

# DENTSPLY IRM POWDER

ChemWatch Material Safety Data Sheet  
Issue Date: Mon 9-Aug-2004

CHEMWATCH 8108-20  
CD 2004/2 Page 1 of 10

---

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

---

### PRODUCT NAME

DENTSPLY IRM POWDER

### SYNONYMS

! 12/01 intermediate restorative material

### PRODUCT USE

Medicine

### SUPPLIER

Company: Dentsply (Australia) Pty Ltd (ABN 15 004 290 322)

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

**HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.**

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

### POISONS SCHEDULE

None

### RISK

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

Inhalation may produce health damage\*.

Cumulative effects may result following exposure\*.

May produce discomfort of the eyes, respiratory tract and skin\*.

\* (limited evidence)

### SAFETY

Do not breathe dust.

Wear eye/face protection.

Use only in well ventilated areas.

Keep container in a well ventilated place.

continued...

# DENTSPLY IRM POWDER

ChemWatch Material Safety Data Sheet  
Issue Date: Mon 9-Aug-2004

CHEMWATCH 8108-20  
CD 2004/2 Page 2 of 10

---

## Section 2 - HAZARDS IDENTIFICATION ...

---

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	%
zinc oxide	1314-13-2	50-100
non hazardous ingredients [manufacturer]		NotSpec

---

## Section 4 - FIRST AID MEASURES

---

### SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

### 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 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.

### NOTES TO PHYSICIAN

- 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

continued...

# DENTSPLY IRM POWDER

ChemWatch Material Safety Data Sheet

Issue Date: Mon 9-Aug-2004

CHEMWATCH 8108-20

CD 2004/2 Page 3 of 10

---

## Section 4 - FIRST AID MEASURES ...

---

vomiting not to require them.

- CaNa<sub>2</sub>EDTA has been used successfully to normalise zinc levels and is the agent of choice.

[Ellenhorn and Barceloux: Medical Toxicology]

---

## Section 5 - FIRE FIGHTING MEASURES

---

### EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.

Use extinguishing media suitable for surrounding area

### FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- 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.
- Equipment should be thoroughly decontaminated after use.

### FIRE/EXPLOSION HAZARD

- Non combustible.
  - Not considered a significant fire risk, however containers may burn.
- Decomposition may produce toxic fumes of carbon dioxide (CO<sub>2</sub>)  
other pyrolysis products typical of burning organic material  
May emit poisonous fumes.  
May emit corrosive fumes.

### 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:  
Not normally required.

Gloves:  
When handling larger quantities:  
PVC chemical resistant type.

continued...

# DENTSPLY IRM POWDER

ChemWatch Material Safety Data Sheet  
Issue Date: Mon 9-Aug-2004

CHEMWATCH 8108-20  
CD 2004/2 Page 4 of 10

---

## Section 5 - FIRE FIGHTING MEASURES ...

---

Respirator:  
Particulate

---

## Section 6 - ACCIDENTAL RELEASE MEASURES

---

### EMERGENCY PROCEDURES

#### MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable labelled container for waste disposal.

#### MAJOR SPILLS

Moderate hazard.

- CAUTION: Advise personnel in area.
- Alert Emergency Services and tell them location and nature of hazard.
- Control personal contact by wearing protective clothing.
- Prevent, by any means available, spillage from entering drains or water courses.
- Recover product wherever possible.
- IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal.
- WET: Vacuum/shovel up and place in labelled containers for disposal.
- ALWAYS: Wash area down with large amounts of water 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.

---

## 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.
- DO NOT allow material to contact humans, exposed food or food utensils.
- 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. Launder contaminated clothing

continued...

# DENTSPLY IRM POWDER

ChemWatch Material Safety Data Sheet  
Issue Date: Mon 9-Aug-2004

CHEMWATCH 8108-20  
CD 2004/2 Page 5 of 10

---

## Section 7 - HANDLING AND STORAGE ...

---

before re-use.

- 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 are maintained.

### SUITABLE CONTAINER

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

### STORAGE INCOMPATIBILITY

Avoid reaction with oxidising agents

### STORAGE REQUIREMENTS

Observe manufacturer's storing and handling recommendations.

---

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

---

### EXPOSURE CONTROLS

#### EXPOSURE STANDARDS FOR MIXTURE

"Worst Case" computer-aided prediction of spray/ mist or fume/ dust components and concentration:

Composite Exposure Standard for Mixture (TWA) :2 mg/m<sup>3</sup>.

Operations which produce a spray/mist or fume/dust, introduce particulates to the breathing zone.

If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed.

Component Breathing Zone ppm Breathing Zone mg/m<sup>3</sup> Mixture Conc (%)

Component	Breathing Zone (mg/m <sup>3</sup> )	Mixture Conc (%)
zinc oxide	2.0000	100.0

### INGREDIENT DATA

#### ZINC OXIDE:

TLV TWA: 2 mg/m<sup>3</sup> (Respirable fraction) (-) [ACGIH]

TLV STEL: 10 mg/m<sup>3</sup> (Respirable fraction) (-) [ACGIH]

PEL Total particulate: 15mg/m<sup>3</sup> [OSHA Z1]

PEL Respirable fraction : 5mg/m<sup>3</sup> [OSHA Z1]

TLV TWA: 2 mg/m<sup>3</sup>; STEL: 10 mg/m<sup>3</sup> respirable fraction

ES TWA: 10 mg/m<sup>3</sup> inspirable dust

OES TWA: 5 mg/m<sup>3</sup> respirable dust

continued...

