



# SAFETY DATA SHEET BORAX PENTAHYDRATE REVISION 6, DATE 10 OCT 21

## 1. IDENTIFICATION

<b>Product Name</b>	<b>Borax Pentahydrate</b>
<b>Other Names</b>	Boric acid, disodium salt [CAS#1330-43-4]; Disodium tetraborate, anhydrous; Sodium tetraborate, pentahydrate
<b>Uses</b>	Ceramics; Detergent; Borosilicate glass; Insulation fiberglass.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> ·5H <sub>2</sub> O
<b>Chemical Name</b>	Disodium tetraborate, pentahydrate
<b>Product Description</b>	No Data Available

### Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox 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)

Schedule 5



## Globally Harmonised System

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

## Pictograms



<b>Signal Word</b>	Warning
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<b>Hazard Statements</b>	<b>H303</b>	May be harmful if swallowed.
	<b>H319</b>	Causes serious eye irritation.
	<b>H361d</b>	Suspected of damaging the unborn child.
<b>Precautionary Statements</b>	Prevention <b>P201</b>	Obtain special instructions before use.
	<b>P280</b>	Wear protective gloves/protective clothing/eye protection/face protection.
	Response <b>P305 + P351 + P338</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	<b>P308 + P313</b>	IF exposed or concerned: Get medical advice.
	<b>P337 + P313</b>	If eye irritation persists: Get medical advice.
	<b>P312</b>	Call a POISON CENTER or doctor if you feel unwell.
	Storage <b>P405</b>	Store locked up.
	Disposal <b>P501</b>	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 &amp; Rail (ADG Code)

<b>Dangerous Goods Classification</b>	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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## Safe Work Australia

National Guide for Classifying Hazardous Chemicals under the Model WHS Regulations

<b>Hazard Classification</b>	Hazardous according to the criteria of Safe Work Australia under Model WHS Regulations
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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

## Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Borax pentahydrate	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> ·5H <sub>2</sub> O	12179-04-3	<=100 %

**4. FIRST AID MEASURES***Description of necessary measures according to routes of exposure*

<b>Swallowed</b>	IF SWALLOWED: Rinse mouth, then drink plenty of water. Call a Poison Centre or doctor/physician for advice if large amounts are swallowed (i.e. more than one teaspoon) or if you feel unwell.
<b>Eye</b>	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.
<b>Skin</b>	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.
<b>Inhaled</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention.
<b>Advice to Doctor</b>	If exposed or concerned, get medical advice/attention. Treat symptomatically. *Observation only is required for adult ingestion of less than 7 grams. For ingestion in excess of 7 grams, 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.
<b>Medical Conditions Aggravated by Exposure</b>	No information available.

**5. FIRE FIGHTING MEASURES**

<b>General Measures</b>	Do not attempt to take action without suitable protective equipment. If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
<b>Flammability Conditions</b>	Not combustible. *The product is itself a flame retardant.
<b>Extinguishing Media</b>	If material is involved in a fire, use water spray, dry powder, foam. *Any fire extinguishing media may be used on nearby fires.
<b>Fire and Explosion Hazard</b>	Not flammable or explosive.
<b>Hazardous Products of Combustion</b>	In case of fire, toxic fumes may be released.
<b>Special Fire Fighting Instructions</b>	Contain runoff from fire control or dilution water - Runoff may cause pollution.
<b>Personal Protective Equipment</b>	Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.
<b>Flash Point</b>	No Data Available
<b>Lower Explosion Limit</b>	No Data Available
<b>Upper Explosion Limit</b>	No Data Available
<b>Auto Ignition Temperature</b>	No Data Available
<b>Hazchem Code</b>	No Data Available

**6. ACCIDENTAL RELEASE MEASURES**

<b>General Response Procedure</b>	Ensure adequate ventilation. Do not touch or walk through spilled material. Avoid generating dust. Avoid breathing dust and contact with eyes, skin and clothing.
<b>Clean Up Procedures</b>	Mechanically recover the product. Vacuum, shovel or sweep up and place in containers for disposal (see SECTION 13).
<b>Containment</b>	Stop leak if you can do it without risk. Prevent dust cloud. Prevent entry into waterways, sewers, basements or confined areas.
<b>Decontamination</b>	Ventilate spillage area.

<b>Environmental Precautionary Measures</b>	Avoid contamination of water bodies during clean up and disposal. Notify authorities if product enters sewers or public waters.
<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
<b>Personal Precautionary Measures</b>	Do not attempt to take action without suitable protective equipment (see SECTION 8). *In case of exposure to high level of airborne dust, wear a personal respirator in compliance with national legislation.

