

# SAFETY DATA SHEET

## CIGWELD COMWELD COPPER AND BRASS FLUX

Infosafe No.: FMOV8  
ISSUED Date : 10/03/2023  
ISSUED by: CIGWELD

### Section 1 - Identification

**Product Identifier**

CIGWELD COMWELD COPPER AND BRASS FLUX

**Company Name**

CIGWELD

**Address**

71 Gower Street Preston  
VIC 3072 AUSTRALIA

**Telephone/Fax Number**

Tel: +61 3 9474 7400|+1 1300 654 674

**Emergency Phone Number**

+61 3 9474 7400

CHEMWATCH: +61 1800 951 288; +61 3 9573 3188

**E-mail Address**

enquiries@cigweld.com.au

**Recommended use of the chemical and restrictions on use**

Relevant identified uses: Braze welding of copper, brass and bronze and the brazing of copper, steel, etc.

**Additional Information**

Website: <http://www.cigweld.com.au/>

Chemical Name: Not Applicable

Synonyms: Not Available

Other means of identification: Not Available

Once connected and if the message is not in your preferred language then please dial 01

### Section 2 - Hazard(s) Identification

**GHS classification of the substance/mixture**

[1] Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2A, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Carcinogenicity Category 1A, Reproductive Toxicity Category 1B

**Signal Word (s)**

DANGER

**Hazard Statement (s)**

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H350 May cause cancer.

H360FD May damage fertility. May damage the unborn child.

**Pictogram (s)**

Exclamation mark, Health hazard

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### Precautionary Statement – Prevention

P201 Obtain special instructions before use.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves, protective clothing, eye protection and face protection.

P261 Avoid breathing dust/fumes.

### Precautionary Statement – Response

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

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312 Call a POISON CENTER/doctor/physician/first aider/ if you feel unwell.

P337+P313 If eye irritation persists: Get medical advice/attention.

### Precautionary Statement – Storage

P405 Store locked up.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

### Precautionary Statement – Disposal

P501 Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

### Other Information

Classification of the substance or mixture:

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

Legend: 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

## Section 3 - Composition and Information on Ingredients

### Ingredients

Name	CAS	Proportion
Boric acid	10043-35-3	>60 %weight
Sodium Metaborate	7775-19-1	10-30 %weight

### Other Information

Substances:

See section below for composition of Mixtures

Mixtures:

Legend: 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; \* EU IOELVs available

## Section 4 - First Aid Measures

### Inhalation

If fumes or combustion products are inhaled remove from contaminated area.

Lay patient down. Keep warm and rested.

Prostheses 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.

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### 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.

### Skin

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.

### Eye

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.

### Indication of immediate medical attention and special treatment needed if necessary

The material may induce methaemoglobinaemia following exposure.

Initial attention should be directed at oxygen delivery and assisted ventilation if necessary. Hyperbaric oxygen has not demonstrated substantial benefits.

Hypotension should respond to Trendelenburg's position and intravenous fluids; otherwise dopamine may be needed.

Symptomatic patients with methaemoglobin levels over 30% should receive methylene blue. (Cyanosis, alone, is not an indication for treatment). The usual dose is 1-2 mg/kg of a 1% solution (10 mg/ml) IV over 50 minutes; repeat, using the same dose, if symptoms of hypoxia fail to subside within 1 hour.

Thorough cleansing of the entire contaminated area of the body, including the scalp and nails, is of utmost importance.

### BIOLOGICAL EXPOSURE INDEX - BEI

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV):

Determinant: 1. Methaemoglobin in blood

Index: 1.5% of haemoglobin

Sampling Time: During or end of shift

Comment: B, NS, SQ

B: Background levels occur in specimens collected from subjects NOT exposed

NS: Non-specific determinant; also observed after exposure to other materials

SQ: Semi-quantitative determinant - Interpretation may be ambiguous; should be used as a screening test or confirmatory test.

