

MATERIAL SAFETY DATA SHEET FOR

APRIL 2006



PESTBOR®

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INDUSTRIAL WOOD PROTECTION

INTRODUCTION

Date of issue: 3<sup>Rd</sup> April 2006

**STATEMENT OF HAZARDOUS NATURE:** NOT CLASSIFIED AS A HAZARDOUS SUBSTANCE

**NOT CLASSIFIED AS A DANGEROUS GOOD UNDER THE ADG CODE.**

**COMPANY DETAILS:** Mabon's Timber Protection Australia,  
**ACN 061 074 048**

**STREET ADDRESS:** Unit 3 / 20 Meadow Avenue  
**COOPERS PLAINS Q 4108**

**TELEPHONE NO:** (61) (07) 3274 4622

**Email** [mabons@mabonstimmerprotect.com.au](mailto:mabons@mabonstimmerprotect.com.au)

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**EMERGENCY TELEPHONE NO:** FREECALL: 1800 815 477

PRODUCT IDENTIFICATION

**Product Name:** Mabon's PESTBOR Industrial Wood Protection

**Other Names:** Timbor

**Product code** PEST-

**APVMA approval #** 60106/10KG/0905,60106/20KG/0905,  
60106/25KG//0905

**UN Number:** None allocated

**Dangerous Goods Class:** Not applicable

**Subsidiary Risk:** Not applicable

**Toxic Substances Schedule:** Caution Schedule 5

**NFPA:** (Health: 1) - (Flammability: 0) - (Reactivity: 0)

**Packing Group:** Not applicable

**IMDG:** Not applicable

**Manufacturers:** **US BORAX**

**Use:** Insecticide, termiticide, fungicide, algacide, mouldicide and slimeacide for preventative and remedial treatment of timber, brick and other porous masonry finishes. Flame retardant

PHYSICAL DESCRIPTION /PROPERTIES:

**Appearance:** White, odourless, powder

**Boiling Point:** NOT APPLICABLE

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<b>Melting Point:</b>	<0°C
<b>Vapour pressure:</b>	Negligible @ 20°C
<b>Vapour density:</b>	Not applicable
<b>Volatile Component:</b>	Not available
<b>Specific gravity:</b>	Not applicable
<b>Flash Point:</b>	Not applicable
<b>Flammability Limits:</b>	Not applicable
<b>Autoignition Temp:</b>	>400°C
<b>Solubility in water:</b>	9.5% @ 20°C; 32.0% @ 50°C

**INGREDIENTS:**

<u>Chemical Entity</u>	<u>CAS. No.</u>	<u>Proportion</u>
Disodium Octaborate Tetrahydrate	12280-03-4	98%-99%
INERT		1-2%

**HEALTH HAZARD INFORMATION:**

**EMERGENCY OVERVIEW:**

Disodium Octaborate Tetrahydrate is a white odourless, powdered substance that is not flammable, combustible, or explosive, and h presents no unusual hazard K involved in a fire. Disodium Octaborate Tetrahydrate presents little or no hazard (to humans) and has low acute oral and dermal toxicities. Care should be taken to minimize the amount of Disodium Octaborate Tetrahydrate released to the environment to avoid ecological effects

**Routes of Exposure:** Inhalation is the most significant route of exposure in occupational and other settings. Dermal exposure is not usually a concern because Disodium Octaborate Tetrahydrate is not absorbed through intact skin.

**Swallowed:** Products containing Disodium Octaborate Tetrahydrate are not intended for ingestion. Disodium Octaborate Tetrahydrate has a relatively low acute toxicity. Small amounts (e.g. a teaspoonful) swallowed accidentally are not likely to cause effects; swallowing amounts larger than that may cause gastrointestinal symptoms.  
Cancer: Disodium Octaborate Tetrahydrate is not considered a carcinogen

**Eye:** Disodium Octaborate Tetrahydrate is non-irritating to eyes in normal industrial use...

**Skin:** Skin Contact: Disodium Octaborate Tetrahydrate does not cause

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irritation to intact skin.

**Inhaled:** Occasional mild irritation of nose and throat may occur from inhalation of Disodium Octaborate Tetrahydrate dusts at levels greater than 10 Mg/M3

**Chronic** Kidney and liver damage may result from chronic exposure. Chronic exposure may cause hair loss, weight loss and diarrhoea.

