 : Chemical Product and Company Identification

MSDS Name: IRM Powder

Manufacturer Name:Dentsply Caulk

Address:

38 West Clarke Avenue

Milford DE 19963-0359

Business Phone:(302) 422-4511

For information in North America, call: (302) 422-4511

For emergencies in the US, call CHEMTREC: 800-424-9300

Manufacturer MSDS Creation Date:

9/20/95

Manufacturer MSDS Revision Date:

11/13/98

Trade Names:

IRM« POWDER.

NFPA

Health: 1

Flammability: 0

Reactivity: 0
Other: N.A.
Product Codes:
610007 , 610003.

SECTION 2 : Hazardous Ingredients/Identity Information

Chemical Name
Zinc oxide
OSHA PEL TWA: 10 mg/mm3
ACGIH TLV TWA: 10 mg/mm3
Hazardous: Yes

SECTION 3 : Physical And Chemical Characteristics

Physical State/Appearance:
Powder.
Color:
Whitish.
Odor:
Faint odor.
Vapor Pressure:
Not Applicable.
Vapor Density:
Not Applicable.
Boiling Point:
Not Applicable.
Melting Point:
Not Applicable.
Solubility:
In water: Not Soluble.
Specific Gravity:
5.7 g/cm3
Evaporation Point:
Not Applicable.
FlashPoint:
Not Applicable.
Upper Flammable Explosive Limit:
Not Applicable.
Lower Flammable Explosive Limit:
Not Applicable.

SECTION 4 : Fire And Explosion Hazards

Fire:
Flammability (explosive limits): Not Applicable.
Flash Point:
Not Applicable.
Flash Point Method:
Not Applicable.
Upper Flammable or Explosive Limit: Not Applicable.
Lower Flammable or Explosive Limit: Not Applicable.
Extinguishing Media:
Water, carbon dioxide, or dry chemical extinguishers.
Fire Fighting Instructions:

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 a self-contained breathing apparatus.

Unusual Fire Hazards:

Polymer dust is combustible. The explosive limits of the polymer particles suspended in air are approximately those of coal dust.

SECTION 5 : Health Hazards

Zinc oxide:

Route of Exposure:

Inhalation: Yes.

Skin: No.

Ingestion: Possible.

Potential Health Effects:

Acute: 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.

Chronic Health Effects:

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.

Carcinogenicity:

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.

OSHA Designation: Regulated: No.

NTP Designation: Not listed.

IARC Designation: Monographs: Not listed.

Signs/Symptoms:

Product may irritate the eyes and skin.

Eye contact: Redness or irritation.

Skin contact: Redness or irritation.

Aggravation of Pre-Existing Conditions:

Open sores or wounds of the skin.

SECTION 6 : Emergency And First Aid Procedures

Eye Contact:

In case of eye contact, flush with flowing water for 15 minutes, including under the eyelids and get medical attention.

Skin Contact:

Flush with flowing water then wash area with mild soap and water.

Inhalation:

Remove to fresh air.

Ingestion:

Rinse mouth with water. Consult a physician if amount was large.

SECTION 7 : Reactivity Data

Chemical Stability:

Stable.

Conditions to Avoid:

(Stability): Excessive heat, greater than 50 deg C/122 deg F.

Incompatibilities with Other Materials:

(Materials to avoid): Not Applicable.

Hazardous Polymerization:

Will not occur.

Conditions to avoid (polymerization): None.

Hazardous Decomposition Products:

From the polymer - methylmethacrylate and carbon monoxide.

SECTION 8 : Precautions For Safe Handling

Spill Cleanup Measures:

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.

Other Precautions:

Observe normal warehouse handling procedures.

Storage:

Store in a cool, dry place away from food and beverages. Keep container closed to prevent water absorption and contamination.

Work Practices:

Observe normal care when working with chemicals.

Hygiene Practices:

Observe normal care when working with chemicals.

Waste Disposal:

Dispose of in accordance with Federal, State and Local regulations.

