

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/International
DENTSPLY/Caulk
Safety Data Sheet**

510896

1. Identification

Product Name IRM[®] Powder Zinc Oxide Eugenol Intermediate Restorative Material	SDS Code Number 510896
Substance Identity IRM[®] Powder Zinc Oxide Eugenol Intermediate Restorative Material	Date of Last Revision 04/15/11
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) Temporary Restorative	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	%
Zinc oxide	1314-13-2	10 mg/M ³	> than 75

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 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 symptoms persist.	Not Applicable	Not Applicable
Ingestion	Rinse mouth out and then drink plenty of water. If symptoms persist consult physician.	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: Not Applicable	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 , 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: Material is a solid and as such containment is limited to steps to reduce dust.		
Spill/Leak Clean-up Procedures and Equipment: Wear protective clothing and scoop up bulk material and place in a labeled plastic or metal container.		
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.

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: Off white powder.		Odor: Mild odor.
Normal Physical State: Dry powder.		Melting Point: Not Applicable
Specific Gravity: 5.7 g/cm ³	Solubility in Water: Partially soluble.	pH: Not Applicable
Vapor Pressure (mm Hg): Not Applicable	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 acids, strong oxidizing agents.		
Hazardous Products Produced During Decomposition: Oxides of Zinc.		
Hazardous Polymerization: ☐ May Occur ☒ May Not Occur	Conditions to Avoid: None known	
Stability? ☒ Stable ☐ Unstable	Conditions to Avoid: None known	

11. Toxicological Information

Toxicity Data, Epidemiology Studies, Carcinogenicity, Neurological Effects, Genetic Effects, Reproductive Effects, or Structure Activity Data: Not Applicable					
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 = 0, Reactivity = 1			

12. Ecological Information

Toxicity Data, Environmental Fate, Physical/Chemical Data, or other Data Supporting Environmental Hazard Statements: Water Hazard Class 2 (Self-assessment): Very toxic to fish. Do not allow product to reach ground water, water streams or sewage system. Also poisonous for fish and plankton in water bodies. R50/53 Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.



Danger
Hazardous to aquatic life

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: R50/53 Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment. S57 Use appropriate container to avoid environmental contamination. S60 This material and its container must be disposed of as hazardous waste.

European Inventory of New and Existing Chemicals Substances (EINECS): This product is a medical device and not subject to chemical notification requirements.

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.

Dentsply IRM Liquid

Dentsply (Dentsply (AUSTRALIA))

Chemwatch: 8108-19

Version No: 4.1.1.1

Material Safety Data Sheet according to NOHSC and ADG requirements

Chemwatch Hazard Alert Code: 2

Issue Date: 01/01/2013

Print Date: 30/07/2014

Initial Date: Not Available

S.Local.AUS.EN

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

Product Identifier

Product name	Dentsply IRM Liquid
Chemical Name	Not Applicable
Synonyms	IRM Liquid
Proper shipping name	Not Applicable
Chemical formula	Not Applicable
Other means of identification	Not Available
CAS number	Not Applicable

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

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

Registered company name	Dentsply (Dentsply (AUSTRALIA))		
Address	11-21 Gilby Road Mount Waverley 3149 VIC Australia		
Telephone	+61 3 9538 8240		
Fax	+61 3 9538 8260		
Website	www.dentsply.com.au		
Email	Not Available		

Emergency telephone number

Association / Organisation	Not Available		
Emergency telephone numbers	Not Available		
Other emergency telephone numbers	Not Available		

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

CHEMWATCH HAZARD RATINGS

	Min	Max	
Flammability	1		
Toxicity	2		
Body Contact	2		
Reactivity	1		
Chronic	2		

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

Label elements

Dentsply IRM Liquid



Relevant risk statements are found in section 2

Poisons Schedule	S6	
Risk Phrases ^[1]	R36/37/38	Irritating to eyes, respiratory system and skin.
	R42/43	May cause SENSITISATION by inhalation and skin contact.
	R22	Harmful if swallowed.
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HSIS ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI	

Indication(s) of danger	Xn
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SAFETY ADVICE

S13	Keep away from food, drink and animal feeding stuffs.
S23	Do not breathe gas/fumes/vapour/spray.
S25	Avoid contact with eyes.
S26	In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.
S36	Wear suitable protective clothing.
S37	Wear suitable gloves.
S39	Wear eye/face protection.
S40	To clean the floor and all objects contaminated by this material, use water and detergent.
S45	In case of accident or if you feel unwell IMMEDIATELY contact Doctor or Poisons Information Centre (show label if possible).
S46	If swallowed, seek medical advice immediately and show this container or label.
S56	Dispose of this material and its container at hazardous or special waste collection point.
S63	In case of accident by inhalation: remove casualty to fresh air and keep at rest.
S64	If swallowed, rinse mouth with water (only if the person is conscious).