**FIRST AID:**

**Swallowed:** Swallowing less than one teaspoon will cause no harm to healthy adults. If larger amounts are swallowed, give two glasses of water to drink and seek medical attention. If poisoning occurs, contact a doctor or Poisons Information Centre.

**Eye:** Swallowing less than one teaspoon will cause no harm to healthy adults. If larger amounts are swallowed, give two glasses of water to drink and seek medical attention.

**Skin:** No treatment necessary because non irritating

**Inhaled:** Remove victim to fresh air. Lay patients down and keep warm and rested. If breathing is shallow or has stopped, ensure airway is clear and apply resuscitation. Seek medical assistance.

**Reproductive:** Long-term, high dose animal ingestion studies of similar inorganic borate chemicals have demonstrated reproductive effects in male animals. A human study of occupational exposure to borate dust showed no adverse effect to reproduction.

**Developmental:** High dose animal ingestion studies of similar inorganic borate chemicals have demonstrated developmental effects in foetuses of pregnant animals, including fetal weight loss.

**Target Organs:** No target organ has been identified in humans. High dose animal ingestion studies of similar inorganic borate chemicals indicate the testes are the target organs in male animals.

**Signs and Symptoms of Exposure:** Symptoms of accidental over-exposure to borate products have been associated with ingestion or by absorption through large areas of damaged skin. These may include nausea, vomiting, and diarrhoea, with delayed effects of skin redness and peeling. Refer for details on Toxicological Data. Section

**Advice to Doctor:** Observation only is required for adult ingestion of a few grams of Disodium Octaborate tetrahydrate. For ingestion in excess of larger

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amounts, maintain adequate kidney function and force fluids.

Gastric lavage is recommended for symptomatic patients only. Hemodialysis should be reserved for massive acute ingestion or patients with renal failure. Boron analyses of urine or blood are only useful for documenting exposure and should not be used to evaluate severity of poisoning or to guide treatment.

Further medical advice contact Poisons Centre Australia 13 11 26.

#### PRECAUTIONS FOR USE:

**Exposure Standards:**

**Occupational Exposure Limits:**

Disodium Octaborate Tetrahydrate is listed/regulated by OSHA, Cal OSHA and ACG111 as "Particulate Not Otherwise Classified" or Nuisance Dust."

OSHA: PEL\* - 15 Mg/M3 total dust and  
5 mg/m3 respirable dust

ACG1H: TLV \*\* 10 Mg/M3

Cal OSHA: PEL\* - 10 Mg/M3

\*PEL = "Permissible Exposure Limit TLV = Threshold Limit Value"

**Workplace exposure standards: TWA WES-C**

Borax 1mg/ m<sup>3</sup>

**Engineering Controls:**

Use local exhaust ventilation to keep airborne concentrations of Disodium Octaborate Tetrahydrate dust below permissible exposure levels.

**Personal Protection:**

Where airborne concentrations are expected to exceed exposure limits, NIOSH/MSHA certified respirators must be used. Eye goggles and gloves are not required for normal industrial exposures, but may be warranted if environment is excessively dusty.

**Flammability:**

Not flammable.

#### STORAGE & HANDLING INFORMATION

**Road Transport:**

Not dangerous goods

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<b>Sea Transport:</b>	Not dangerous goods
<b>Storage:</b> <u>Storage Temperature:</u> Ambient <u>Storage Pressure:</u> Atmospheric <u>Special Sensitivity</u> _Moisture (Caking)	<p><u>General:</u> No special handling precautions are required, but dry,</p> <p>Indoor storage is recommended. To maintain package integrity and to minimize caking of the product, bags should be handled on a "first-in first-out" basis. Good housekeeping procedures should be followed to minimize dust generation and accumulation.</p>
<b>Spills and Disposal:</b>	<p>Vacuum, shovel or sweep up Disodium Octaborate Tetrahydrate and place in containers for disposal in accordance with applicable local regulations. Avoid contamination of water bodies during clean up and disposal. No personal protective equipment is needed to clean up land spills. <b>Water Spill:</b> Disodium Octaborate Tetrahydrate will cause localized contamination of surrounding waters depending on the quantity dissolved in these waters</p> <p>At high concentrations some damage to local vegetation, fish and other aquatic life may be expected. (Refer to Ecotoxicity section)</p> <p>Wear protective clothing as above. Do not allow into drains or watercourses.</p> <p>Waste and empty containers must be disposed on it accordance with local government regulations. Dispose of by liaising with a waste disposal company or by disposing at a site approved by relevant local authorities.</p>

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**Disposal of Containers.**

Multiwalled paper bags

Store in the closed, original container in a dry, cool, well-ventilated area out of direct sunlight. **DO NOT** use the container for any other purpose.