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 gastro-intestinal 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

### Suitable Extinguishing Media

There is no restriction on the type of extinguisher which may be used.

Use extinguishing media suitable for surrounding area.

### Specific hazards arising from the chemical

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### Fire Incompatibility:

None known.

### Fire/Explosion Hazard:

Non combustible.

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

Decomposition may produce toxic fumes of:

Metal oxides

May emit poisonous fumes.

May emit corrosive fumes.

### Hazchem Code

Not Applicable

### Decomposition Temperature

Not Available

### Precautions in connection with Fire

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.

## Section 6 - Accidental Release Measures

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### Emergency Procedures

See section 8

### Environmental Precautions

See section 12

### Methods and materials for containment and cleaning up (Small 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.

### Methods and materials for containment and cleaning up (Large Spills)

Moderate hazard.

CAUTION: Advise personnel in area.

Alert Emergency Services and tell them location and nature of hazard.

Control personal contact by wearing protective clothing.

### Other Information

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

## Section 7 - Handling and Storage

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### 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 area protected from environmental extremes.

Store away from incompatible materials and foodstuff containers.

### Conditions for safe storage, including any incompatibilities

Suitable container:

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For boric acid:

Storage bins should have a 60-degree sloping cone bottom with a provision to prevent the entry of water.

For DRY storage:

Plastic drum

Polyethylene or polypropylene container

Steel drum

Aluminium drum

For MOIST conditions:

Stainless steel drum

Polyethylene or polypropylene container.

Check all containers are clearly labelled and free from leaks.

Storage incompatibility:

The substance may be or contains a "metalloid"

The following elements are considered to be metalloids; boron, silicon, germanium, arsenic, antimony, tellurium and (possibly) polonium

The electronegativities and ionisation energies of the metalloids are between those of the metals and nonmetals, so the metalloids exhibit characteristics of both classes. The reactivity of the metalloids depends on the element with which they are reacting. For example, boron acts as a nonmetal when reacting with sodium yet as a metal when reacting with fluorine.

Unlike most metals, most metalloids are amphoteric- that is they can act as both an acid and a base.

Boric acid:

Is a weak acid

Is incompatible with alkali carbonates, hydroxides (forming borate salts), strong reducing agents and alkali metals

Reacts violently with potassium metal

Forms heat-sensitive explosive compound on contact with acetic anhydride

Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.

These trifluorides are hypergolic oxidisers. They ignite 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.

Segregate from alcohol, water.

Avoid strong bases.

## Section 8 - Exposure Controls and Personal Protection

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### Occupational exposure limit values

Control parameters:

Occupational Exposure Limits (OEL):

INGREDIENT DATA:

Not Available

Emergency Limits:

Ingredient: boric acid

TEEL-1: 6 mg/m<sup>3</sup>

TEEL-2: 23 mg/m<sup>3</sup>

TEEL-3: 830 mg/m<sup>3</sup>

Ingredient: sodium metaborate

TEEL-1: 6.8 mg/m<sup>3</sup>

TEEL-2: 77 mg/m<sup>3</sup>

TEEL-3: 460 mg/m<sup>3</sup>

Ingredient: boric acid

Original IDLH: Not Available

Revised IDLH: Not Available

Ingredient: sodium metaborate

Original IDLH: Not Available

Revised IDLH: Not Available

Occupational Exposure Banding:

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Ingredient: boric acid  
Occupational Exposure Band Rating: D  
Occupational Exposure Band Limit:  $> 0.01$  to  $\leq 0.1 \text{ mg/m}^3$   
Ingredient: sodium metaborate  
Occupational Exposure Band Rating: E  
Occupational Exposure Band Limit:  $\leq 0.01 \text{ mg/m}^3$

Notes: Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

### MATERIAL DATA:

None assigned. Refer to individual constituents.

### 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.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

### Respiratory Protection

Type -P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant.

Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor: up to 10

Maximum gas/vapour concentration present in air p.p.m. (by volume): 1000

Half-face Respirator: -AUS / Class 1 P2

Full-Face Respirator: -

Required minimum protection factor: up to 50

Maximum gas/vapour concentration present in air p.p.m. (by volume): 1000

Half-face Respirator: -

Full-Face Respirator: -AUS / Class 1 P2

Required minimum protection factor: up to 50

Maximum gas/vapour concentration present in air p.p.m. (by volume): 5000

Half-face Respirator: Airline \*

Full-Face Respirator: -

Required minimum protection factor: up to 100

Maximum gas/vapour concentration present in air p.p.m. (by volume): 5000

Half-face Respirator: -

Full-Face Respirator: -2 P2

Required minimum protection factor: up to 100

Maximum gas/vapour concentration present in air p.p.m. (by volume): 10000

Half-face Respirator: -

Full-Face Respirator: -3 P2

Required minimum protection factor: 100+

Full-Face Respirator: Airline\*\*

\* - Continuous Flow \*\* - Continuous-flow or positive pressure demand

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 (SO<sub>2</sub>), G = Agricultural chemicals, K = Ammonia (NH<sub>3</sub>), Hg = Mercury, NO = Oxides of nitrogen, MB

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= Methyl bromide, AX = Low boiling point organic compounds (below 65 degC)

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

### Eye and Face Protection

Safety glasses with side shields.

Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]

Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.

### 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.

Personal hygiene is a key element of effective hand care.

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

Polychloroprene.

Nitrile rubber.

Butyl rubber.

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 computer-generated selection:

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Material: BUTYL

CPI: A

Material: NEOPRENE

CPI: A

Material: NITRILE

CPI: A

Material: VITON

CPI: A

\* 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

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

\* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

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### Ansell Glove Selection:

Glove — In order of recommendation

AlphaTec® 15-554

AlphaTec® Solvex® 37-185

AlphaTec® 38-612

AlphaTec® 58-008

AlphaTec® 58-530B

AlphaTec® 58-530W

AlphaTec® 58-735

AlphaTec® 79-700

AlphaTec® Solvex® 37-675

DermaShield™ 73-711

The suggested gloves for use should be confirmed with the glove supplier.

### Body Protection

Overalls.

P.V.C apron.

Barrier cream.

Skin cleansing cream.

## Section 9 - Physical and Chemical Properties

Properties	Description	Properties	Description
Form	Solid - Powder	Appearance	Pink powder; mixes with water.
Odour	Not Available	Melting/Freezing Point	~645°C
Boiling Point	Not Available	Decomposition Temperature	Not Available
Solubility in Water	Miscible	pH	Not Applicable (as supplied) Not Available (as a solution (1%))
Vapour Pressure	Not Available	Relative Vapour Density (Air=1)	Not Applicable
Evaporation Rate	Not Applicable	Physical State	Divided Solid
Odour Threshold	Not Available	Viscosity	Not Applicable
Volatile Component	Not Applicable	Partition Coefficient: n-octanol/water (log value)	Not Available
Surface Tension	Not Applicable	Flash Point	Not Applicable
Flammability	Not Applicable	Auto-Ignition Temperature	Not Available
Explosion Limit - Upper	Not Applicable	Explosion Limit - Lower	Not Applicable
Explosion Properties	Not Available	Molecular Weight	Not Applicable
Oxidising Properties	Not Available	Initial boiling point and boiling range	Not Available
Relative Density	0.8 (Water = 1)		

### Other Information

Taste: Not Available

Gas group: Not Available

VOC g/L: Not Applicable

## Section 10 - Stability and Reactivity

### Reactivity

See section 7



### Chemical Stability

Unstable in the 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

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### Toxicology Information

CIGWELD Comweld Copper and Brass Flux

TOXICITY: Not Available

IRRITATION: Not Available

Boric acid

TOXICITY:

Dermal (rabbit) LD50: >2000 mg/kg[1]

Inhalation (Rat) LC50: >2.12 mg/l4h[1]

Oral (Rat) LD50: >2600 mg/kg[1]

IRRITATION:

Eye: no adverse effect observed (not irritating)[1]

Skin (human): 15 mg/3d -I- mild

Skin: no adverse effect observed (not irritating)[1]

Sodium metaborate

TOXICITY:

Dermal (guinea pig) LD50: >2000 mg/kg[2]

Inhalation (Rat) LC50: >2.03 mg/l4h[1]

Oral (Rat) LD50: >250 mg/kg[1]

IRRITATION: Not Available

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS.  
Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

### BORIC ACID:

The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic).

This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis. Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis.

### SODIUM METABORATE:

Anhydrous: for octahydrate

Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a nonallergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia.

### Acute Toxicity

Data either not available or does not fill the criteria for classification

### Ingestion

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

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Ingestion or percutaneous absorption of boric acid causes nausea, abdominal pain, diarrhoea and violent vomiting, sometimes bloody, which may be accompanied by headache and weakness, and characteristic erythematous (abnormally red) lesions on the skin. In severe cases, shock with fall in arterial pressure, tachycardia (increase in heart rate) and cyanosis (blue skin colour) may occur. Marked central nervous system irritation, oliguria (small volume of urine), and anuria (absence of or defective excretion of urine) may be present.

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. Vomiting (which may be violent) is often persistent and vomitus and faeces may contain blood.

### Inhalation

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.

Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.

Borates, as represented by borax, may act as simple respiratory irritants. In a study of the respiratory effects of borax dust on active borax workers, the incidence of respiratory symptoms, pulmonary function and abnormalities of chest radiographs were related to estimated exposures. Dryness of the mouth, nose or throat, dry cough, nose bleeds, sore throat, productive cough, shortness of breath and chest tightness were related to exposures of 4 mg/m<sup>3</sup> or more

Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

Inhalation of small amounts of dust or fume over long periods may cause poisoning.

### Skin

The material produces mild skin irritation; evidence exists, or practical experience predicts, that the material either produces mild inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant, but mild, 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.

Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

Boric acid is not absorbed through intact skin but is readily absorbed through areas of damaged, abraded, burned skin, areas of active dermatitis

Irritation and skin reactions are possible with sensitive skin

Open cuts, abraded or irritated skin should not be exposed to this material

Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

### Skin Corrosion/Irritation

Data available to make classification

### 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.

### Serious Eye Damage/Irritation

Data available to make classification

### Respiratory Sensitisation

Data either not available or does not fill the criteria for classification

### Skin Sensitisation

Data either not available or does not fill the criteria for classification

### **Carcinogenicity**

Data available to make classification

### **Reproductive Toxicity**

Data available to make classification

### **STOT - Single Exposure**

Data available to make classification

### **STOT - Repeated Exposure**

Data either not available or does not fill the criteria for classification

### **Aspiration Hazard**

Data either not available or does not fill the criteria for classification

### **Mutagenicity**

Data either not available or does not fill the criteria for classification

### **Chronic Effects**

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

On the basis of epidemiological data, the material is regarded as carcinogenic to humans. There is sufficient data to establish a causal association between human exposure to the material and the development of cancer.

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.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray.

Chronic boric acid poisoning is characterized by mild gastrointestinal irritation, loss of appetite, disturbed digestion, nausea, possibly vomiting and a hard blotchy rash. Dryness of skin, reddening of tongue, loss of hair, conjunctivitis, and kidney injury have also been reported.

#### **[Occupational Diseases]**

Long term exposure to boric acid may be of more concern, causes kidney damage and eventually kidney failure. Although it does not appear to be carcinogenic, studies in dogs have reported testicular atrophy after exposure to 32 mg/kg bw/day for 90 days.