SECTION 9 : Control Measures

Ventilation System:

Local exhaust recommended.

Hand Protection Description:

Protective gloves: Rubber gloves.

Eye/Face Protection:

Safety glasses.

Protective Clothing/Body Protection:

Rubber apron.

Respiratory Protection:

None required during normal use of this product. Local ventilation or approved nuisance dust mask, if in large quantities.

SECTION 10 : Other Information

Zinc oxide:

TSCA 8(b): Inventory Status

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.

NFPA:

Fire Hazard: 0

Health: 1

Reactivity: 0

Specific Hazard: Not Applicable.

MSDS Preparation Date: 9/20/95

MSDS Revision Date:

11/13/98

Abbreviations:

NFPA - National Fire Protection Association.

N.A. - Not Applicable.

N.E. - Not Established.

510896 (R-11/98)

Dentsply IRM Powder

Dentsply (Australia) Pty Ltd

Chemwatch: 8108-20

Version No: 4.1.1.1

Safety Data Sheet according to WHS and ADG requirements

Chemwatch Hazard Alert Code: 1

Issue Date: 01/01/2013

Print Date: 21/08/2015

Initial Date: Not Available

S.GHS.AUS.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	Dentsply IRM Powder
Synonyms	intermediate restorative material
Other means of identification	Not Available

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	For dental use only
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Details of the manufacturer/importer

Registered company name	Dentsply (Australia) Pty Ltd
Address	11-21 Gilby Road Mount Waverley 3149 VIC Australia
Telephone	1300 55 29 29; 1300 552 929
Fax	+61 3 9538 8260
Website	www.dentsply.com.au
Email	clientservices@dentsply.com

Emergency telephone number

Association / Organisation	Dentsply (Australia) Pty Ltd
Emergency telephone numbers	1300 55 29 29 (Hours of operation: Mon-Fri 9am-5pm. EST; General information only)
Other emergency telephone numbers	1300 55 29 29 (Hours of operation: Mon-Fri 9am-5pm. EST; General information only)

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

NON-HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the Model WHS Regulations and the ADG Code.


CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability	0	
Toxicity	1	
Body Contact	1	
Reactivity	0	
Chronic	0	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Poisons Schedule	Not Applicable
GHS Classification [1]	Acute Aquatic Hazard Category 1, Chronic Aquatic Hazard Category 1
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HSIS ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

Label elements

GHS label elements	
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SIGNAL WORD **WARNING**

Hazard statement(s)

H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

Precautionary statement(s) Prevention

P273	Avoid release to the environment
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Obtained by Global Safety Management, www.globalsafety.net.com, (877) 683-7460

Continued...

Dentsply IRM Powder

Precautionary statement(s) Response

P391	Collect spillage.
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Precautionary statement(s) Storage

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
1314-13-2	50-100	<u>zinc oxide</u>
	NotSpec	other ingredients determined not to be hazardous

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> Wash out immediately with fresh running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Seek medical attention without delay; if pain persists or recurs seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> Immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> If dust is inhaled, remove from contaminated area. Encourage patient to blow nose to ensure clear breathing passages. Ask patient to rinse mouth with water but to not drink water. Seek immediate medical attention.
Ingestion	<ul style="list-style-type: none"> If swallowed do NOT induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Observe the patient carefully. Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. Seek medical advice.

Indication of any immediate medical attention and special treatment needed

- Absorption of zinc compounds occurs in the small intestine.
- The metal is heavily protein bound.
- Elimination results primarily from faecal excretion.
- The usual measures for decontamination (Ipecac Syrup, lavage, charcoal or cathartics) may be administered, although patients usually have sufficient vomiting not to require them.
- CaNa2EDTA has been used successfully to normalise zinc levels and is the agent of choice.

