

1. IDENTIFICATION

Product Name	Borax Pentahydrate
Other Names	Borax 5 Mol; Disodium tetraborate pentahydrate; Sodium tetraborate pentahydrate
Uses	The product is used in industrial manufacturing, in particular in: - Ceramics - Detergent - Borosilicate glass - Insulation fibreglass
Chemical Family	No Data Available
Chemical Formula	Na ₂ B ₄ O ₇ .5H ₂ O
Chemical Name	Borax Pentahydrate
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) 5

Globally Harmonised System

Hazard Classification	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
Hazard Categories	Acute Toxicity (Oral) - Category 5 Serious Eye Damage/Irritation - Category 2A Toxic To Reproduction - Category 1B

Pictograms



Signal Word Danger

Hazard Statements	H303	May be harmful if swallowed.
	H319	Causes serious eye irritation.
	H360FD	May damage fertility. May damage the unborn child.

Precautionary Statements	Prevention	P201	Obtain special instructions before use.
		P264	Wash eyes thoroughly after handling.
		P280	Wear protective gloves/protective clothing/eye protection/face protection.
	Response	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.
	Storage	P405	Store locked up.
	Disposal	P501	Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications	Health Hazards	6.1E	Substances that are acutely toxic –May be harmful, Aspiration hazard
		6.4A	Substances that are irritating to the eye
		6.8B	Substances that are suspected human reproductive or developmental toxicants
	Environmental Hazards	9.1D	Substances that are slightly harmful to the aquatic environment or are otherwise designed for biocidal action

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Borax pentahydrate	No Data Available	12179-04-3	>=99.9 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	If swallowed, rinse mouth. If large amounts are swallowed (i.e. more than one teaspoon), contact a doctor or toxicity centre immediately.
Eye	If in eye(s), use eye wash fountain or fresh water to cleanse eye(s) for several minutes, holding eyelids open. If irritation persists for more than 30 minutes, seek medical attention.
Skin	If on skin, wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. No treatment necessary because non-irritating. If skin irritation occurs, get medical advice/attention.
Inhaled	If inhaled and symptoms such as nose or throat irritation are observed, remove to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Centre or doctor/physician if you feel unwell.
Advice to Doctor	Observation only is required for adult ingestion of less than 7 grams of borax pentahydrate. For ingestion in excess of 7 grams, maintain adequate kidney function and force fluids. Gastric lavage is recommended for symptomatic patients only. Haemodialysis 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.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	Move containers from fire area if you can do it without risk. Runoff from fire control may cause pollution. Dike fire-control water for later disposal.
Flammability Conditions	No Data Available
Extinguishing Media	Any fire extinguishing media may be used on nearby fires. Dry chemical, CO ₂ , water spray or regular foam.
Fire and Explosion Hazard	Borax pentahydrate is not flammable, combustible or explosive. The product is itself a flame retardant.
Hazardous Products of Combustion	Fire may produce irritating and/or toxic gases.
Personal Protective Equipment	Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters protective clothing will only provide limited protection.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Increase ventilation. Avoid inhalation of dust. Do not walk through spilled material.
Clean Up Procedures	Vacuum, shovel or sweep up Borax pentahydrate and place in containers for disposal in accordance with applicable local regulations.
Containment	Stop leak if you can do it without risk. Prevent dust cloud.
Environmental Precautionary Measures	Borax pentahydrate is a water-soluble white powder that may, at high concentrations cause damage to trees or vegetation by root absorption. Avoid release to the environment.
Evacuation Criteria	Keep unauthorized personnel away. Stay upwind.
Personal Precautionary Measures	In case of exposure to high level of airborne dust, wear a personal respirator in compliance with national legislation.