Other hazards

	Inhalation and/or skin contact may produce health damage*.
	Limited evidence of a carcinogenic effect*.
	Cumulative effects may result following exposure*.
	Repeated exposure potentially causes skin dryness and cracking*.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
97-53-0	>98	eugenol
64-19-7	<2	acetic acid glacial

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: - 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.
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Dentsply IRM Liquid

	▶ 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	If skin contact occurs: ▶ 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	▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor, without delay.
Ingestion	▶ IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. ▶ For advice, contact a Poisons Information Centre or a doctor. ▶ Urgent hospital treatment is likely to be needed. ▶ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. ▶ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist. ▶ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS. Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise: ▶ INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. NOTE: Wear a protective glove when inducing vomiting by mechanical means.

Indication of any immediate medical attention and special treatment needed

	Treat symptomatically.
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SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

	▶ Foam. ▶ Dry chemical powder. ▶ BCF (where regulations permit). ▶ Carbon dioxide.
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Special hazards arising from the substrate or mixture

Fire Incompatibility	▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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Advice for firefighters

Fire Fighting	▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear full body protective clothing with breathing apparatus. ▶ Prevent, by any means available, spillage from entering drains or water course. ▶ Use water delivered as a fine spray to control fire and cool adjacent area.
Fire/Explosion Hazard	▶ Combustible. ▶ Slight fire hazard when exposed to heat or flame. ▶ Heating may cause expansion or decomposition leading to violent rupture of containers. ▶ On combustion, may emit toxic fumes of carbon monoxide (CO).

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills	▶ Remove all ignition sources. ▶ Clean up all spills immediately.
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Dentsply IRM Liquid

	▶ Avoid breathing vapours and contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment.
Major Spills	Moderate hazard. ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves.
	Personal Protective Equipment advice is contained in Section 8 of the MSDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	▶ DO NOT allow clothing wet with material to stay in contact with skin ▶ 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	▶ Store in original containers. ▶ Keep containers securely sealed. ▶ No smoking, naked lights or ignition sources. ▶ Store in a cool, dry, well-ventilated area.

Conditions for safe storage, including any incompatibilities

Suitable container	▶ Glass container is suitable for laboratory quantities ▶ Metal can or drum ▶ Packaging as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	▶ Avoid reaction with oxidising agents

PACKAGE MATERIAL INCOMPATIBILITIES

Not Available

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	acetic acid glacial	Acetic acid	25 mg/m3 / 10 ppm	37 mg/m3 / 15 ppm	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	TEEL-0	TEEL-1	TEEL-2	TEEL-3
acetic acid glacial	5 ppm	5 ppm	35 ppm	250 ppm

Ingredient	Original IDLH	Revised IDLH
eugenol	Not Available	Not Available
acetic acid glacial	1,000 ppm	50 ppm

Exposure controls

Appropriate engineering controls	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. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk. 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.
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Dentsply IRM Liquid

Personal protection	    
Eye and face protection	▶ Safety glasses with side shields. ▶ Chemical goggles. ▶ 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	▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber NOTE: ▶ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. ▶ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.
Body protection	See Other protection below
Other protection	▶ Overalls. ▶ P.V.C. apron. ▶ Barrier cream.
Thermal hazards	Not Available

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:

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Material	CPI
BUTYL	A
NEOPRENE	A
NITRILE+PVC	A
PE	A
PE/EVAL/PE	A
PVC	A
SARANEX-23	A
TEFLON	A
BUTYL/NEOPRENE	B
NATURAL RUBBER	B
NATURAL+NEOPRENE	B
NITRILE	B

* 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

Type AB-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AB-AUS P2	-	AB-PAPR-AUS / Class 1 P2
up to 50 x ES	-	AB-AUS / Class 1 P2	-
up to 100 x ES	-	AB-2 P2	AB-PAPR-2 P2 ^

^ - Full-face

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

Dentsply IRM Liquid

Appearance	Colorless or pale yellow liquid with clove oil odour; does not mix with water.		
Physical state	Liquid	Relative density (Water = 1)	1.06
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	-10	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	254	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	110	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Negligible	Gas group	Not Available
Solubility in water (g/L)	Immiscible	pH as a solution(1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	▶ 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	Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.
Ingestion	Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Ingestion of eugenol and eugenol-containing oils may produce gastroenteritis. Systemic toxicity is similar but less than that of phenol, perhaps because of its relatively insolubility. Aqueous emulsions by mouth induce vomiting in man and dog and promote gastric secretion of mucin.
Skin Contact	The material produces severe skin irritation; evidence exists, or practical experience predicts, that the material either: ▶ produces severe inflammation of the skin in a substantial number of individuals following direct contact, and/or ▶ produces significant and severe inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period. ▶ Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact

Dentsply IRM Liquid

	► dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.
Eye	Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur. Some phenol derivatives may produce mild to severe eye irritation with redness, pain and blurred vision. Permanent eye injury may occur; recovery may also be complete or partial.
Chronic	On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment. Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Practical evidence shows that inhalation of the material is capable of inducing a sensitisation reaction in a substantial number of individuals at a greater frequency than would be expected from the response of a normal population. Pulmonary sensitisation, resulting in hyperactive airway dysfunction and pulmonary allergy may be accompanied by fatigue, malaise and aching.