[Ellenhorn and Barceloux: Medical Toxicology]

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

	<ul style="list-style-type: none"> Water spray or fog. Foam. Dry chemical powder. BCF (where regulations permit).
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Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.
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Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves in the event of a fire. Prevent, by any means available, spillage from entering drains or water courses. Use fire fighting procedures suitable for surrounding area.
Fire/Explosion Hazard	<ul style="list-style-type: none"> Non combustible. Not considered a significant fire risk, however containers may burn. <p>Decomposition may produce toxic fumes of; metal oxidesMay emit poisonous fumesMay emit corrosive fumes.</p>

SECTION 6 ACCIDENTAL RELEASE MEASURES

Dentsply IRM Powder

Personal precautions, protective equipment and emergency procedures

Minor Spills	<ul style="list-style-type: none"> Remove all ignition sources. Clean up all spills immediately. Avoid contact with skin and eyes. Control personal contact with the substance, by using protective equipment.
Major Spills	<p>Moderate hazard.</p> <ul style="list-style-type: none"> CAUTION: Advise personnel in area. Alert Emergency Services and tell them location and nature of hazard. Control personal contact by wearing protective clothing.
Personal Protective Equipment advice is contained in Section 8 of the SDS.	

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps.
Other information	<ul style="list-style-type: none"> Store in original containers. Keep containers securely sealed. Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers.

Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> Polyethylene or polypropylene container. Check all containers are clearly labelled and free from leaks.
Storage incompatibility	<ul style="list-style-type: none"> Avoid reaction with oxidising agents

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA


Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	zinc oxide	Zinc oxide (dust) (a) / Zinc oxide (fume)	10 mg/m ³ / 5 mg/m ³	10 mg/m ³	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
zinc oxide	Zinc oxide	10 mg/m ³	15 mg/m ³	2500 mg/m ³

Ingredient	Original IDLH	Revised IDLH
zinc oxide	2,500 mg/m ³	500 mg/m ³

Exposure controls

Appropriate engineering controls	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.</p>
Personal protection	
Eye and face protection	<p>No special equipment for minor exposure i.e. when handling small quantities.</p> <p>OTHERWISE:</p> <ul style="list-style-type: none"> Safety glasses with side shields. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.
Skin protection	See Hand protection below
Hands/feet protection	<p>No special equipment needed when handling small quantities.</p> <p>OTHERWISE: Wear general protective gloves, e.g. light weight rubber gloves.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> Overalls. P.V.C. apron. Barrier cream.
Thermal hazards	Not Available

Dentsply IRM Powder

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

Dentsply IRM Powder Not Available

Material	CPI
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* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:000 & 149:001, ANSI Z88 or national equivalent)

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	P1 Air-line*	-	PAPR-P1
up to 50 x ES	Air-line**	P2	PAPR-P2
up to 100 x ES	-	P3	-
		Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

* - Negative pressure demand ** - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	White powder with a faint odour; insoluble in water.		
Physical state	Divided Solid	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Applicable	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	Not Applicable	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Applicable	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Applicable
Vapour pressure (kPa)	Not Applicable	Gas group	Not Available
Solubility in water (g/L)	Immiscible	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	Not Applicable	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> Unstable in the presence of incompatible materials. Product is considered stable. Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	<p>There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.</p> <p>Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.</p> <p>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.</p>
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Dentsply IRM Powder

Ingestion	Accidental ingestion of the material may be damaging to the health of the individual. Soluble zinc salts produce irritation and corrosion of the alimentary tract with pain, and vomiting. Death can occur due to insufficiency of food intake due to severe narrowing of the oesophagus and pylorus.
Skin Contact	There is some evidence to suggest that the material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	Limited evidence or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals. Prolonged eye contact may cause inflammation characterised by a temporary redness of the conjunctiva (similar to windburn).
Chronic	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Overexposure to respirable dust may cause coughing, wheezing, difficulty in breathing and impaired lung function. Chronic symptoms may include decreased vital lung capacity, chest infections Repeated exposures, in an occupational setting, to high levels of fine- divided dusts may produce a condition known as pneumoconiosis which is the lodgement of any inhaled dusts in the lung irrespective of the effect. This is particularly true when a significant number of particles less than 0.5 microns (1/50,000 inch), are present.