Chronic poisoning by borates may be characterised gastrointestinal disturbances and skin rash. Chronic absorption of small amounts of borax causes mild gastroenteritis and dermatitis.

Chronic feeding studies involving borate administration to rats and dogs leads to accumulation in the testes, germ cell depletion and testicular atrophy. Hair loss in a young woman was traced to chronic ingestion of boric acid-containing mouthwashes whilst hair loss, dermatitis, gastric ulcer and hypoplastic anaemia in an adult male was attributed to the consumption of an uncharacterised "boric tartrate" for 20 years (symptoms disappeared following withdrawal).

## Section 12 - Ecological Information

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### Ecotoxicity

CIGWELD Comweld Copper and Brass Flux

Endpoint: Not Available

Test Duration (hr): Not Available

Species: Not Available

Value: Not Available

Source: Not Available

Boric acid

Endpoint: EC50

Test Duration (hr): 96h

Species: Algae or other aquatic plants

Value: 15.4mg/l

Source: 2

Endpoint: BCF

Test Duration (hr): 672h

Species: Fish

Value: <3.2

Source: 7

Endpoint: EC50

Test Duration (hr): 48h

Species: Crustacea

Value: 230mg/L

Source: 5

Endpoint: EC50

Test Duration (hr): 72h

Species: Algae or other aquatic plants

Value: 40.2mg/l

Source: 2

Endpoint: NOEC(ECx)

Test Duration (hr): 576h

Species: Fish

Value: 0.001mg/L

Source: 5

Endpoint: LC50

Test Duration (hr): 96h

Species: Fish

Value: 70-80mg/l

Source: 4

Sodium metaborate

Endpoint: EC50

Test Duration (hr): 96h

Species: Algae or other aquatic plants

Value: 15.4mg/l

Source: 2

Endpoint: EC50

Test Duration (hr): 72h

Species: Algae or other aquatic plants

Value: 40.2mg/l

Source: 2

Endpoint: NOEC(ECx)

Test Duration (hr): 768h

Species: Fish

Value: 0.009mg/l

Source: 2

Endpoint: LC50

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Test Duration (hr): 96h  
Species: Fish  
Value: 66.4-83mg/l  
Source: 4

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

DO NOT discharge into sewer or waterways.

### Persistence and degradability

Ingredient: boric acid  
Persistence: Water/Soil: LOW  
Persistence: Air: LOW

### Mobility

Mobility in soil:  
Ingredient: boric acid  
Mobility: LOW (Log KOC = 35.04)

### Bioaccumulative Potential

Ingredient: boric acid  
Bioaccumulation: LOW (BCF = 0)

## Section 13 - Disposal Considerations

---

### Waste Disposal

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.

Where possible retain label warnings and SDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

Reduction

Reuse

Recycling

Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.

DO NOT allow wash water from cleaning or process equipment to enter drains.

It may be necessary to collect all wash water for treatment before disposal.

In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.

Where in doubt contact the responsible authority.

Recycle wherever possible or consult manufacturer for recycling options.

Consult State Land Waste Management Authority for disposal.

Bury residue in an authorised landfill.

Recycle containers if possible, or dispose of in an authorised landfill.

## Section 14 - Transport Information

---

### UN Number

None Allocated

### Proper Shipping Name

None Allocated

### Transport Hazard Class

None Allocated

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**Hazchem Code**

Not Applicable

**IATA UN Number**

NCAD

**IATA Proper Shipping Name**

Not dangerous for conveyance under IATA code

**IMDG UN Number**

NCAD

**IMDG Proper Shipping Name**

Not dangerous for conveyance under IMO/IMDG code

**Additional Information**

Labels Required:

Marine Pollutant: NO

HAZCHEM: Not Applicable

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

Transport in bulk according to Annex II of MARPOL and the IBC code:

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code:

Product name: boric acid

Group: Not Available

Product name: sodium metaborate

Group: Not Available

Transport in bulk in accordance with the IGC Code:

