MATERIAL SAFETY DATA SHEET
PRODUCT NAME: BORAX

Classified as hazardous by Worksafe Australia Criteria

IDENTIFICATION

OTHER NAMES: Borax Decahydrate

USE: Fertilizer or hydroponic nutrient

UN NUMBER: N/A

HAZCHEM CODE: N/A

DANGEROUS GOODS CLASS: N/A

POISONS SCHEDULE: 5

PHYSICAL DESCRIPTION/PROPERTIES

APPEARANCE: White crystalline solid

FLASHPOINT (0C): N/A

MELTING POINT (0C):741

FLAMMABILITY LIMITS (%): N/A

VAPOUR PRESSURE (___): N/A

SOLUBILITY IN WATER (g/L): 37

SPECIFIC GRAVITY: N/ A

BOILING POINT 1575 deg C

MELTING POINT 200 deg C

SPECIFIC GRAVITY 1.81 (Water = 1)

INGREDIENTS

CHEMICAL ENTITY	CAS NO.	PROPORTION
Sodium Tetraborate Decahydrate	1303-96-4	>99%

HEALTH EFFECTS

ACUTE:

SWALLOWED: Product containing Borax pentahydrate are not intended for ingestion. Borax pentahydrate has low acute toxicity. Small amounts (e.g. a teaspoonful) swallowed accidentlly are not likely to cause effects; swallowing amounts larger than that may cause gastrointestinal symptoms Can be fatal if swallowed. Fatal doses for humans are estimated to be 5-6 grams for infants and 10-25 grams for adults.

EYES: Dusts or spray solutions may irritate eyes. May cause problems including corneal damage or transient blindness if contact is not treated promptly.

SKIN: Not rapidly absorbed through intact skin or mucous membranes. Penetration will rapidly occur through open wounds, burned skin and areas of active dermatitis if exposed to powder or strong aqueous solutions.

INHALED: Exposure to dust or spray solution may cause acute irritation, which may worsen with increased temperature. Symptoms include nasal irritation, couching and some chest discomfort.

TOXICITY DATA:

Oral-infant LDLo :1000mg/kg

Oral-rat LD50 :2660mg/kg

Oral-dog LDLo :3000mg/kg

Subcutaneous-rabbit LDLo :150mg/kg

CHRONIC:

Sodium tetraborate and its hydrates are chemically and toxicologically related to boric acid. The majority of the borate chronic toxicity studies were conducted using boric acid. Sodium tetraborate is converted to boric acid in biological systems. The boric acid data discussed in this section can be converted to sodium tetraborate pentahydrate equivalent by dividing by a factor of 0.849. Other factors apply to different levels of hydration. A human study of occupationally exposed borate workers showed no adverse reproductive effects. Animal studies indicate that boric acid reduced or inhibits sperm production, causes testicular atrophy and when given to a 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 the occupational setting. Dietary levels of boric acid of 8,700 ppm (0.87%) in chronic feeding studies in rats and dogs produced testicular changes (Weir, Fisher, 1972). In chronic feeding studies in mice in diets containing 5,000 ppm (0.5%) boric acid testicular atrophy was present while mice fed 2,500 ppm showed no significant testicular atrophy. In another chronic boric acid study, degeneration of seminiferous tubules was present together with a reduction in germ cells in mice fed 4,500 ppm boric acid. In a reproduction study in rats, 2,000 ppm of dietary boric acid had no adverse effect in lactation, litter size, weight or appearance (Weir, Fisher, 1972). In a continuous breeding study in mice there was a reduction in fertility rates in males receiving 4,500 ppm boric acid but not in females receiving 4,500 boric acid (Fail et al, 1992). The product is not listed as carcinogenic in Worksafe's document "Exposure Standards for Atmospheric Contaminants in the Occupational Environment" (May 1995) and studies indicate that the product is not carcinogenic or mutagenic.