Shake bag contents into treatment solution until bag is empty. Do not dispose of undiluted chemicals on site. Puncture or shred and bury empty bags in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty bags and product should not be burnt.

For plastic pails

**STORAGE & DISPOSAL**

Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. **DO NOT** use the container for any other purpose.

Triple or preferably pressure rinse containers before disposal. Add rinsings to treatment solution before disposal. If recycling, replace lid and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

**Reactivity Data:**

General: Disodium Octaborate Tetrahydrate is a stable product. **Incompatible Materials and Conditions to Avoid:** Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas which could create an explosive hazard. **Hazardous Decomposition:** None

**Fire/Explosion Hazard:**

None, because Disodium Octaborate Tetrahydrate is not flammable, combustible or explosive. The product is itself a flame retardant.

**Extinguishing Media:** Any fire extinguishing media may be used on nearby fires

**Flammability Classification):** Non-flammable solid.

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### TOXICOLOGICAL INFORMATION:

#### TOXICITY DATA:

<b>Product:</b>	Oral LD50 (rat) - 6216 mg/kg
<b>Disodium octaborate</b>	Oral LD50 (rat) - 2500 mg/kg
<b>Tetrahydrate:</b>	Oral LD50 (guinea pig) - 5300 mg/kg

**INGESTION (ACUTE ORAL TOXICITY):** Low acute oral toxicity; LD<sub>50</sub> of Disodium Octaborate Tetrahydrate in rats is 2500 mg/kg of body weight.

**SKIN (ACUTE DERMAL TOXICITY):** Low acute dermal toxicity; LD<sub>50</sub> of Disodium Octaborate Tetrahydrate in rabbits is greater than 2000 mg/kg of body weight. Disodium Octaborate Tetrahydrate is not absorbed through intact skin.

**PRIMARY SKIN IRRITATION INDEX:** 0.5 Disodium Octaborate Tetrahydrate is non-corrosive.

**EYE:** Draize test in rabbits produced mild eye irritation effects. Many years of occupational exposure history reflects no indication of human eye injury from exposure to Disodium Octaborate Tetrahydrate.

**NOTE:** Disodium Octaborate Tetrahydrate is chemically and toxicologically related to Boric Acid; the majority of the borate chronic toxicology studies were conducted using Boric Acid. Disodium Octaborate Tetrahydrate is converted to Boric Acid in biological systems. The Boric Acid data discussed in this section can be converted to Disodium Octaborate Tetrahydrate equivalent data by dividing by a factor of 1

**INHALATION:** Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to Boric Acid dust and Sodium Borate dust.

**CARCINOGENICITY:** A Technical Report issued by the National Toxicology Program showed "no evidence of carcinogenicity" from a full 2-year bioassay on Boric Acid in mice at feed doses of 2500 and 5000 ppm in the diet. No mutagenic activity was observed for Boric Acid in a recent battery of four short-term mutagenicity assays.

**REPRODUCTIVE/DEVELOPMENTAL TOXICITY:** Animal studies indicate Boric Acid reduces or inhibits sperm production, causes testicular atrophy, and, when given to pregnant animals during gestation, may cause developmental changes. These feed studies were conducted under chronic exposure conditions leading to doses many times in excess of those that could occur through inhalation of dust in occupational settings.

### ECOTOXICITY DATA:

**Reproductive Toxicity (Fertility) ~** Dietary Boric Acid levels of 6,700 ppm in chronic feeding studies in rats and dogs produced testicular atrophy, while dogs and rats receiving

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2000 ppm did not develop testicular changes [Weir, Fisher, 1972]. In chronic feeding studies of mice on diets containing 5000 ppm (550 mg/kg/d) Boric Acid, testicular atrophy was present, while mice fed 2500 ppm (275 mg/kg/d) Boric Acid showed no significant increase in testicular atrophy FNTP, 1987. In another Boric Acid chronic study, in mice given 4500 ppm (636 mg/kg/d), degeneration of seminiferous tubules was present together with a reduction of germ cells, while at 1000 ppm (152 mg/kg/d) no effect was seen (Fail et al., 1991).