Product name: boric acid

Ship Type: Not Available

Product name: sodium metaborate

Ship Type: Not Available

## Section 15 - Regulatory Information

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**Regulatory Information**

Safety, health and environmental regulations / legislation specific for the substance or mixture:

Boric acid is found on the following regulatory lists:

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

Australian Inventory of Industrial Chemicals (AIIC)

Chemical Footprint Project - Chemicals of High Concern List

Sodium metaborate is found on the following regulatory lists:

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4

Australian Inventory of Industrial Chemicals (AIIC)

Additional Regulatory Information:

Not Applicable

National Inventory Status:

National Inventory: Australia - AIIC / Australia Non-Industrial Use

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Status: Yes  
National Inventory: Canada - DSL  
Status: Yes  
National Inventory: Canada - NDSL  
Status: No (boric acid; sodium metaborate)  
National Inventory: China - IECSC  
Status: Yes  
National Inventory: Europe - EINEC / ELINCS / NLP  
Status: Yes  
National Inventory: Japan - ENCS  
Status: Yes  
National Inventory: Korea - KECI  
Status: Yes  
National Inventory: New Zealand - NZIoC  
Status: Yes  
National Inventory: Philippines - PICCS  
Status: Yes  
National Inventory: USA - TSCA  
Status: Yes  
National Inventory: Taiwan - TCSI  
Status: Yes  
National Inventory: Mexico - INSQ  
Status: No (sodium metaborate)  
National Inventory: Vietnam - NCI  
Status: Yes  
National Inventory: Russia - FBEPH  
Status: Yes

### Legend:

Yes = All CAS declared ingredients are on the inventory

No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.

### Poisons Schedule

S5

### Hazard Rating Systems

Flammability: 0

Toxicity: 1

Body Contact: 2

Reactivity: 0

Chronic: 4

0 = Minimum

1 = Low

2 = Moderate

3 = High

4 = Extreme

## Section 16 - Any Other Relevant Information

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### Version Number

13.1

### Revisions Made

SDS Version Summary:

Version: 12.1

Date of Update: 23/12/2022

Sections Updated: Classification review due to GHS Revision change.

Version: 13.1

Date of Update: 10/03/2023

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Sections Updated: Classification change due to full database hazard calculation/update.

### Key Abbreviations or Acronyms Used

Definitions and abbreviations:

PC-TWA: Permissible Concentration-Time Weighted Average

PC-STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit

IDLH: Immediately Dangerous to Life or Health Concentrations

ES: Exposure Standard

OSF: Odour Safety Factor

NOAEL: No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value

BCF: BioConcentration Factors

BEI: Biological Exposure Index

DNEL: Derived No-Effect Level

PNEC: Predicted no-effect concentration

AIIC: Australian Inventory of Industrial Chemicals

DSL: Domestic Substances List

NDSL: Non-Domestic Substances List

IECSC: Inventory of Existing Chemical Substance in China

EINECS: European INventory of Existing Commercial chemical Substances

ELINCS: European List of Notified Chemical Substances

NLP: No-Longer Polymers

ENCS: Existing and New Chemical Substances Inventory

KECI: Korea Existing Chemicals Inventory

NZIoC: New Zealand Inventory of Chemicals

PICCS: Philippine Inventory of Chemicals and Chemical Substances

TSCA: Toxic Substances Control Act

TCSI: Taiwan Chemical Substance Inventory

INSQ: Inventario Nacional de Sustancias Químicas

NCI: National Chemical Inventory

FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

### Empirical Formula & Structural Formula

Not Applicable

### User Codes

User Title Label	User Codes
Wis Numbers	08088503

### Other Information

Safety Data Sheet according to WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements

The 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.

This SDS has been transcribed into Infosafe GHS format from an original, issued by the manufacturer on the date shown. Any disclaimer by the manufacturer may not be included in the transcription.

## END OF SDS

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