

DENTSPLY IRM LIQUID

ChemWatch Material Safety Data Sheet
Issue Date: Wed 11-Aug-2004

CHEMWATCH 8108-19
CD 2004/2 Page 1 of 11

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

DENTSPLY IRM LIQUID

SYNONYMS

Product Code: 610004, 610007 ! 01/03
intermediate restorative material

PRODUCT USE

Medicine

SUPPLIER

Company: Dentsply (Australia) Pty Ltd

Address:

11-21 Gilby Road
Mount Waverley
VIC, 3149
AUS

Telephone: +61 03 9538 8240

Emergency Tel: 0413 830 239

Fax: 03 9538 8260

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

According to the Criteria of NOHSC, and the ADG Code.

POISONS SCHEDULE

S6

RISK

Inhalation and/or ingestion may produce health damage*.
May produce discomfort of the eyes, respiratory tract and skin*.
Limited evidence of a carcinogenic effect*.
Possible respiratory and skin sensitiser*.
* (limited evidence)

SAFETY

Do not breathe gas/fumes/vapour/spray.
Wear eye/face protection.
Use only in well ventilated areas.
Keep container in a well ventilated place.

continued...

DENTSPLY IRM LIQUID

ChemWatch Material Safety Data Sheet
Issue Date: Wed 11-Aug-2004

CHEMWATCH 8108-19
CD 2004/2 Page 2 of 11

Section 2 - HAZARDS IDENTIFICATION ...

Keep container tightly closed.
Take off immediately all contaminated clothing.
In case of contact with eyes, rinse with plenty of water and contact Doctor or Poisons Information Centre.
If you feel unwell contact Doctor or Poisons Information Centre. (Show the label if possible).

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
eugenol	97-53-0	50-100
non hazardous ingredients [manufacturer]		NotSpec

Section 4 - FIRST AID MEASURES

SWALLOWED

- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- 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.
- Transport to hospital or doctor without delay.

EYE

- 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.
 - If pain persists or recurs seek medical attention.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

- 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.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.

continued...

DENTSPLY IRM LIQUID

ChemWatch Material Safety Data Sheet
Issue Date: Wed 11-Aug-2004

CHEMWATCH 8108-19
CD 2004/2 Page 3 of 11

Section 4 - FIRST AID MEASURES ...

- 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.

NOTES TO PHYSICIAN

In acute poisonings by essential oils the stomach should be emptied by aspiration and lavage. Give a saline purgative such as sodium sulfate (30 g in 250 ml water) unless catharsis is already present. Demulcent drinks may also be given. Large volumes of fluid should be given provided renal function is adequate. [MARTINDALE: The Extra Pharmacopoeia, 28th Ed.]

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

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.
- Avoid spraying water onto liquid pools.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.

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).
 - May emit acrid smoke.
 - Mists containing combustible materials may be explosive.
- Combustion products include
carbon dioxide (CO₂)
other pyrolysis products typical of burning organic material
May emit poisonous fumes.
May emit corrosive fumes.

continued...

DENTSPLY IRM LIQUID

ChemWatch Material Safety Data Sheet
Issue Date: Wed 11-Aug-2004

CHEMWATCH 8108-19
CD 2004/2 Page 4 of 11

Section 5 - FIRE FIGHTING MEASURES ...

FIRE INCOMPATIBILITY

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

HAZCHEM

None

Personal Protective Equipment

Glasses:
Chemical goggles.

Gloves:
PVC chemical resistant type.

Respirator:
Type A-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable labelled container for waste disposal.

MAJOR SPILLS

- Minor 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.
 - Prevent, by any means available, spillage from entering drains or water course.
 - No smoking, naked lights or ignition sources.
 - Increase ventilation.
 - Stop leak if safe to do so.
 - Contain spill with sand, earth or vermiculite.
 - Collect recoverable product into labelled containers for recycling.
 - Absorb remaining product with sand, earth or vermiculite.
 - Collect solid residues and seal in labelled drums for disposal.
 - Wash area and prevent runoff into drains.
 - If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

continued...

DENTSPLY IRM LIQUID

ChemWatch Material Safety Data Sheet
Issue Date: Wed 11-Aug-2004

CHEMWATCH 8108-19
CD 2004/2 Page 5 of 11

Section 6 - ACCIDENTAL RELEASE MEASURES ...

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- 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.
 - DO NOT enter confined spaces until atmosphere has been checked.
 - Avoid smoking, naked lights or ignition sources.
 - Avoid contact with incompatible materials.
 - When handling, DO NOT eat, drink or smoke.
 - Keep containers securely sealed when not in use.
 - Avoid physical damage to containers.
 - Always wash hands with soap and water after handling.
 - Work clothes should be laundered separately.
 - Use good occupational work practice.
 - Observe manufacturer's storing and handling recommendations.
 - Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
- DO NOT allow clothing wet with material to stay in contact with skin

SUITABLE CONTAINER

- 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

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

No exposure limits set by NOHSC or ACGIH
Estimated acceptable daily intake of eugenol; up to 2.5 milligram per kilogram body weight. Eugenol was not considered to have carcinogenic potential.

continued...

DENTSPLY IRM LIQUID

ChemWatch Material Safety Data Sheet
Issue Date: Wed 11-Aug-2004

CHEMWATCH 8108-19
CD 2004/2 Page 6 of 11

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

Twenty-sixth Report of the Joint FAO/WHO Expert Committee on Food Additives
Tech. Rep. Ser. Wld Hlth Org. No. 683, 1982
Class A fragrance - common cosmetic and primary sensitiser (Nakayama 1998)

INGREDIENT DATA

EUGENOL:

No exposure limits set by NOHSC or ACGIH
Estimated acceptable daily intake of eugenol; up to 2.5 milligram per kilogram body weight. Eugenol was not considered to have carcinogenic potential.
Twenty-sixth Report of the Joint FAO/WHO Expert Committee on Food Additives
Tech. Rep. Ser. Wld Hlth Org. No. 683, 1982
Class A fragrance - common cosmetic and primary sensitiser (Nakayama 1998)

PERSONAL PROTECTION

EYE

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them.

HANDS/FEET

Wear chemical protective gloves, eg. PVC.
Wear safety footwear or safety gumboots, eg. 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.

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

RESPIRATOR

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant.
Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Breathing Zone Level ppm (volume)	Maximum Protection Factor	Half-face Respirator	Full-Face Respirator
1000	10	A-AUS P	-
1000	50	-	A-AUS P
5000	50	Airline *	-
5000	100	-	A-2 P

continued...

DENTSPLY IRM LIQUID

ChemWatch Material Safety Data Sheet
Issue Date: Wed 11-Aug-2004

CHEMWATCH 8108-19
CD 2004/2 Page 7 of 11

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

10000	100	-	A-3 P
	100+		Airline**

* - Continuous Flow ** - Continuous-flow or positive pressure demand

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

General exhaust is adequate under normal operating conditions.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Yellow liquid with characteristic odour which does not mix with water.

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.
Sinks in water.

Molecular Weight: Not Applicable
Melting Range (°C): -10
Solubility in water (g/L): Immiscible
pH (1% solution): Not Available
Volatile Component (%vol): Not Available
Relative Vapour Density (air=1): Not Available
Lower Explosive Limit (%): Not Available
Autoignition Temp (°C): Not Available
State: Liquid

Boiling Range (°C): 254
Specific Gravity (water=1): 1.06
pH (as supplied): Not Available
Vapour Pressure (kPa): Negligible
Evaporation Rate: Not Available
Flash Point (°C): 110
Upper Explosive Limit (%): Not Available
Decomposition Temp (°C): Not Available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

continued...

DENTSPLY IRM LIQUID

ChemWatch Material Safety Data Sheet
Issue Date: Wed 11-Aug-2004

CHEMWATCH 8108-19
CD 2004/2 Page 8 of 11

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

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.

Essential oils cause mild irritation of the mouth if taken orally, causing more saliva to be produced and a warm feeling. Large amounts affect the digestive system causing nausea, vomiting and diarrhoea. Sometimes urination may be affected, causing difficulty or pain in urinating, reduced urine output, blood in the urine, unconsciousness and shallow breathing. Lung swelling and inflammation are possible complications. Stupor, excitement and respiratory failure may result, as well as convulsions; the central nervous system may either be depressed or stimulated. The kidneys may be damaged, and swelling and severe clogging can occur in the lungs, skin and kidneys. Essential oils increase the rate of miscarriage, but in low doses do not usually cause an abortion.

Estimated acceptable daily intake of eugenol; up to 2.5 milligram per kilogram body weight. Eugenol was not considered to have carcinogenic potential.

Twenty-sixth Report of the Joint FAO/WHO Expert Committee on Food Additives Tech. Rep. Ser. Wld Hlth Org. No. 683, 1982

EYE

There is some evidence to suggest that this material can cause eye irritation and damage in some persons.

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.

SKIN

The material may cause moderate 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.

Skin contact is not thought to produce harmful health effects (as classified under EC Directives using animal models). Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions or abrasions. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

Essential oils irritate the skin and redden it, causing at first warmth and smarting, followed by some local loss of sensation. They have been used to treat chronic inflammatory conditions and to relieve neuralgia and rheumatic pain. Care should be taken to avoid blistering; these oils may also produce sensitisation.

INHALED

Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

continued...

DENTSPLY IRM LIQUID

ChemWatch Material Safety Data Sheet
Issue Date: Wed 11-Aug-2004

CHEMWATCH 8108-19
CD 2004/2 Page 9 of 11

Section 11 - TOXICOLOGICAL INFORMATION ...

There is some evidence to suggest that this material, if inhaled, can irritate the throat and lungs of some persons.

Inhalation of essential oil volatiles may cause dizziness, rapid, shallow breathing, increased heart rate, respiratory irritation, loss of consciousness or convulsions. Urination may stop, and there may be swelling and inflammation of the lungs.

CHRONIC HEALTH EFFECTS

There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.

There is some evidence that inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population.

There is limited evidence that, skin contact with this product is more likely to cause a sensitisation reaction in some persons compared to the general population.

Intolerance to perfumes, by inhalation, may occur if the perfume contains a sensitising principal. Symptoms may vary from general illness, coughing, phlegm, wheezing, chest-tightness, headache, exertional dyspnoea, acute respiratory illness, hayfever, and other respiratory diseases (including asthma). Perfumes can induce hyper-reactivity of the respiratory tract without producing an IgE-mediated allergy or demonstrable respiratory obstruction. This was shown by placebo-controlled challenges of nine patients to "perfume mix". The same patients were also subject to perfume provocation, with or without a carbon filter mask, to ascertain whether breathing through a filter with active carbon would prevent symptoms. The patients breathed through the mouth, during the provocations, as a nose clamp was used to prevent nasal inhalation. The patient's earlier symptoms were verified; breathing through the carbon filter had no protective effect. The symptoms were not transmitted via the olfactory nerve but they may have been induced by trigeminal reflex via the respiratory tract or by the eyes.

Cases of occupational asthma induced by perfume substances such as isoamyl acetate, limonene, cinnamaldehyde and benzaldehyde, tend to give persistent symptoms even though the exposure is below occupational exposure limits. Inhalation intolerance has also been produced in animals. The emissions of five fragrance products, for one hour, produced various combinations of sensory irritation, pulmonary irritation, decreases in expiratory airflow velocity as well as alterations of the functional observational battery indicative of neurotoxicity in mice. Neurotoxicity was found to be more severe after mice were repeatedly exposed to the fragrance products, being four brands of cologne and one brand of toilet water.

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. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.

Dentsply IRM Liquid

Not available. Refer to individual constituents.

continued...

DENTSPLY IRM LIQUID

ChemWatch Material Safety Data Sheet

Issue Date: Wed 11-Aug-2004

CHEMWATCH 8108-19

CD 2004/2 Page 10 of 11

Section 11 - TOXICOLOGICAL INFORMATION ...

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

EUGENOL:

TOXICITY

Oral (rat) LD50: 1930 mg/kg

IRRITATION

Skin (human) 40 mg/24h - mild

Skin (man): 16 mg/48h - moderate

Skin (rabbit): 100 mg/24h-SEVERE

Equivocal tumorigen by RTECS criteria

The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

Section 12 - ECOLOGICAL INFORMATION

DO NOT discharge into sewer or waterways.

Section 13 - DISPOSAL CONSIDERATIONS

- Consult manufacturer for recycling options and recycle where possible .
 - Consult State Land Waste Management Authority for disposal.
 - Incinerate residue at an approved site.
 - Recycle containers if possible, or dispose of in an authorised landfill.
- Puncture containers to prevent re-use and bury at an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

Shipping Name:

None

Dangerous Goods Class: None

UN/NA Number: None

ADR Number:

Packing Group: None

Labels Required:

Additional Shipping Information:

International Transport Regulations:

IMO: None

HAZCHEM

None

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE

S6

continued...

DENTSPLY IRM LIQUID

ChemWatch Material Safety Data Sheet

Issue Date: Wed 11-Aug-2004

CHEMWATCH 8108-19

CD 2004/2 Page 11 of 11

Section 15 - REGULATORY INFORMATION ...

Section 16 - OTHER INFORMATION

This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.

Issue Date: Wed 11-Aug-2004

Print Date: Thu 12-Aug-2004