7. HANDLING AND STORAGE

Handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Ensure a safety shower and eye wash station are available for use. Provide appropriate ventilation. Avoid dust formation. Avoid breathing dust. Wear protective gloves/ protective clothing/ eye protection/ face protection. Wash eyes and skin thoroughly after handling. Do not eat, drink or smoke while using this product.
Storage	Dry, indoor storage is recommended. Provide appropriate ventilation and store bags such as to prevent any accidental damage. Good housekeeping procedures should be followed to minimise dust generation and accumulation. The product should be kept away from strong reducing agents.
Container	Store in original packaging as approved by manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	Safe Work Australia (SWA) Exposure Standard for Disodium tetraborate pentahydrate (CAS No. 12179-04-3): Time Weighted Average (TWA): 1 mg/m ³ . Time weighted average exposure standard (TWA) means the average airborne concentration of a substance over an eight-hour working day, for a five-day working week. A person conducting a business or undertaking must ensure that a worker is not exposed to airborne contaminants above the workplace exposure standard.
Exposure Limits	No Data Available
Biological Limits	No information available on biological limit values for this product.
Engineering Measures	Use local exhaust ventilation to keep airborne concentrations of Borax pentahydrate dust below permissible exposure levels.
Personal Protection Equipment	Respiratory protection: In case of prolonged exposure to dust wear a personal respirator in compliance with national legislation. Where airborne concentrations are expected to exceed exposure limits, respirators should be used. Eyes and hands protection: Goggles and gloves are not required for normal industrial exposures, but may be warranted if environment is excessively dusty.
Special Hazards Precautions	May damage fertility or the unborn child - Obtain special instructions before use. Do not handle until all safety directions have been read and understood. Use personal protective equipment as required. Causes serious eye irritation - Wash eyes thoroughly after handling. Wear eye protection/face protection. May be harmful if swallowed - Do not eat, drink or smoke while using this product.
Work Hygienic Practices	Wash hands before breaks and at the end of the workday. Remove and wash soiled clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Granular/powder
Odour	Odourless
Colour	White
pH	9.3 3% solution
Vapour Pressure	Negligible (@ 20 °C)
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	741 °C
Freezing Point	No Data Available
Solubility	3.7% @ 20°C - 51.2% @ 100°C
Specific Gravity	1.81
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	120 °C

Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	291.35
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	Borax pentahydrate is not flammable, combustible, or explosive.
Potential for Dust Explosion	No information available.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	No information available.
Reactions That Release Gases or Vapours	No information available.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

Chemical Stability	Borax pentahydrate is a stable product, but when heated it loses water eventually forming anhydrous borax (Na ₂ B ₄ O ₇).
Conditions to Avoid	Keep away from heat/hot surfaces. Protect from moisture.
Materials to Avoid	Avoid contact with strong reducing agents such as metal hydrides, acetic anhydride or alkali metals.
Hazardous Decomposition Products	Reaction with strong reducing agents such as metal hydrides, acetic anhydride or alkali metals will generate hydrogen gas which could create an explosive hazard.
Hazardous Polymerisation	No information available.

11. TOXICOLOGICAL INFORMATION

General Information	<p>ROUTES OF EXPOSURE: Inhalation is the most significant route of exposure in occupational and other settings. Dermal exposure is not usually a concern because borax pentahydrate is poorly absorbed through intact skin. Borax pentahydrate does not cause irritation to intact skin.</p> <p>INHALATION: Occasional mild irritation effects to nose and throat may occur from inhalation of borax pentahydrate dusts at levels higher than 10 mg/m³.</p> <p>EYE CONTACT: Borax pentahydrate is a serious eye irritant.</p> <p>INGESTION: Products containing borax pentahydrate are not intended for ingestion. Borax pentahydrate has 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.</p> <p>SYMPTOMS OF EXPOSURE: Symptoms of accidental over-exposure to borax pentahydrate have been associated with ingestion or absorption through large areas of damaged skin. These may include nausea, vomiting, and diarrhoea, with delayed effects of skin redness and peeling.</p>
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Acute	
Other	ACUTE TOXICITY: DERMAL Rabbit LD50 >2,000 mg/kg bw
Ingestion	ACUTE TOXICITY: ORAL Rat LD50 >2,500 mg/kg bw
Reproduction	Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated effects on fertility and testes. Studies with the chemically related boric acid in rat, mouse and rabbit, at high doses, demonstrate developmental effects on the foetus including foetal weight loss and minor skeletal variations. Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to sodium borate dust. A recent epidemiology study under the conditions of normal occupational exposure to borate dusts indicated no effect on fertility.
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	Algal toxicity: Green algae, <i>Pseudokirchneriella subcapitata</i> (Hansveit and Oldersma, 2000) 72-hr EC50 – biomass = 40 mg B/L or 270 mg disodium tetraborate pentahydrate/L Invertebrate toxicity: <i>Daphnia</i> , <i>Daphnids</i> , <i>Daphnia magna</i> (Gersich, 1984a) 48-hr LC50 = 133 mg B/L or 896 mg disodium tetraborate pentahydrate/L Fish toxicity: Fish, Fatheted minnow, <i>Pimephales promelas</i> (Soucek et al., 2010) 96-hr LC50 = 79.7 mg B/L or 537 mg disodium tetraborate pentahydrate/L
Persistence/Degradability	Boron is naturally occurring and ubiquitous in the environment. Borax decahydrate decomposes in the environment to natural borate.
Mobility	The product is soluble in water and is leachable through normal soil.
Environmental Fate	Boron occurs naturally in sea water, and is an essential micronutrient for healthy growth of plants. However, it can be harmful to boron sensitive plants in higher quantities. Care should be taken to minimise the amount of borate product released to the environment.
Bioaccumulation Potential	Not significantly bioaccumulative.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with local/regional/national regulations. Contact a specialist disposal company or the local waste regulator for advice.
Special Precautions for Land Fill	Small quantities of Borax pentahydrate can usually be disposed of at landfill sites. Tonnage quantities of product are not recommended to be sent to landfills. Such product should, if possible, be used for an appropriate application.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name	Borax Pentahydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Comments NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Malaysia)