## 7. HANDLING AND STORAGE

<b>Handling</b>	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Obtain special instructions before use - Do not handle until all safety precautions have been read and understood. Minimise dust generation and accumulation. Avoid breathing dust and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8).
<b>Storage</b>	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Prevent any accidental damage to bags. Keep away from food/feedstuffs and incompatible materials (see SECTION 10). Store locked up.
<b>Container</b>	Keep in the original container.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>General</b>	For Borates, tetra, sodium salts (pentahydrate): - Safe Work Australia Exposure Standard: TWA = 1 mg/m <sup>3</sup> . - New Zealand Workplace Exposure Standard: TWA = 1 mg/m <sup>3</sup> .
<b>Exposure Limits</b>	No Data Available
<b>Biological Limits</b>	No information available.
<b>Engineering Measures</b>	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Maintain air concentrations below occupational exposure standards.
<b>Personal Protection Equipment</b>	- Respiratory protection: Wear respiratory protection, in case of inadequate ventilation or prolonged exposure to dust. Recommended: Wear a dust mask/particulate respirator (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses. Goggles may be warranted if environment is excessively dusty. - Hand protection: Wear protective gloves. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact.
<b>Special Hazards Precautions</b>	To maintain package integrity and to minimise caking of the product, bags should be handled on a first-in, first-out basis.
<b>Work Hygienic Practices</b>	Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Take off contaminated clothing and wash it before reuse. Separate working clothes from town clothes; Launder separately. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Solid
<b>Appearance</b>	Granular/powder
<b>Odour</b>	Odourless
<b>Colour</b>	White
<b>pH</b>	9.2 (1% solution)
<b>Vapour Pressure</b>	Negligible (@ 20 °C)
<b>Relative Vapour Density</b>	No Data Available

<b>Boiling Point</b>	1,575 °C
<b>Melting Point</b>	741 °C
<b>Freezing Point</b>	No Data Available
<b>Solubility</b>	3.7 % in water @ 20 °C - 51.2 % in water @ 100 °C
<b>Specific Gravity</b>	1.81
<b>Flash Point</b>	No Data Available
<b>Auto Ignition Temp</b>	No Data Available
<b>Evaporation Rate</b>	No Data Available
<b>Bulk Density</b>	No Data Available
<b>Corrosion Rate</b>	No Data Available
<b>Decomposition Temperature</b>	No Data Available
<b>Density</b>	No Data Available
<b>Specific Heat</b>	No Data Available
<b>Molecular Weight</b>	291.35
<b>Net Propellant Weight</b>	No Data Available
<b>Octanol Water Coefficient</b>	No Data Available
<b>Particle Size</b>	No Data Available
<b>Partition Coefficient</b>	No Data Available
<b>Saturated Vapour Concentration</b>	No Data Available
<b>Vapour Temperature</b>	No Data Available
<b>Viscosity</b>	No Data Available
<b>Volatile Percent</b>	No Data Available
<b>VOC Volume</b>	No Data Available
<b>Additional Characteristics</b>	No information available.
<b>Potential for Dust Explosion</b>	No information available.
<b>Fast or Intensely Burning Characteristics</b>	No information available.
<b>Flame Propagation or Burning Rate of Solid Materials</b>	No information available.
<b>Non-Flammables That Could Contribute Unusual Hazards to a Fire</b>	No information available.
<b>Properties That May Initiate or Contribute to Fire Intensity</b>	Not combustible. *The product is itself a flame retardant.
<b>Reactions That Release Gases or Vapours</b>	In case of fire, toxic fumes may be released.
<b>Release of Invisible Flammable Vapours and Gases</b>	Reaction with strong reducing agents such as metal hydrides, acetic anhydride or alkali metals will generate hydrogen gas which could create an explosive hazard.

## 10. STABILITY AND REACTIVITY

<b>General Information</b>	Reaction with strong reducing agents such as metal hydrides, acetic anhydride or alkali metals will generate hydrogen gas which could create an explosive hazard.
<b>Chemical Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Avoid generating dust. Avoid contact with incompatible materials.
<b>Materials to Avoid</b>	Incompatible/reactive with strong reducing agents, such as metal hydrides, acetic anhydride or alkali metals.
<b>Hazardous Decomposition Products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced. In case of fire, toxic fumes may be released.

## Hazardous Polymerisation

No information available.

## 11. TOXICOLOGICAL INFORMATION

## General Information

- Acute toxicity: May be harmful if swallowed. Products containing Borax pentahydrate are not intended for ingestion. Small amounts (e.g. a teaspoonful) swallowed accidentally are not likely to cause effects; swallowing amounts larger than that may cause gastrointestinal symptoms. Dermal exposure is not usually a concern because Borax pentahydrate is poorly absorbed through intact skin. 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.
- Skin corrosion/irritation: Non-irritant. Borax pentahydrate does not cause irritation to intact skin.
- Eye damage/irritation: Causes serious eye irritation.
- Respiratory/skin sensitisation: Disodium tetraborate, pentahydrate has no respiratory or skin sensitisation.
- Germ cell mutagenicity: Disodium tetraborate, pentahydrate is not mutagenic.
- Carcinogenicity: Disodium tetraborate, pentahydrate is not carcinogenic.
- Reproductive toxicity: Suspected of damaging the unborn child.
- STOT (single exposure): Occasional mild irritation effects to nose and throat may occur from inhalation of Borax pentahydrate dusts at levels higher than 10 mg/m<sup>3</sup>.
- STOT (repeated exposure): No information available.
- Aspiration toxicity: Disodium tetraborate, pentahydrate has no aspiration hazard.

