

# OSMOSE PROTIM RESEAL SUPPLEMENTARY TIMBER PROTECTIVE

ChemWatch Material Safety Data Sheet (REVIEW)

CHEMWATCH 65228

Date of Issue: Wed 10-Oct-2001

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## STATEMENT OF HAZARDOUS NATURE

HAZARDOUS ACCORDING TO WORKSAFE AUSTRALIA CRITERIA.

## SUPPLIER

Company: Osmose Australia P/L

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Mt Gambier

SA

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## CHEMWATCH HAZARD RATINGS

Flammability: 0

Toxicity: 4

Body Contact: 2

Reactivity: 0

Chronic: 4

SCALE: Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4

## PERSONAL PROTECTIVE EQUIPMENT FOR INDUSTRIAL/COMMERCIAL ENVIRONMENTS

Product Name:Osmose Protim Reseal Supplementary Timber Protective 5/01

CAS RN No(s): None

UN Number: 2588

Packing Group: II

Dangerous Goods Class: 6.1(a)

Subsidiary Risk: None

Hazchem Code: 2X

Poisons Schedule Number: S6

## USE

Timber preservative.

## PHYSICAL DESCRIPTION/PROPERTIES

## APPEARANCE

Off-white to brown powder with a sharp irritating sensation in the nose and eyes; mixes with water to form orange to brown solutions.

|                            |                |
|----------------------------|----------------|
| Boiling Point (°C):        | Not available  |
| Melting Point (°C):        | Not available  |
| Vapour Pressure (kPa):     | Not applicable |
| Specific Gravity:          | 1.5            |
| Flash Point (°C):          | Not applicable |
| Lower Explosive Limit (%): | Not applicable |
| Upper Explosive Limit (%): | Not applicable |
| Solubility in Water (g/L): | Miscible       |

## INGREDIENTS

| NAME                             | CAS RN     | %       |
|----------------------------------|------------|---------|
| boric acid                       | 10043-35-3 | 40-50   |
| sodium dichromate                | 10588-01-9 | 10-20   |
| copper sulfate, pentahydrate     | 7758-99-8  | 10-20   |
| inert, soluble salts unspecified |            | NotSpec |

## HEALTH HAZARD

### ACUTE HEALTH EFFECTS

#### SWALLOWED

The solid is extremely discomforting and corrosive to the gastro-intestinal tract and may be toxic if swallowed.  
Considered an unlikely route of entry in commercial/industrial environments

#### EYE

The material is highly discomforting and corrosive to the eyes and is capable of causing pain and severe conjunctivitis. Corneal injury may develop, with possible permanent impairment of vision, if not promptly and adequately treated

#### SKIN

The material is discomforting to the skin and is capable of causing chemical burns, allergic skin reactions and skin sensitisation  
Sensitisation may result in allergic dermatitis responses including rash, itching, hives or swelling of extremities.  
Toxic effects may result from skin absorption.  
The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

#### INHALED

Not normally a hazard due to non-volatile nature of product  
The solid/dust is extremely discomforting and corrosive and to the upper respiratory tract repeated exposure may cause sensitisation and/or allergic reactions. Respiratory sensitisation may result in allergic/asthma like responses;

from coughing and minor breathing difficulties to bronchitis with wheezing, gasping.

## **CHRONIC HEALTH EFFECTS**

Principal routes of exposure are usually by skin contact / eye contact and inhalation of generated dust. The material may accentuate any pre-existing skin condition. Sensitisation may give severe responses to very low levels of exposure, in situations where exposure may occur.

Skin contact may result in severe irritation particularly to broken skin.

Ulceration known as "chrome ulcers" may develop. Chrome ulcers and skin cancer are significantly related.

Chromium VI exposures have been related to higher incidence of lung cancer.

Chromium(III) is considered an essential trace nutrient serving as a component of the "glucose tolerance factor" and a cofactor for insulin action. High concentrations of chromium are also found in RNA. Trivalent chromium is the most common form found in nature.