ADR

Proper Shipping Name Borax Pentahydrate
Class No Data Available
Subsidiary Risk(s) No Data Available
No Data Available
UN Number No Data Available
Hazchem No Data Available
Pack Group No Data Available
Special Provision No Data Available
Comments NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Zealand)

NZS5433

Proper Shipping Name Borax Pentahydrate
Class No Data Available
Subsidiary Risk(s) No Data Available
No Data Available
UN Number No Data Available
Hazchem No Data Available
Pack Group No Data Available
Special Provision No Data Available
Comments NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)

US DOT

Proper Shipping Name Borax Pentahydrate
Class No Data Available
Subsidiary Risk(s) No Data Available
No Data Available
UN Number No Data Available
Hazchem No Data Available
Pack Group No Data Available
Special Provision No Data Available
Comments NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport

IMDG Code

Proper Shipping Name Borax Pentahydrate
Class No Data Available
Subsidiary Risk(s) No Data Available
UN Number No Data Available
Hazchem No Data Available
Pack Group No Data Available
Special Provision No Data Available
EMS No Data Available
Marine Pollutant No
Comments NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport

IATA DGR

Proper Shipping Name	Borax Pentahydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	5

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	HSR003998
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National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Listed
Canada (NDSL)	Not Listed
China (IECSC)	Listed
Europe (EINECS)	215-540-4
Europe (REACH)	Listed
Japan (ENCS/METI)	Listed
Korea (KECI)	Hydrate of Borax (KE-03483)
Malaysia (EHS Register)	Listed
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Listed
Switzerland (Giftliste 1)	Not Determined

Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Listed
USA (TSCA)	Listed

16. OTHER INFORMATION

Related Product Codes	BORASA0300, BORASA0301, BORASA0400, BORASA0500, BORASA0501, BORASA0600, BORASA0700, BORASA0701, BORASA1200, BORASA1201, BORASA1210, BORASA1220, BORASA1300, BORASA1301, BORASA1500, BORASA1600, BORASA1700, BORASA2100, BORASA5500, BORASA5900, BORASA8000, BORASA8200
Revision	4
Revision Date	01 Jan 2016
Reason for Issue	SDS updated
Key/Legend	<p>< Less Than > Greater Than AICS Australian Inventory of Chemical Substances atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm² Square Centimetres CO₂ Carbon Dioxide COD Chemical Oxygen Demand deg C (°C) Degrees Celcius EPA (New Zealand) Environmental Protection Authority of New Zealand deg F (°F) Degrees Farenheit g Grams g/cm³ Grams per Cubic Centimetre g/l Grams per Litre HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health immiscible Liquids are insoluable in each other. inHg Inch of Mercury inH₂O Inch of Water K Kelvin kg Kilogram kg/m³ Kilograms per Cubic Metre lb Pound LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals. ltr or L Litre m³ Cubic Metre mbar Millibar mg Milligram mg/24H Milligrams per 24 Hours mg/kg Milligrams per Kilogram mg/m³ Milligrams per Cubic Metre Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present. mm Millimetre mmH₂O Millimetres of Water mPa.s Millipascals per Second N/A Not Applicable NIOSH National Institute for Occupational Safety and Health NOHSC National Occupational Health and Safety Commission OECD Organisation for Economic Co-operation and Development Oz Ounce PEL Permissible Exposure Limit Pa Pascal ppb Parts per Billion ppm Parts per Million ppm/2h Parts per Million per 2 Hours ppm/6h Parts per Million per 6 Hours psi Pounds per Square Inch R Rankine</p>

RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight