Safety Data Sheet SODIUM TETRABORATE

SDS no. JZZ2P8KF • Version 1.0 • Date of issue: 2023-02-04

SECTION 1: Identification

GHS Product identifier

Product name	SODIUM TETRABORATE

Recommended use of the chemical and restrictions on use

Heat resistant glass, porcelain enamel, ceramics, detergents, herbicides, insecticides, fertilisers, rust inhibitors, pharmaceuticals, antiseptics, leather, photography, bleaches, paint, boron compounds, flux for smelting, flame-retardant, fungicide for wood, soldering flux, cleaning preparations, and laboratory reagent.

Supplier's details

Name	ChemSupply Australia Pty Ltd
Address	38-50 Bedford Street 5013 Gillman South Australia Australia
Telephone	08 8440 2000
email	www.chemsupply.com

Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

SECTION 2: Hazard identification

General hazard statement

Classified as Hazardous according to the Globally Harmonised System of classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Not classified as dangerous goods according to the Australian Dangerous Goods Code (ADG).

Classification of the substance or mixture

GHS classification in accordance with: UN GHS revision 7

- Toxic to reproduction, Cat. 1
- Serious eye damage/eye irritation, Cat. 2A

GHS label elements, including precautionary statements

Pictograms

Signal word	**Danger**

Hazard statement(s)

H319	Causes serious eye irritation
H360	May damage fertility or the unborn child

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P405	Store locked up.
P501	Dispose of contents/container to an approved waste disposal facility

SECTION 3: Composition/information on ingredients

Mixtures

Molecular weight: 381.37

Components

Component	Concentration
Sodium borate (CAS no.: 12179-04-3; EC no.: 215-540-4; Index no.: 005-011-02-9)	**100 % (weight)**
CLASSIFICATIONS: Toxic to reproduction, Cat. 1B; Serious eye damage/eye irritation, Cat. 2A; Hazardous to the aquatic environment, short-term (acute), Cat. 3. HAZARDS: H360FD - May damage fertility. May damage the unborn child.. [SCLs/M-factors/ATEs]: Repr. 1B; H360FD: C ≥ 6,5 %	

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice	First Aid Facilities: Maintain eyewash fountain and drench facilities in work area. For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor (at once).
If inhaled	If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.
In case of skin contact	If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.
In case of eye contact	If in eyes wash out immediately with water.
If swallowed	If swallowed, do NOT induce vomiting.

Most important symptoms/effects, acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of immediate medical attention and special treatment needed, if necessary
For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

SECTION 5: Fire-fighting measures

Suitable extinguishing media
Use fire extinguishing media appropriate for surrounding environment. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

Specific hazards arising from the chemical
Not combustible. Toxic and/or irritating gases, vapours and fumes of sodium oxide and borane/boron oxides.

Sodium borate : Borane/boron oxides, Sodium oxides

Special protective actions for fire-fighters
Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. Fight fire from safe location.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation. For personal protection see section 8.

Methods and materials for containment and cleaning up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Precautions for safe handling
Avoid ingestion and inhalation of dust. Avoid contact with eyes, skin, and clothing. If ingested, seek medical advice immediately and show the container or the label. Minimize dust generation and accumulation. Keep containers closed when not in use. Ensure good ventilation at the workplace. Use with adequate ventilation. Wear suitable protective clothing. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Practice good personal hygiene, that is, always wash hands before eating, drinking smoking or using the toilet facilities. When using do not eat, drink or smoke. Keep away from incompatibles such as oxidizing agents.

Conditions for safe storage, including any incompatibilities
Store in tightly closed containers, in order to minimise contamination, in a cool, dry, well-ventilated area away from incompatible substances.

SECTION 8: Exposure controls/personal protection

Control parameters

CAS: 12179-04-3
Sodium borate
AU/SWA (Australia): 1 mg/m3 TWA inhalation

CAS: 1303-96-4
Sodium borate
ACGIH: 6 mg/m3 STEL inhalation; 2 mg/m3 TLV® inhalation; Cal/OSHA: 5 mg/m3 PEL-TWA inhalation; NIOSH: 5 mg/m3 REL-TWA inhalation

Appropriate engineering controls
Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.f the engineering controls are not sufficient to maintain concentrations of vapours/mists below the exposure standards, suitable respiratory protection must be worn.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.

Skin protection
Clean impervious clothing should be worn. Clothing for protection against
chemicals should comply with AS 3765 Clothing for Protection Against Hazardous
Chemicals.

Hand Protection: Normally not required but if in doubt ensure hand protection should complies with AS 2161, Occupational protective gloves - Selection, use and maintenance.

Body protection
Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

Respiratory protection
If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/ mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be made to Australian Standards AS/ NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Solid
Appearance	Colourless to white, grey, bluish or greenish white streak, vitreous or dull lustre crystals, granules or crystalline powder; efflorescent in dry air, the crystals often being coated with white powder.
Color	No data available.
Odor	Odourless.
Odor threshold	No data available.
Melting point/freezing point	62 °C (heated in closed space); 75 °C (decomposes).
Boiling point or initial boiling point and boiling range	Decomposes. Loses water at 320 °C; 1575 ºC (anhydrous).
Flammability	No data available.
Lower and upper explosion limit/flammability limit	No data available.
Flash point	No data available.
Explosive properties	Not considered to be an explosion hazard. A mixture of hydrated borax and zirconium explodes when heated.
Auto-ignition temperature	No data available.
Decomposition temperature	Loses water of crystallization, first forming the pentahydrate above about 62 °C and then anhydrous sodium tetraborate at about 320 °C. Anhydrous sodium tetraborate decomposes at 1575 °C.
Oxidizing properties	No data available.

pH	9.5 (5% aq soln). Aqueous solution is alkaline to litmus and phenolphthalein.
Kinematic viscosity	No data available.
Solubility	Solubility in Water: Soluble (38.1 g/l at 20 °C). [13] Solubility in Organic Solvents: Soluble in glycerol; slightly soluble in acetone; insoluble in alcohol (methanol, ethanol) and acid.
Partition coefficient n-octanol/water (log value)	log Pow: -1.53
Vapor pressure	0.213 hPa (20 ºC).
Evaporation rate	No data available.
Density and/or relative density	[14] Specific Gravity: 1.73.
Relative vapor density	No data available.