In a reproduction study on rats, 2000 ppm of dietary Boric Acid had no adverse effect on lactation, litter size, weight and appearance [Weir, Fisher, 1972]. In a continuous breeding study in mice there was a reduction in fertility rates for males receiving 4500 ppm (636 mg/kg/d) Boric Acid, but not for females receiving 4500 ppm Boric Acid (Fail et al., 1991).

**Developmental Toxicity:** Boric acid at dietary levels of 1000 ppm (78 mg/kg/d) administered to pregnant female rats throughout gestation caused a slight reduction in fetal weight, but was considered to be close to the NOAEL. Doses of 2000 ppm (163 mg/kg/d) and above caused fetal malformations and maternal toxicity. In mice the no effect level for fetal weight reduction and maternal toxicity was 1000 ppm (248 mg/kg/d) Boric Acid. Fetal weight loss was noted at dietary Boric Acid levels of 2000 ppm (452 mg/kg/d) and above. Malformations (agenesis or shortening of the thirteenth rib) were seen at 4000 ppm (1003 mg/kg/d), (Heindel et al., 1992).

1 [Weir, R.J. and Fisher, R.S., Toxicol. Appl. Pharmacol., 23:351-364 (1972)]

2 [National Toxicology Program (NTP) - Technical Report Series No. TR324, NIH Publication No. 88-2580 (1987), P1388  
213475/XABI]

3 [Fail et al., Fund. Appl. Toxicol. 17, 225-239 (1991)]

4 [Heindel et al., Fund. Appl. Toxicol. 18, 266-277 (1992)]

## ECOLOGICAL INFORMATION

**Phytotoxicity:** Although boron is an essential micronutrient for healthy growth of boron-sensitive plants, it can be harmful to plants in higher quantities. Plants and trees can easily be exposed by root absorption to toxic levels of boron in the form of water-soluble borate leached into nearby soil or waters. Care should be taken to minimize the amount of borate product released to the environment.

**Fish Toxicity:** Boron naturally occurs in seawater at an average concentration of 5 mg 13/liter. In laboratory studies the acute toxicity (96-hr LC.) for under-yearling Coho salmon

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(Onchorhynchus kisutch) in seawater was determined as 40 mg B/L (added as sodium metaborate).

Boron concentrations in fresh surface waters are generally less than 1 mg B/L. Laboratory studies on the toxicity of freshwater fish were determined using early life (embryo larval) stages in natural water and Boric Acid as a test substance.

The results were: Rainbow trout (*S. gairdneri*)

24-day LC50 =150.0 mg B/L

36-day NOEC-LOEC=0.75-1 mg B/L

Goldfish (*Carassius auratus*)

7-day NOEC-LOEC=26.50 mg B/L

3-day LC.0=178 mg B/L

**Invertebrate Toxicity:** The acute toxicity (48-hour LC.) to *Daphnia* (*Daphnia magna* Straus) in natural water is reported to be 133 mg B/L (added as Boric Acid). Estimated chronic toxicity (21 -day NOEC-LOEC) values of 6-13 mg B/L (added as Boric Acid) have also been reported.

**ENVIRONMENTAL FATE DATA:** Persistence/Degradation: Boron is naturally occurring and ubiquitous in the environment. Disodium Octaborate Tetrahydrate decomposes in the environment to natural borate.

**Soil Mobility:** The product is soluble in water and is leachable through normal soil.

NOTE: Boron (B) is the element in Disodium Octaborate Tetrahydrate which is used to characterize borate product ecological effects. To convert Disodium Octaborate Tetrahydrate data to Boron (B), multiply by 0.2096.

Acknowledgements to US Borax

**CONTACT POINTS:**

**Mabon's Timber Protection Australia Pty Ltd**

**Mabon's 24 HOUR EMERGENCY NUMBER**

**Business hours FREECALL 1800 815 477**

**After Hours: (61 7) 3274 4622**

**FIRE OR POLICE**

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**IN AN EMERGENCY, DIAL 000**

**24 hr Emergency No:**

Poisons Centre Phone: 13 12 26