Dentsply IRM Powder	TOXICITY	IRRITATION
	Not Available	Not Available
zinc oxide	TOXICITY	IRRITATION
	Oral (rat) LD50: >5000 mg/kg ^[1]	Eye (rabbit) : 500 mg/24 h - mild Skin (rabbit) : 500 mg/24 h- mild
Legend:	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

ZINC OXIDE	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
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Acute Toxicity	☐	Carcinogenicity	☐
Skin Irritation/Corrosion	☐	Reproductivity	☐
Serious Eye Damage/Irritation	☐	STOT - Single Exposure	☐
Respiratory or Skin sensitisation	☐	STOT - Repeated Exposure	☐
Mutagenicity	☐	Aspiration Hazard	☐

Legend:  – Data required to make classification available
 – Data available but does not fill the criteria for classification
 – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

Bioaccumulative potential

Ingredient	Bioaccumulation
zinc oxide	LOW (BCF = 217)

Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

SECTION 13 DISPOSAL CONSIDERATIONS


Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> Recycle wherever possible or consult manufacturer for recycling options. Consult State Land Waste Management Authority for disposal. Bury residue in an authorised landfill. Recycle containers if possible, or dispose of in an authorised landfill.
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SECTION 14 TRANSPORT INFORMATION

Dentsply IRM Powder

Labels Required

Marine Pollutant	
HAZCHEM	Not Applicable

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

SECTION 15 REGULATORY INFORMATION

Safety, health and environmental regulations / legislation specific for the substance or mixture

ZINC OXIDE(1314-13-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards	Australia Inventory of Chemical Substances (AICS)
Australia Hazardous Substances Information System - Consolidated Lists	

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	Y
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Other information

Ingredients with multiple cas numbers

Name	CAS No
zinc oxide	1314-13-2, 175449-32-8

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:
www.chemwatch.net

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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TEL (+61 3) 9572 4700.

**DENTSPLY/International
DENTSPLY/Caulk
Safety Data Sheet**

510897

1. Identification

Product Name IRM[®] LIQUID - Zinc Oxide Eugenol Intermediate Restorative Material	SDS Code Number 510897
Substance Identity IRM[®] LIQUID - Zinc Oxide Eugenol Intermediate Restorative Material	Date of Last Revision 02/21/14
Manufacturer: DENTSPLY Caulk	Address 38 West Clarke Avenue Milford DE 19963-1805 http://www.caulk.com http://www.dentsply.com
Grades or Minor Variant Identities Not Applicable	Information Telephone Number (302) 422-4511 (8:00 AM – 4:30 PM Eastern Time)
Product Use (for Canada) Not Applicable	Emergency Telephone Number (302) 422-4511 (8:00 AM – 4:30 PM Eastern Time)

2. Hazard(s) Identification



**Warning
Causes Skin Irritation**

Wash hands thoroughly after handling.
Wear protective gloves.
IF ON SKIN: Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.

3. Composition/Information on Ingredients

Hazardous Components	C.A.S. Number	Exposure Limits	%
Eugenol	99-53-0	10 mg/M ³	> than 98
Acetic Acid	64-19-7	10 PPM	< than 2

3. Hazard Identification

Emergency Overview: Material may be irritating to eyes. No significant hazards for emergency responses are known.					
Routes of Exposure	Signs and Symptoms	Single, Repeated, or Lifetime Exposure	Severity (Mild, Moderate, Severe)	Acute and Chronic Health Effect(s)	Target Organ(s)
Eye	Material may cause slight transient (temporary) irritation.	Single & Repeated	Moderate	Irritation and possible corneal damage due to the powders used in the product.	Not Applicable
Skin	Material may be an irritant after repeated and prolonged exposure.	Repeated	Mild	Irritation or possible allergic response.	Not Applicable
Inhalation	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ingestion	Material is probably not harmful if swallowed	Not Applicable	Mild	Not Applicable	Not Applicable
Other	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Medical Conditions Aggravated by Exposure Open sores and wounds of the skin.					
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.					
Potential Environmental Effects Do not allow to enter sewers/ surface or ground water.					

