

SODIUM BORATE, DECAHYDRATE

VWR International, Pty Ltd

Chemwatch: 10449

Version No: 9.1.1.1

Safety Data Sheet according to WHS and ADG requirements

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S.GHS.AUS.EN

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name:	SODIUM BORATE, DECAHYDRATE
Chemical Name:	sodium borate, decahydrate
Synonyms:	Antipyonin Borascu Borax Borax decahydrate Boricin Borax 10 mol, Borax Decahydrate, CAS RN 12447-40-4, CAS RN 61028-24-8, Ikon Borax Deca, Jaikin Neobor Polybor RIX-01, Na ₂ B ₄ O ₇ ·10H ₂ O, Plaschem Electroless Nickel Additive, Prod. Code: 10267-30717-44473-71737, Thermax C-Max, borax decahydrate, di-sodium tetraborate, di-sodium tetraborate AnalaR 10267, di-sodium tetraborate decahydrate(borax), disodium tetraborate decahydrate, sodium baborate decahydrate, sodium pyroborate, decahydrate, sodium tetraborate, decahydrate
Proper shipping name:	Not Applicable
Chemical formula:	B ₄ Na ₂ O ₇ ·10H ₂ O B ₄ -O ₇ .2Na.10H ₂ -O
Other means of identification:	Not Available
CAS number:	1303-96-4

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses:	Soldering metals; in the manufacture of glazes and enamels; tanning; in cleaning compounds; corrosion inhibitors; artificially aging wood; as a preservative, either alone or with other antiseptics against wood fungus; fireproofing fabrics. Also used for curing and preserving skins; in cockroach control.
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Details of the supplier of the safety data sheet

Registered company name:	VWR International, Pty Ltd
Address:	Unit 1/31 Archimedes Place 4172 QLD Australia
Telephone:	61 7 3009 4100 ; 1300 727 696
Fax:	61 7 3009 4199 ; 1300 135 123
Website:	http://au.vwr.com
Email:	csaus@au.vwr.com

Emergency telephone number






Association / Organisation:	Not Available
Emergency telephone numbers:	61 7 3009 4100 ; 1300 727 696
Other emergency telephone numbers:	61 7 3009 4100 ; 1300 727 696

SECTION 2 Hazards identification

Classification of the substance or mixture

HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the Model WHS Regulations and the ADG Code.

ChemWatch Hazard Ratings

Flammability	0		0 = Minimum 1 = Low 2 = Moderate 3 = High 4 = Extreme
Toxicity	2		
Body Contact	2		
Reactivity	0		
Chronic	3		

Poisons Schedule:	S5
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GHS Classification^[2]:

Reproductive Toxicity Category 1B

Legend: 1. Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

Label elements

GHS label elements



Signal word:	DANGER
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Hazard statement(s):

H360 May damage fertility or the unborn child

Precautionary statement(s): Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s): Response

P308+P313 IF exposed or concerned: Get medical advice/attention.

Precautionary statement(s): Storage

P405 Store locked up.

Precautionary statement(s): Disposal

P501 Dispose of contents/container to authorised chemical landfill or if organic to high temperature incineration

SECTION 3 Composition / information on ingredients**Substances**

CAS No	%[weight]	Name
1303-96-4	>98	sodium borate, decahydrate

Mixtures

See section above for composition of Substances

SECTION 4 First aid measures**Description of first aid measures****Eye Contact:**

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact:

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

Inhalation:

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prosthesis such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor, without delay.

Ingestion:

- **If swallowed do NOT induce vomiting.**
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

Indication of any immediate medical attention and special treatment needed

For acute or repeated short term exposures to boron and its compounds:

- Nausea, vomiting, diarrhoea and epigastric pain, haematemesis and blue-green discolouration of both faeces and vomitus characterise adult boron intoxication.
- Access and correct any abnormalities found in airway and circulation.
- A tidal volume of 10-15 mg/kg should be maintained.
- Emesis should be induced unless the patient is in coma, is experiencing seizures or has lost the gag reflex. If any of these are present, gastric lavage should be performed with a large-bore tube after endotracheal intubation or in the presence of continuous respiratory action.
- Activated charcoal is probably not of value though its use might be indicated following gastric evacuation. Catharsis might be useful to eliminate any borates remaining in the gastrointestinal tract (magnesium sulfate: adults, 30 gms: children 250 mg/kg).
- Peritoneal dialysis and haemodialysis remove some borates.

[Ellenhorn and Barceloux: Medical Toxicology]

SECTION 5 Firefighting measures**Extinguishing media**

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture**Fire Incompatibility:**

None known.

Advice for firefighters**Fire Fighting:**

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves in the event of a fire.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.

Fire/Explosion Hazard:

- Non combustible.
- Not considered a significant fire risk, however containers may burn.

&Decomposition may produce toxic fumes of:

SECTION 6 Accidental release measures**Personal precautions, protective equipment and emergency procedures****Minor Spills:**

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.

Major Spills:

Moderate hazard.

- **CAUTION:** Advise personnel in area.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.

Other information

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

Conditions for safe storage, including any incompatibilities

Suitable container:

- Glass container is suitable for laboratory quantities
- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

Storage incompatibility:

- Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.
- These trifluorides are hypergolic oxidisers. They ignites on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.
- The state of subdivision may affect the results.