FIRST AID SWALLOWED: If swallowed and if more than 15 minutes from a hospital, induce vomiting preferably using IPECAC SYRUP APF. Contact a doctor or Poisons Information Centre.

EYES: If in eyes, hold eyelid open and irrigate for 15 minutes. Ensure irrigation under eyelids by occasionally lifting them. Do not try and remove contact lenses if worn. See a doctor. greater than 10 mg/m3.

SKIN: Product should be washed from broken areas of skin immediately, using copious quantities of water. Wash exposed skin after use.

INHALED: Move victim to fresh air. Lay victim down and keep warm and rested. If breathing is shallow, or has stopped, ensure clear airway and apply resuscitation or oxygen if available. If severe exposure has occurred see a doctor. Occasional mild irritation effects to nose and throat may occur from inhalation of borax pentahydrate dust at levels

ADVICE TO DOCTOR: Treat symptomatically based on judgement of doctor and individual reactions of patient.

PRECAUTIONS FOR USE

EXPOSURE STANDARDS: A TWA value of 5 mg/m3 has been established for a significant ingredient of this product. Exposure values at the TWA (Time Weighted Average) means the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.

Worksafe Australia recommends the following: Borates, tetra, sodium salts (anhydrous) : TWA 1mg/m3

ENGINEERING CONTROLS: In industrial situations, concentration values below the TWA value should be maintained. Values may be reduced by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. If you believe airborne concentrations of mists, dusts or vapours are high, you are advised to modify the process or environment to reduce the problem. PERSONAL PROTECTION: An appropriate dust mask, protective gloves, eye protection, safety boots and clean overalls preferably with an apron. Cover broken skin before use and always wash hands before eating, drinking, smoking or using the toilet. Wash contaminated clothing and protective equipment before storing or reusing.

FLAMMABILITY: Product is not flammable.

HANDLING INFORMATION

STORAGE AND TRANSPORT: Product should be stored in the closed original container in a cool area away from direct sunlight. Do not store near food or feed or other items intended for human consumption. Keep out of reach of children. Product is not classified as dangerous in respect to transportation. SPILLS AND DISPOSAL: Wear full protective clothing including face mask, face shield and gauntlets. Stop leak if safe to do so and contain spill. Prevent spillage from entering drains or water coursed. If material enters drains, advise emergency services. Sweep and shovel or collect recoverable product into labelled containers for recycling or salvage. After spills, wash area, preventing runoff from entering drains.

DISPOSAL (AFTER TREATMENT ABOVE) Dispose of in accordance with all Local, State, and Federal regulations at an approved waste disposal facility. This material may be suitable for approved landfill. Recycle containers wherever possible.

FIRE/EXPLOSION HAZARD: Material is not flammable.. Avoid allowing run off to contaminate waterways. There is no explosion hazard from this material under normal circumstances. Decomposition products are not known to be hazardous. There is little or no chance of an explosion from this product if involved in a fire. Stable under normal conditions. Hazardous polymerisation will not occur. Avoid reactions with strong reducing agents such as metal hydrides or alkali metals as this will generate hydrogen gas that could create an explosion hazard.

Extinguishing Media

Fire-fighters should wear full protective clothing including self-contained breathing apparatus. Use equipment/ media appropriate to surrounding fire conditions

OTHER INFORMATION

IMPORTANT: The environmental effects of boron are minimal and are most noticeable in the world of plants. Minimal quantities of this element are essential for plant growth and hence boron is added to fertilisers used in boron deficient soils. Concentrations as low as 1 ppm boron could be critical to sensitive plants (lemon), and 10 ppm for semi tolerant plants (mustard, radish).

NOTICE: Information for this product is believed to be reliable, however buyer and user assume all risk of use, this product or caused by this produc handling and storage whether in accordance with directions or not. SafeSalt and its agents give no guarantee or warranty of any kind express or implied concerning the use of this product and will not accept any responsibility whatsoever whether in contract or tort for any loss including consequential loss arising out of the use of it.