Chronic inhalation of trivalent chromium compounds produces irritation of the bronchus and lungs, dystrophic changes to the liver and kidney, pulmonary oedema, and adverse effects on macrophages. Intratracheal administration of chromium(III) oxide, in rats, increased the incidence of sarcomas, and tumors and reticulum cell sarcomas of the lung. There is inadequate evidence of carcinogenicity of chromium(III) compounds in experimental animals and humans (IARC).

Chronic exposure to hexavalent chromium compounds reportedly produces skin, eye and respiratory tract irritation, yellowing of the eyes and skin, allergic skin and respiratory reactions, diminished sense of smell and taste, blood disorders, liver and kidney damage, digestive disorders and lung damage. There is sufficient evidence of carcinogenicity of chromium(VI) compounds in experimental animals and humans to confirm these as Class 1 carcinogens (IARC).

Exposure to chromium during chrome production and in the chrome pigment industry is associated with cancer of the respiratory tract. A slight increase in gastrointestinal cancer following exposure to chromium compounds has also been reported. The greatest risk is attributed to exposure to acid-soluble, water-insoluble hexavalent chromium which occurs in roasting and refining processes. Animal studies support the idea that the most potent carcinogenic compounds are the slightly soluble hexavalent compounds. The cells are more active in the uptake of the hexavalent forms compared to trivalent forms and this may explain the difference in occupational effect. It is the trivalent form, however, which is metabolically active and binds with nucleic acid within the cell suggesting that chromium mutagenesis first requires biotransformation of the hexavalent form by reduction.

Hexavalent chromes produce chronic ulceration of skin surfaces (quite independent of other hypersensitivity reactions exhibited by the skin).

Water-soluble chromium(VI) compounds come close to the top of any published "hit list" of contact allergens (eczematogens) producing positive results in 4 to 10% of tested individuals. On the other hand only chromium(III) compounds can bind to high molecular weight carriers such as proteins to form a complete allergen (such as a hapten). Chromium(VI) compounds cannot. It is assumed that reduction must take place for such compounds to manifest any contact sensitivity. The apparent contradiction that chromium(VI) salts cause allergies to chromium(III) compounds but that allergy to chromium(III) compounds is difficult

to demonstrate is accounted for by the different solubilities and skin penetration of these compounds. Water-soluble chromium(VI) salts penetrate the horny layer of the skin more readily than chromium(III) compounds which are bound by cross-linking in the horny layer ("tanning", as for leather) and therefore do not reach the cells involved in antigen processing.

## **FIRST AID**

### **SWALLOWED**

If conscious, give water (or milk) to drink.

INDUCE vomiting with IPECAC SYRUP, or 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. REFER FOR MEDICAL ATTENTION WITHOUT DELAY.

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.

### **EYE**

**If this product comes in contact with the eyes:**

**Immediately hold the eyes open and wash continuously for at least 15 minutes 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.**

**Transport to hospital or doctor without delay.**

**Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.**

### **SKIN**

If this product comes in contact with the skin:

Immediately flush body and clothes with large amounts of water, using safety shower if available.

Quickly remove all contaminated clothing, including footwear.

Wash affected areas with water (and soap if available) for at least 15 minutes.

Transport to hospital, or doctor.

### **INHALED**

If fumes or combustion products are inhaled: Remove to fresh air.

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

If breathing is shallow or has stopped, ensure clear airway and apply resuscitation, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

Transport to hospital, or doctor.

## ADVICE TO DOCTOR

For acute or short term repeated exposures to dichromates and chromates: Absorption occurs from the alimentary tract and lungs.

The kidney excretes about 60% of absorbed chromate within 8 hours of ingestion.

Urinary excretion may take up to 14 days.

Establish airway, breathing and circulation. Assist ventilation.

Induce emesis with Ipecac Syrup if patient is not convulsing, in coma or obtunded and if the gag reflex is present.

Otherwise use gastric lavage with endotracheal intubation.

Fluid balance is critical. Peritoneal dialysis, haemodialysis or exchange transfusion may be effective although available data is limited.