Dentsply IRM Liquid	TOXICITY	IRRITATION
	Not Available	Not Available
eugenol	TOXICITY	IRRITATION
	Oral (rat) LD50: 1930 mg/kg	Skin (human) 40 mg/24h - mild
		Skin (man): 16 mg/48h - moderate
		Skin (rabbit): 100 mg/24h-SEVERE
acetic acid glacial	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 1060 mg/kg	Eye (rabbit): 0.05mg (open)-SEVERE
	Oral (rat) LD50: 3310 mg/kg	Skin (human):50mg/24hr - mild
		Skin (rabbit):525mg (open)-SEVERE
	TOXICITY	IRRITATION
	Not Available	Not Available

Not available. Refer to individual constituents.

EUGENOL	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. Equivocal tumorigen by RTECS criteria
ACETIC ACID GLACIAL	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS.

Acute Toxicity	✓	Carcinogenicity	⊗
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Dentsply IRM Liquid

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

CMR STATUS

Not Applicable

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
Not Available	Not Available	Not Available

Bioaccumulative potential

Ingredient	Bioaccumulation
Not Available	Not Available

Mobility in soil

Ingredient	Mobility
Not Available	Not Available

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Authority for disposal. ▶ Bury or incinerate residue at an approved site. ▶ Recycle containers if possible, or dispose of in an authorised landfill.
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SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
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

Transport in bulk according to Annex II of MARPOL 73 / 78 and the IBC code

Source	Ingredient	Pollution Category
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	acetic acid glacial	Z

SECTION 15 REGULATORY INFORMATION

Dentsply IRM Liquid

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

eugenol(97-53-0) is found on the following regulatory lists	"Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5","IOFI Global Reference List of Chemically Defined Substances","International Fragrance Association (IFRA) Standards Restricted","Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)","Australia Approved Active Constituents for Agricultural Chemical Products","FisherTransport Information","Australia Inventory of Chemical Substances (AICS)","Joint FAO/WHO Expert Committee on Food Additives (JECFA) - Specifications for Flavours","Australia - Victoria Drugs, Poisons and Controlled Substances (Precursor Chemicals) Regs 2007 - Schedule 1 - Precursor Chemicals and Quantities","Sigma-AldrichTransport Information","Australia Australian Pesticides and Veterinary Medicines Authority (APVM) Record of approved active constituents","Australia Illicit Drug Precursors/Reagents - Category II","Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)","International Fragrance Association IFRA Standards Annex I","International Fragrance Association (IFRA) Survey: Transparency List","Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6"
acetic acid glacial(64-19-7) is found on the following regulatory lists	"Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5","International Council of Chemical Associations (ICCA) - High Production Volume List","IOFI Global Reference List of Chemically Defined Substances","Australia Illicit Drug Reagents/Essential Chemicals - Category III","IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk","International Maritime Dangerous Goods Requirements (IMDG Code)","Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)","International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index","Australia FAISD Handbook - Safety Directions","Australia Exposure Standards","Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 2","Australia FAISD Handbook - First Aid Instructions, Warning Statements, and General Safety Precautions","FisherTransport Information","Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes","United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (English)","OECD List of High Production Volume (HPV) Chemicals","Australia Inventory of Chemical Substances (AICS)","Joint FAO/WHO Expert Committee on Food Additives (JECFA) - Specifications for Flavours","OSPAR National List of Candidates for Substitution – Norway","WHO Model List of Essential Medicines - Adults","Belgium Federal Public Service Mobility and Transport, Regulations concerning the International Carriage of Dangerous Goods by Rail - Table A: Dangerous Goods List - RID 2013 (Dutch)","International Numbering System for Food Additives","Australia National Pollutant Inventory","OECD Existing Chemicals Database","Sigma-AldrichTransport Information","Australia High Volume Industrial Chemical List (HVICL)","United Nations Recommendations on the Transport of Dangerous Goods Model Regulations (Spanish)","Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List","Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)","GESAMP/EHS Composite List - GESAMP Hazard Profiles","International Air Transport Association (IATA) Dangerous Goods Regulations","Australia Hazardous Substances Information System - Consolidated Lists","CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP","International Fragrance Association (IFRA) Survey: Transparency List","IMO IBC Code Chapter 17: Summary of minimum requirements","Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6"

SECTION 16 OTHER INFORMATION

Other information

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/references

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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