4. First Aid Measures

Routes of Exposure	First Aid Instructions	Immediate Medical Attention	Delayed Effects
Eye	Rinse opened eye for several minutes under running water. If symptoms persist consult a physician.	Not Applicable	Not Applicable

Skin	Immediately wash with soap and water and rinse thoroughly.	Not Applicable	Not Applicable
Inhalation	Supply fresh air, consult physician if complaint persist.	Not Applicable	Not Applicable
Ingestion	Rinse mouth out and then drink plenty of water. Induce vomiting and call for medical help.	Not Applicable	Not Applicable
Other	Not Applicable	Not Applicable	Not Applicable
Note to Physicians (Treating, Testing and Monitoring): Treat symptomatically.			

5. Fire and Explosion Data

Flashpoint Method: 110°C (230°F) Closed Cup		Flammable (Explosive) Limits in Air LEL: Not Applicable UEL: Not Applicable	Autoignition Temperature: Not Applicable.	Other: Not Applicable
Flame Propagation or Burning Rate (for Solids) Not Applicable		Properties Contributing to Fire Intensity: Not Applicable	Flammability Classification: Not Applicable	
Extinguishing Media: CO ₂ , foam, powder, or water spray.			Extinguishing Media to Avoid: Water with full jet.	
Protection and Procedures for Firefighters: Firefighters should wear self-contained respiratory protective devices.				
Unusual Fire and Explosion Hazards: During a fire, formation of toxic and/or irritating compounds may be present.				

6. Accidental Release Measures

Containment Techniques: Absorb spill with inert material (e.g. vermiculite, sand, and earth), then place material in suitable labeled plastic or metal container.		
Spill/Leak Clean-up Procedures and Equipment: Absorb spill with inert material (e.g. vermiculite, sand, and earth), then place material in suitable labeled plastic or metal container. Ensure adequate ventilation.		
Evacuation Procedures: Not Applicable	Special Instructions: Not Applicable	Reporting Requirements: Not Applicable

7. Handling and Storage

Handling Practices and Warnings: Product is intended for dental use only. Handling of this product should be by trained dental healthcare professionals only. Observe normal care for working with chemicals.
Storage Practices and Warnings: Store only in the original package. Keep package tightly sealed. Store in a dry area. Store away from food and beverages. Protect from heat and direct sunlight.

8. Exposure Control / Personal Protection



Individual Protection Measures	Personal Protective Equipment for Normal Use	Personal Protective Equipment for Emergencies
Eye/Face	Safety Glasses	Not Applicable
Skin	The glove material has to be impermeable and resistant to the product.	Not Applicable
Inhalation	Not Required	Not Applicable
Body Protection	Protective work clothing	Not Applicable
Occupational Exposure Limits: Not Applicable		Engineering Controls: Not Applicable

9. Physical and Chemical Characteristics

Appearance: Colorless or pale yellow liquid.	Odor: Oil of cloves.	
Normal Physical State: Liquid.	Melting Point: -10°C (14°F)	
Specific Gravity: 1.06 g/cm ³	Solubility in Water: Insoluble	pH: Not Applicable
Vapor Pressure (mm Hg): 0.009	Vapor Density (AIR=1): Not Applicable	Evaporation Rate (Butyl Acetate =1): Not Applicable
Flashpoint Method: Not Applicable	Flammable (Explosive) Limits in Air LEL: Not Applicable UEL: Not Applicable	Autoignition Temperature: Not Applicable
Other: Not Applicable		

10. Stability and Reactivity Data

Incompatibility (Materials to Avoid): Strong oxidizing agents.	
Hazardous Products Produced During Decomposition: Forms carbon monoxide and/or carbon dioxide.	
Hazardous Polymerization: <input type="checkbox"/> May Occur <input checked="" type="checkbox"/> May Not Occur	Conditions to Avoid: None known
Stability? <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Unstable	Conditions to Avoid: None known

11. Toxicological Information

Toxicity Data, Epidemiology Studies, Carcinogenicity, Neurological Effects, Genetic Effects, Reproductive Effects, or Structure Activity Data: The Oral LD ₅₀ for Eugenol, in rats, is 1930mg/Kg.					
Emergency Overview: Material may be mildly irritating to eyes.					
Routes of Exposure	Signs and Symptoms	Single, Repeated, or Lifetime Exposure	Severity (Mild, Moderate, Severe)	Acute and Chronic Health Effect(s)	Target Organ(s)
Eye	Material may cause slight transient (temporary) irritation.	Single & Repeated	Moderate	Irritation and possible corneal damage due to the fillers used in the product.	Not Applicable
Skin	Material may be an irritant after repeated and prolonged exposure.	Repeated	Mild	Irritation or possible allergic response.	Not Applicable

Inhalation	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Ingestion	Material is probably not harmful if swallowed	Not Applicable	Mild	Not Applicable	Not Applicable
Other	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Medical Conditions Aggravated by Exposure Open sores and wounds of the skin.					
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.					
Potential Environmental Effects: Potential Environmental Effects Do not allow to enter sewers/ surface or ground water.					
NFPA Hazard Classification Ratings (Scale 0-4). Health = 1, Fire = 1, Reactivity = 0					

12. Ecological Information

Toxicity Data, Environmental Fate, Physical/Chemical Data, or other Data Supporting Environmental Hazard Statements: Water Hazard Class I (Self-assessment): slightly hazardous for water. Do not allow product to reach ground water, water streams or sewage system.

13. Disposal Considerations

Regulations: Must not be disposed of together with household garbage. Dispose of material as solid waste in a closed container. Dispose of in accordance with Federal, State and Local regulations

Properties (Physical/Chemical) Affecting Disposal: Dispose of material as solid waste in a closed container.

14. Transport Information

Regulated for Shipping: No. Not Regulated	DOT Shipping Name: Not Regulated	Packing Group: Not Applicable
Do Changes in Quantities, packaging, or shipment method change product classification? No	DOT Hazard Class: Not Applicable	UN Number: Not Applicable

15. Regulatory Information

This product has been classified in accordance with the hazard criteria of the Globally Harmonized System of Classification and Labeling of Chemicals and the SDS contains all of the information required by the Canadian Controlled Products Regulations.

U.S. Federal Regulations: CERCLA 103 Reportable Quantity: This product is not subject to CERCLA reporting requirements. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations

Section 313 Toxic Chemicals: This product contains the following chemicals subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372): None

Section 302 Extremely Hazardous Substances (TPQ): None

EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.

U.S. State Regulations California Proposition 65: This product does not contain any chemicals, which are on the California Proposition 65 list.

Canada WHMIS, Workplace Hazardous Materials Information System: This product is not a controlled product.

International Regulations: Canadian Environmental Protection Act: This product is a medical device and not subject to chemical notification requirements.

European Community Labeling: Not a dangerous preparation.

European Community Labeling: R22 Harmful if swallowed S24/25 Avoid contact with skin and eyes S36 Wear suitable protective clothing

European Inventory of New and Existing Chemicals Substances (EINECS): This product is a medical device and not subject to chemical notification requirements CAS# Eugenol 97-53-0 EINECS: 202-589-1 Eugenol.

Other: Not Applicable

16. Other Information

To the best of our knowledge this product does not contain gluten, wheat grains, flaxseed, natural rubber, or natural latex. All components are synthetically produced; none are derived from animal products.

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific products features and shall not establish a legally valid contractual relationship.

The attached safety data sheet covers the dangers and measures to be taken when large quantities of material are released, for example due to accidents during transport or storage by the dealer. For quantities of material typically used in clinical practice, information necessary for safe use and storage of the product is given in the DFU.