British Anti-Lewisite, ascorbic acid, folic acid and EDTA are probably not effective.

There are no antidotes.

Primary irritation, including chrome ulceration, may be treated with ointments comprising calcium-sodium-EDTA. This, together with the use of frequently renewed dressings, will ensure rapid healing of any ulcer which may develop.

The mechanism of action involves the reduction of Cr (VI) to Cr(III) and subsequent chelation; the irritant effect of Cr(III)/ protein complexes is thus avoided. [ILO Encyclopedia] [Ellenhorn and Barceloux: Medical Toxicology]

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## PRECAUTIONS FOR USE

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## EXPOSURE STANDARDS

None assigned. Refer to individual constituents.

## EXPOSURE STANDARDS FOR MIXTURE

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

Composite Exposure Standard for Mixture (TWA) :0.2118 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 over overexposed.

| Component                          | Breathing Zone ppm | Breathing Zone |
|------------------------------------|--------------------|----------------|
| mg/m <sup>3</sup> Mixture Conc (%) |                    |                |
| sodium dichromate                  | 0.0471             | 20             |
| copper sulfate, pentahydrate       | 0.0471             | 20             |
| boric acid                         | 0.1176             | 50             |

## INGREDIENT DATA

BORIC ACID:

It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.

At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience). Airborne concentrations must be maintained as

low as is practically possible and occupational exposure must be kept to a minimum.

NOTE: The ACGIH occupational exposure standard for Particles Not Otherwise Classified (P.N.O.C,s) does NOT apply.

- as total dust: collected by a sampler with a suction velocity of 1.25 m/s +/- 10%.

MAK Category II Peak Limitation: For substances with systemic effects and with a half-life in humans ranging from two hours to shift-length.

Allows excursions of 5 times the MAK value, for 30 minutes (on average), twice per shift.

MAK values, and categories and groups are those recommended within the Federal Republic of Germany

#32orgr

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#### SODIUM DICHROMATE:

chromium (VI) compounds, water soluble, as Cr (A.Wt: 51.99)

ES TWA: 0.05 mg/m<sup>3</sup> SENSITISER

TLV TWA: 0.05 mg/m<sup>3</sup>, A1

WARNING: This substance has been classified by the ACGIH as A1

#### CONFIRMED HUMAN

##### CARCINOGEN

MEL TWA: 0.05 mg/m<sup>3</sup>

IDLH Level: 15 mg/m<sup>3</sup>

Some jurisdictions require that health surveillance be carried on workers occupationally exposed to inorganic chromium. Such surveillance should emphasise demography, occupational and medical history and health advice physical examination with emphasis on the respiratory system and skin weekly skin inspection of hands and forearms by a "responsible person"

TRK: 0.1 mg/m<sup>3</sup> including lead chromate (as dusts/ aerosols) with the exception of compounds practically insoluble in water such as barium chromate

- for manual arc welding with coated electrodes
- production of soluble chromium(VI) compounds

TRK: 0.5 mg/m<sup>3</sup> - others measured as inhalable fraction of the aerosol

The technical exposure limit, TRK (Technische Richtkonzentrationen), defines the airborne concentration of named carcinogenic materials which is the minimum possible given the state of current technologies. TRK values are assigned only for materials for which there is no current MAK (German exposure standard).

Observance of the TRK value is intended to reduce the risk of adverse effects on health but does NOT completely eliminate it. Since no threshold doses can be determined for carcinogens, health considerations require that the exposure limits be kept as far as possible below the TRK and that the TRK value be gradually reduced. The limitation of exposure peaks is regulated as follows;

Short-term exposure limit: 5 x TRK

Short-term exposure duration: 15 min/average

Frequency per work shift: 5 times

Interval: 1 hour.

Report No. 35 1999, Deutsche Forschungsgemeinschaft.