## Acute

## Ingestion

- Acute toxicity (Oral):
- LD50, Rats: >2,500 mg/kg bw. (Disodium tetraborate, anhydrous).

## Other

- Acute toxicity (Dermal):
- LD50, Rabbits: >2,000 mg/kg bw.

## Chronic

## Reproduction

Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated effects on fertility and testes. Studies in 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 which humans would normally be exposed to. While boron has been shown to adversely affect male reproduction in laboratory animals, there is no clear evidence of male reproductive effects attributable to boron in studies of highly exposed workers. An epidemiology study under the conditions of normal occupational exposure to borate dusts indicated no effect on fertility. Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to borate dusts. A study conducted in Turkey with boron exposed mine workers showed that mean blood concentrations of the high exposure group is ~6 times and ~9 times lower than those of the highest no effect level of boron in blood with regard to developmental and reprotoxic effects (respectively) in rats. With those findings, no unfavourable effects of boron exposure on reproductive indicators are observed in humans.

## Carcinogen Category

None

## 12. ECOLOGICAL INFORMATION

## Ecotoxicity

- Aquatic toxicity:
- LC50, Fish (*Pimephales promelas*): 79.7 mg B/L or 537 mg Borax pentahydrate/L (96 h).
  - EC50, Crustacea (*Daphnia magna*): 133 mg B/L or 896 mg Borax pentahydrate/L (48 h).
  - EC50, Algae/aquatic plants (*Pseudokirchneriella subcapitata*): 40 mg B/L or 270 mg Borax pentahydrate/L (72 h) [biomass].

## Persistence/Degradability

Boron is naturally occurring and ubiquitous in the environment. Disodium tetraborate, pentahydrate decomposes in the environment to natural borate.

## Mobility

The product is soluble in water and is leachable through normal soil.

## Environmental Fate

Boron 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 bioaccumulative.

## Environmental Impact

No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with local/regional/national regulations.
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 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 (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

CommentsNON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)  
US DOT

Proper Shipping NameBorax Pentahydrate  
ClassNo Data Available  
Subsidiary Risk(s)No Data Available  
UN NumberNo Data Available  
HazchemNo Data Available  
Pack GroupNo Data Available  
Special ProvisionNo Data Available  
CommentsNON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport  
IMDG Code

Proper Shipping NameBorax Pentahydrate  
ClassNo Data Available  
Subsidiary Risk(s)No Data Available  
UN NumberNo Data Available  
HazchemNo Data Available  
Pack GroupNo Data Available  
Special ProvisionNo Data Available  
EMSNo Data Available  
Marine PollutantNo  
CommentsNON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport  
IATA DGR

Proper Shipping NameBorax Pentahydrate  
ClassNo Data Available  
Subsidiary Risk(s)No Data Available  
UN NumberNo Data Available  
HazchemNo Data Available  
Pack GroupNo Data Available  
Special ProvisionNo Data Available  
CommentsNON-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 ClassificationNOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION



# SAFETY DATA SHEET BORAX PENTAHYDRATE REVISION 6, DATE 10 OCT 21

General Information	BORIC ACID (excluding its salts) and BORAX
Poisons Schedule (Aust)	Schedule 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 (AIIIC)	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, BORASA0505, BORASA0550, BORASA0600, BORASA0700, BORASA0701, BORASA1200, BORASA1201, BORASA1210, BORASA1212, BORASA1220, BORASA1300, BORASA1301, BORASA1400, BORASA1500, BORASA1600, BORASA1700, BORASA2100, BORASA5500, BORASA5900, BORASA6200, BORASA8000, BORASA8200, GRABOR3000, GRABOR3020, GRABOR7000, GRABOR8000
Revision	6
Revision Date	10 Oct 2021
Reason for Issue	SDS updated
Key/Legend	< Less Than > Greater Than <b>AICS</b> Australian Inventory of Chemical Substances <b>atm</b> Atmosphere <b>CAS</b> Chemical Abstracts Service (Registry Number)

**cm<sup>2</sup>** Square Centimetres  
**CO<sub>2</sub>** 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/cm<sup>3</sup>** 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  
**inH<sub>2</sub>O** Inch of Water  
**K** Kelvin  
**kg** Kilogram  
**kg/m<sup>3</sup>** Kilograms per Cubic Metre  
**lb** Pound  
**LC<sub>50</sub>** LC stands for lethal concentration. LC<sub>50</sub> 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.  
**LD<sub>50</sub>** LD stands for Lethal Dose. LD<sub>50</sub> 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  
**m<sup>3</sup>** Cubic Metre  
**mbar** Millibar  
**mg** Milligram  
**mg/24H** Milligrams per 24 Hours  
**mg/kg** Milligrams per Kilogram  
**mg/m<sup>3</sup>** Milligrams per Cubic Metre  
**Misc or Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.  
**mm** Millimetre  
**mmH<sub>2</sub>O** Millimetres of Water  
**mPa.s** Millipascals per Second  
**N/A** Not Applicable  
**NIOSH** National Institute for Occupational Safety and Health  
**NOHSC** National Occupational Heath 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  
**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