# DENTSPLY IRM POWDER

ChemWatch Material Safety Data Sheet  
Issue Date: Mon 9-Aug-2004

CHEMWATCH 8108-20  
CD 2004/2 Page 6 of 10

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

as fume

ES-TWA: 5 mg/m<sup>3</sup>; STEL: 10 mg/m<sup>3</sup>

TLV-TWA: 5 mg/m<sup>3</sup>; STEL: 10 mg/m<sup>3</sup>

IDLH Level: 500 mg/m<sup>3</sup>

The concentration of respirable dust for application of this limit is to be determined from the fraction that penetrates a separator whose size collection efficiency is described by a cumulative lognormal function with a median aerodynamic diameter of 4.0 µm (+-) 0.3 µm and with a geometric standard deviation of 1.5 µm (+-) 0.1 µm, i.e..generally less than 5 µm.

## PERSONAL PROTECTION

### EYE

No special equipment for minor exposure i.e. when handling small quantities.

· OTHERWISE:

· Safety glasses with side shields.

· 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

### OTHER

· Overalls.

· P.V.C. apron.

· Barrier cream.

· Skin cleansing cream.

· Eye wash unit.

### RESPIRATOR

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

\* - Negative pressure demand \*\* - Continuous flow

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.

continued...

# DENTSPLY IRM POWDER

ChemWatch Material Safety Data Sheet  
Issue Date: Mon 9-Aug-2004

CHEMWATCH 8108-20  
CD 2004/2 Page 7 of 10

---

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ...

---

### ENGINEERING CONTROLS

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.  
An approved self contained breathing apparatus (SCBA) may be required in some situations.  
Provide adequate ventilation in warehouse or closed storage area.

---

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

---

### APPEARANCE

White powder with a faint odour; insoluble in water.

### PHYSICAL PROPERTIES

Does not mix with water.

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

Boiling Range (°C): Not Applicable  
Specific Gravity (water=1): Not Available  
pH (as supplied): Not Applicable  
Vapour Pressure (kPa): Not Applicable  
Evaporation Rate: Not Applicable  
Flash Point (°C): Not Applicable  
Upper Explosive Limit (%): Not Applicable  
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.

---

## Section 11 - TOXICOLOGICAL INFORMATION

---

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

#### SWALLOWED

(No Oral LD50, any animal species) The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. The material may

continued...

# DENTSPLY IRM POWDER

ChemWatch Material Safety Data Sheet  
Issue Date: Mon 9-Aug-2004

CHEMWATCH 8108-20  
CD 2004/2 Page 8 of 10

## Section 11 - TOXICOLOGICAL INFORMATION ...

still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (eg. liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.

### 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).

### SKIN

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. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. 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. 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.

### INHALED

Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual. 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. Inhalation of freshly formed zinc oxide particles sized below 1.5 microns and generally between 0.02 to 0.05 microns may result in "metal fume fever", with symptoms resembling influenza. Symptoms may be delayed for up to 12 hours and begin with the sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalised feeling of malaise. Mild to severe headache, nausea, occasional vomiting, fever or chills, exaggerated mental activity, profuse sweating, diarrhoea, excessive urination and prostration may also occur. Tolerance to the fumes develops rapidly, but is quickly lost. All symptoms usually subside within 24-36 hours following removal from exposure. Leucocytosis, a transient increase in white blood cell counts, is reported as a common finding in metal fume fever but is not known to be common amongst welders. Severe over-exposure to zinc oxide, following inhalation of fumes or finely divided dusts may result in bronchitis or pneumonia; a bluish skin tint may be present. Effects on lungs are significantly enhanced in the presence of respirable particles.

continued...



# DENTSPLY IRM POWDER

ChemWatch Material Safety Data Sheet  
Issue Date: Mon 9-Aug-2004

CHEMWATCH 8108-20  
CD 2004/2 Page 9 of 10

---

## Section 11 - TOXICOLOGICAL INFORMATION ...

---

### CHRONIC HEALTH EFFECTS

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. Lung shadows are seen in the X-ray. Symptoms of pneumoconiosis may include a progressive dry cough, shortness of breath on exertion, increased chest expansion, weakness and weight loss. As the disease progresses the cough produces a stringy mucous, vital capacity decreases further and shortness of breath becomes more severe. Pneumoconiosis is the accumulation of dusts in the lungs and the tissue reaction in its presence. It is further classified as being of noncollagenous or collagenous types. Noncollagenous pneumoconiosis, the benign form, is identified by minimal stromal reaction, consists mainly of reticulin fibres, an intact alveolar architecture and is potentially reversible.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

### Dentsply IRM Powder

Not available. Refer to individual constituents.  
unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

#### ZINC OXIDE:

##### IRRITATION

Skin (rabbit): 500 mg/24h mild

Eye (rabbit): 500 mg/24h mild

##### TOXICITY

Oral (human) LDLo: 500 mg/kg

Inhalation (human) TCLo: 600 mg/m<sup>3</sup>

Oral (mouse) LD50: 7950 mg/kg

---

## Section 12 - ECOLOGICAL INFORMATION

---

DO NOT discharge into sewer or waterways.

---

## Section 13 - DISPOSAL CONSIDERATIONS

---

Puncture containers to prevent re-use and bury at an authorised landfill.

- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: Burial in a licenced land-fill or Incineration in a licenced apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

continued...

# DENTSPLY IRM POWDER

ChemWatch Material Safety Data Sheet

Issue Date: Mon 9-Aug-2004

CHEMWATCH 8108-20

CD 2004/2 Page 10 of 10

---

## 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

None

---

## 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: Mon 9-Aug-2004

Print Date: Tue 10-Aug-2004