Particle characteristics
No data available.

Supplemental information regarding physical hazard classes
No data available.

Further safety characteristics (supplemental)
Index of refraction: 1.447 (alpha); 1.469 (beta); 1.472 (gamma).
Taste: Alkaline.
Moh's hardness: 2.3.
Bulk density: 810 kg/m^3.

SECTION 10: Stability and reactivity

Reactivity
Stable under normal conditions of storage and handling.

Chemical stability
Stable at room temperature in closed containers under ordinary conditions of use and storage. When heated above about 62 °C, borax loses water of crystallization, first forming the pentahydrate and eventually anhydrous sodium tetraborate.

Possibility of hazardous reactions
Reaction with strong reducing agents, such as metal hydrides or alkali metals, will generate hydrogen gas, which could create an explosive hazard. Produces a mild exothermic reaction in contact with water. Reacts violently with elemental zirconium - explodes when heated. Reactive with oxidizing agents, metals, and acids.

Conditions to avoid
Strong heating, dust generation and incompatible materials.

Incompatible materials
Strong oxidizing agents, strong reducing agents, such as metal hydrides or alkali metals, acids, mineral acids, alkalis, acid anhydrides, alkaloids, alkaloidal salts, metals, metals in powder form, zirconium, mercuric chloride, zinc sulfate, and other metallic salts, and gums.

Sodium borate : Strong oxidizing agents, Strong reducing agents

Hazardous decomposition products
Toxic and/or irritating gases, vapours and fumes of sodium oxide and borane/boron oxides.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Oral: LD50 (rat): 4500 - 5000 mg/kg.

Ingestion: Harmful if swallowed. May cause irritation of the digestive tract, gastric upset, headache, nausea, vomiting, diarrhoea, abdominal pain, muscular spasms, dullness, weakness, fatigue, lethargy, cardiovascular disorders, circulatory depression, central nervous system depression, shock, convulsions, kidney and liver damage, coma, and death. The effects may be delayed. Rapidly absorbed via the gastrointestinal tract and mucous membranes. Ingestion of 5-10 grams has produced severe vomiting, diarrhoea, shock and death.

Inhalation: Inhalation of dust may cause mild irritation to nose, throat and respiratory system. Symptoms may include minor discomfort to throat and lungs and/or coughing, shortness of breath, sore throat and nose bleeds.

Skin corrosion/irritation
May cause mild irritation in contact with skin. Symptoms include mild transient discomfort, redness, itching, pain and dry skin. Unlikely to cause any lasting effects. Borax is poorly absorbed through intact skin. May be harmful if absorbed through the skin, possibly producing systemic effects.

Serious eye damage/irritation
May cause mild eye irritation. Symptoms may include redness, tearing, mild transient discomfort, pain, stinging and blurred vision. Unlikely to cause any lasting effects.

Draize test in rabbits produced mild eye irritation effects. Fifty years of occupational exposure history indicates no adverse effects on human eye from exposure to Borax decahydrate.

Respiratory or skin sensitization
No data available.

Germ cell mutagenicity
No data available.

Carcinogenicity
No data available.

Reproductive toxicity
Studies with the chemically related boric acid in the rat, mouse and rabbit, at high doses, demonstrate developmental effects on the foetus, including foetal weight loss and minor skeletal variations. The doses administered were many times in excess of those to which humans would normally be exposed.

Sodium borate : fetotoxicity
Presumed human reproductive toxicant

Specific target organ toxicity (STOT) - single exposure
No data available.

Specific target organ toxicity (STOT) - repeated exposure
No data available.

Aspiration hazard
No data available.

Additional information
Chronic Effects: Prolonged or repeated ingestion or skin absorption may cause anorexia, weight loss, vomiting, mild diarrhoea, skin rash, convulsions, and anaemia. Repeated or prolonged contact with skin may cause dermatitis. Boron effects the central nervous system. Boron poisoning causes depression of the circulation, persistent vomiting and diarrhoea, followed by profound shock and coma. The temperature may become subnormal and a scarlatina form rash may cover the entire body.

SECTION 12: Ecological information

Toxicity
Herbicidal effect. Trace element. Fertilizing effect possible. No ecological problems are to be expected when the product is handled and used with due care and attention.

[8Y] Acute Toxicity - Daphnia: Daphnia magna EC50: 1085-1402 mg/l /48 h.

[8Z] Acute Toxicity - Algae: Desmodesmus subspicatus IC50: 158 mg/l /96 h (anhydrous substance).

Persistence and degradability
No data available.

Bioaccumulative potential
Concentration in organisms is not to be expected.

Mobility in soil
No data available.

Results of PBT and vPvB assessment
No data available.

Endocrine disrupting properties
No data available.

Other adverse effects
No data available.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

Sewage disposal
Concentration in organisms is not to be expected.

Other disposal recommendations
Do not discharge this material into waterways, drains and sewers.

SECTION 14: Transport information

ADG (Road and Rail)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

Australia SUSMP
Poison Schedule: S5

SECTION 16: Other information

Further information/disclaimer
ChemSupply Australia Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon ChemSupply Australia Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of ChemSupply Australia Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.