WARNING: This substance is classified by the NOHSC as Category 2 Probable Human Carcinogen

#### COPPER SULFATE, PENTAHYDRATE:

copper dusts and mists, as Cu (A.Wt: 63.54)

ES TWA: 1 mg/m<sup>3</sup>

TLV TWA: 1 mg/m<sup>3</sup>

OES TWA: 1 mg/m<sup>3</sup>; STEL: 2 mg/m<sup>3</sup>

copper fume, as Cu

ES-TWA: 0.2 mg/m<sup>3</sup>

TLV-TWA: 0.2 mg/m<sup>3</sup>

OES-TWA: 0.2 mg/m<sup>3</sup>

IDLH Level: 100 mg/m<sup>3</sup> (fume)

## ENGINEERING CONTROLS

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

| Type of Contaminant:  | Air Speed:                   |
|---|------------------------------|
| solvent, vapours, degreasing etc., evaporating from tank (in still air)   | 0.25-0.5 m/s (50-100 f/min)  |
| aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation) | 0.5-1 m/s (100-200 f/min.)   |
| direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)  | 1-2.5 m/s (200-500 f/min)    |
| grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).  | 2.5-10 m/s (500-2000 f/min.) |

Within each range the appropriate value depends on:

| Lower end of the range                                    | Upper end of the range           |
|---|----------------------------------|
| 1: Room air currents minimal or favourable to capture     | 1: Disturbing room air currents  |
| 2: Contaminants of low toxicity or of nuisance value only | 2: Contaminants of high toxicity |
| 3: Intermittent, low production.                          | 3: High production, heavy use    |
| 4: Large hood or large air mass in only motion            | 4: Small hood - local control    |

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min.) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

## **PERSONAL PROTECTION**

### **EYE**

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

## **HANDS/FEET**

Impervious gloves  
PVC gloves  
Rubber gloves  
Safety footwear

## **OTHER**

Overalls  
Impervious apron  
Eyewash unit.  
Ensure there is ready access to a safety shower

## **RESPIRATOR**

| Protection Factor | Half-Face<br>Respirator | Full-Face<br>Respirator | Powered Air<br>Respirator |
|-------------------|-------------------------|-------------------------|---------------------------|
| 10 x ES           | P1 Air-line*            | - -                     | PAPR-P1 -                 |
| 50 x ES           | Air-line**              | P2                      | PAPR-P2                   |
| 100 x ES          | -                       | P3<br>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.

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## **SAFE HANDLING**

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## **STORAGE AND TRANSPORT**

### **SUITABLE CONTAINER**

Polyethylene or polypropylene container. Packing as recommended by manufacturer.

Check all containers are clearly labelled and free from leaks.

### **STORAGE INCOMPATIBILITY**

Store away from incompatible materials.  
Avoid contact with aluminium, magnesium, charcoal, fluorine, sulfur, many combustible substances and reducing agents.  
Keep storage area free of debris, waste and combustibles.



## **STORAGE REQUIREMENTS**

Keep dry  
Store in original containers.  
Keep containers securely sealed as supplied.  
No smoking, naked lights, heat or ignition sources.  
Store in a cool, dry, well ventilated area.  
Store under cover and away from sunlight.  
Store below safe storage (control) temperature.  
Store away from flammable or combustible materials, debris and waste.  
Contact may cause fire or violent reaction.  
Store away from incompatible materials.  
Store away from foodstuff containers  
DO NOT stack on wooden floors or wooden pallets.  
Protect containers against physical damage, FRICTION or SHOCK.  
Check regularly for spills and leaks.  
Observe manufacturer's storage and handling recommendations.  
Restrictions may apply on quantities and to other material permitted in the same location.

## **TRANSPORTATION**

Class 6 - Poisonous (toxic) substances shall not be loaded in the same vehicle or packed in the same freight container with:  
Class 1 - Explosives;  
Class 3 - Flammable liquids (where the flammable liquid is nitromethane);  
Class 5.1 - Oxidising agents (where the poisonous substances are capable of igniting and burning);  
Class 5.2 - Organic peroxides (where the poisonous substances are capable of igniting and burning);  
Food and food packaging in any quantity.