Package Material Incompatibilities:

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	sodium borate, decahydrate	Borates, tetra, sodium salts (decahydrate)	5 (mgm3)	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-0	TEEL-1	TEEL-2	TEEL-3
sodium borate, decahydrate	2(ppm)	6(ppm)	200(ppm)	500(ppm)

Ingredient	Original IDLH	Revised IDLH
SODIUM BORATE, DECAHYDRATE	Not Available	Not Available

Exposure controls

Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Personal protection



Eye and face protection:

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task.

Skin protection:

See Hand protection below

Hand protection:

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Body protection:

See Other protection below

Other protection:

- Overalls.
- P.V.C. apron.
- Barrier cream.

Thermal hazards:

Recommended material(s):

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the SODIUM BORATE, DECAHYDRATE

Not Available

Material	CPI

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

Respiratory protection:

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	P1 Air-line*	-	PAPR-P1 -
up to 50 x ES	Air-line**	P2	PAPR-P2
up to 100 x ES	-	P3	-
		Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

* - Negative pressure demand ** - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Hard, odourless crystals, granules or powder. Soluble in glycerol; very slightly soluble in alcohol; insoluble in acids. Solubility in water @ 0 deg.C: 2.01 g/100 cc. @ 100 deg.C: 170 g/100 cc.

Physical state	Divided Solid	Relative density (Water = 1)	1.71-1.73
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not available.
pH (as supplied)	Not applicable	Decomposition temperature	1575
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	320	Molecular weight (g/mol)	381.37
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Non Volatile	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not applicable	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not applicable	Volatile Component (%vol)	Nil @ 38C
Vapour pressure (kPa)	Negligible	Gas group	Not Available
Solubility in water (g/L)	Miscible	pH as a solution(1%)	9.2-9.5
Vapour density (Air = 1)	Not Applicable		

SECTION 10 Stability and reactivity

Reactivity:

See section 7

Chemical stability:

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Possibility of hazardous reactions:

See section 7

Conditions to avoid:

See section 7

Incompatible materials:

See section 7

Hazardous decomposition products:

See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled:

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system, in a substantial number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.

Ingestion:

Accidental ingestion of the material may be damaging to the health of the individual.

Symptoms of borate poisoning include nausea, vomiting, diarrhoea, epigastric pain. These may be accompanied headache, weakness and a distinctive red skin rash. In severe cases there may be shock, increased heart rate and the skin may appear blue.

Skin Contact:

Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

Eye:

Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.

Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

Chronic:

Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

There is sufficient evidence to provide a strong presumption that human exposure to the material may result in impaired fertility on the basis of: - clear evidence in animal studies of impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects but which is not a secondary non-specific consequence of other toxic effects.

There is sufficient evidence to provide a strong presumption that human exposure to the material may result in developmental toxicity, generally on the basis of:

- clear results in appropriate animal studies where effects have been observed in the absence of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not secondary non-specific consequences of the other toxic effects.

TOXICITY	IRRITATION
sodium borate, decahydrate	
Dermal (rabbit) LD50: >10,000 mg/kg	
Inhalation (rat) LC50: >2.0 mg/L	
Oral (rat) LD50: 2660 mg/kg	
Not Available	Not Available

* Value obtained from manufacturer's msds

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

SODIUM BORATE, DECAHYDRATE

Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS.

Oral (rat) LD50: 4500-5000 mg/kg Eyes (rabbit) (-) Mild [Orica BORAX-Europe] Reproductive effector in rats Mutagenic towards bacteria

Acute Toxicity:	Not Applicable	Carcinogenicity:	Not Applicable
Skin Irritation/Corrosion:	Not Applicable	Reproductivity:	Reproductive Toxicity Category 1B
Serious Eye Damage/Irritation:	Not Applicable	STOT - Single Exposure:	Not Applicable
Respiratory or Skin sensitisation:	Not Applicable	STOT - Repeated Exposure:	Not Applicable
Mutagenicity:	Not Applicable	Aspiration Hazard:	Not Applicable

CMR STATUS**SECTION 12 Ecological information****Toxicity**

Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air. Once released to surface waters and moist soils their fate depends on solubility and dissociation in water. Environmental processes (such as oxidation and the presence of acids or bases) may transform insoluble metals to more soluble ionic forms. Microbiological processes may also transform insoluble metals to more soluble forms.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
Not Available	Not Available	Not Available

Bioaccumulative potential

Ingredient	Bioaccumulation
Not Available	Not Available

Mobility in soil

Ingredient	Mobility
Not Available	Not Available

SECTION 13 Disposal considerations**Waste treatment methods****Product / Packaging disposal:**

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.

SECTION 14 Transport information**Labels Required:****Marine Pollutant: NO****HAZCHEM:**

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

SECTION 15 Regulatory information**Safety, health and environmental regulations / legislation specific for the substance or mixture****sodium borate, decahydrate(1303-96-4) is found on the following regulatory lists**

"GESAMP/EHS Composite List - GESAMP Hazard Profiles", "FisherTransport Information", "Sigma-AldrichTransport Information", "Acros Transport Information", "Australia Exposure Standards", "OECD List of High Production Volume (HPV) Chemicals", "Australia High Volume Industrial Chemical List (HVICL)", "Australia FAISD Handbook - First Aid Instructions, Warning Statements, and General Safety Precautions", "Australia Hazardous Substances Information System - Consolidated Lists", "International Chemical Secretariat (ChemSec) SIN List (*Substitute It Now!)", "Australia Inventory of Chemical Substances (AICS)", "Australia Therapeutic Goods Administration (TGA) Substances that may be used as active ingredients in Listed medicines", "United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4", "Australia National Pollutant Inventory"

SECTION 16 Other information

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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