## **SPILLS AND DISPOSAL**

### **MINOR SPILLS**

Clean up all spills immediately.  
No smoking, naked lights, ignition sources.  
Avoid all contact with any organic matter including fuel, solvents, sawdust, paper or cloth and other incompatible materials, as ignition may result.  
Avoid breathing dust or vapours and all contact with skin and eyes.  
Control personal contact by using protective equipment.  
Contain and absorb spill with dry sand, earth, inert material or vermiculite.  
DO NOT use sawdust as fire may result.  
Scoop up solid residues and seal in labelled drums for disposal.  
Neutralise/decontaminate area.

## **MAJOR SPILLS**

Clear area of personnel and move upwind.  
Alert Fire Brigade and tell them location and nature of hazard.  
May be violently or explosively reactive.  
Wear full body protective clothing with breathing apparatus.  
Prevent spillage from entering drains or water courses.  
Consider evacuation (or protect in place).  
DO NOT use water on spill.  
No smoking, flames or ignition sources.  
Increase ventilation.  
Contain with DRY sand, earth or other clean, dry inert material.  
NEVER use organic absorbents such as sawdust, paper, cloth or wet materials.  
Use spark-free and explosion-proof equipment.  
Collect recoverable product in labelled containers for possible recycling.  
DO NOT mix recovered with fresh material to avoid contamination risk.  
Absorb remaining product with dry sand, earth or vermiculite.  
Collect residues and seal in labelled drums for disposal.  
Use flooding quantities of water to wash area.  
Prevent runoff into drains.  
If contamination of drains or waterways occurs advise emergency services.

## **DISPOSAL**

Recycle wherever possible.  
Consult manufacturer for recycling options.  
Consult State Land Waste Management Authority for disposal.  
Treat and neutralise at an effluent treatment plant.  
Reduce Cr (VI) to Cr (III) using meta-bisulfite, neutralise with lime and reclaim sludge.  
Bury residue in an authorised landfill.  
Decontaminate empty containers.  
Return containers to drum reconditioner or recycler.

## **FIRE FIGHTERS' REPORT**

### **EXTINGUISHING MEDIA**

Dry agent.  
Carbon dioxide.  
Bromochlorodifluoromethane (BCF) (where regulations permit).  
Use of water or other liquid extinguishants may increase the pollution hazard.

### **FIRE FIGHTING**

Alert Fire Brigade and tell them location and nature of hazard.  
May be violently or explosively reactive.  
Wear breathing apparatus plus protective gloves.  
Prevent, by any means available, spillage from entering drains or water course.  
Consider evacuation (or protect in place).  
Fight fire from a safe distance, with adequate cover.  
Extinguishers should be used only by trained personnel.  
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.  
If fire gets out of control withdraw personnel and warn against entry.  
Equipment should be thoroughly decontaminated after use.  
When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

## **FIRE/EXPLOSION HAZARD**

Will not burn but increases intensity of fire.  
Heating may cause expansion or decomposition leading to violent rupture of containers.  
Heat affected containers remain hazardous.  
Contact with combustibles such as wood, paper, oil or finely divided metal may produce spontaneous combustion or violent decomposition.  
May emit irritating, poisonous or corrosive fumes.  
Decomposes on heating and produces toxic fumes of metal oxides

## **FIRE INCOMPATIBILITY**

Avoid contact with reducing agents  
Contact with concentrated solutions of this material may ignite flammable or combustible materials (eg. petroleum products, paper, wood, sulphur, aluminium and plastics).  
Combustion may be violent in the case of finely divided materials oxidised in this way.  
Explosion may occur on reaction with chemicals such as acetic anhydride; anhydrous hydroxylamine and others.

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## **CONTACT POINT**

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COMPANY CONTACT  
1800 039 008

AUSTRALIAN POISONS INFORMATION CENTRE  
24 HOUR SERVICE: 13 11 26  
POLICE, FIRE BRIGADE OR AMBULANCE: 000

NEW ZEALAND POISONS INFORMATION CENTRE  
24 HOUR SERVICE: (03) 4747 000  
NZ EMERGENCY SERVICES: 111

End of Report

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