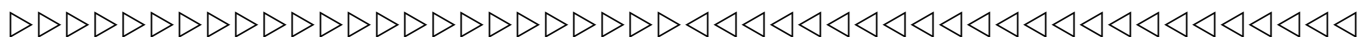




**Safety  
Data  
Sheet**



- P261 – Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 – Wash skin and hair thoroughly after handling.
- P270 – Do not eat, drink or smoke when using this product.
- P271 – Use only outdoors or in well-ventilated area.
- P280 – Wear protective gloves/ eye protection/ face protection.
- P281 – Use personal protective equipment as required.
- P301+P330+P331 – IF SWALLOWED: Rinse mouth. Do not induce vomiting.
- P303+P361+P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- 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.
- P312 – Call a POISON CENTER or doctor/physician if you feel unwell.
- P363 – Wash contaminated clothing before reuse.
- P403+P233 – Store in a well-ventilated place. Keep container tightly closed.
- P405 – Store locked up.
- P501 – Dispose of contents/container in accordance with local/regional/national/international regulations.

**3. COMPOSITION / INFORMATION ON INGREDIENTS:**

| Chemical Identity     | CAS #      | Range % | OSHA PEL (mg/m3) | ACGIH-TLV (mg/m3) | Carcinogenicity | EU Classification (67/548/EEC) | CLP/GHS Classification (1272/2008)                              | Hazardous Classification per 29CFR 1910.1200 (Rev. July, 2012)  |
|-----------------------|------------|---------|------------------|-------------------|-----------------|--------------------------------|---|---|
| Potassium Tetraborate | 1332-77-0  | 30-40   | 15               | 10                | No              | (Xi)<br>R36/37/38              | (H315) Skin Irrit. 2<br>(H319) Eye Irrit. 2<br>(H335) STOT SE 3 | (H315) Skin Irrit. 2<br>(H319) Eye Irrit. 2<br>(H335) STOT SE 3 |
| Boric Acid            | 10043-35-3 | 20-30   | 15               | 10                | No              | Repr. Cat. 2<br>(T),R60, R61   | (H360FD)<br>Repr. 1B  | (H360FD) Repr. 1B   |
| Potassium Bifluoride  | 7789-29-9  | 20-30   | 2.5 (as F)       | 2.5 (as F)        | No              | (T) R25<br>(C) R34             | (H301) Acute Tox. 3<br>(H314) Skin Corr. 1B                     | (H301) Acute Tox. 3<br>(H314) Skin Corr. 1B                     |
| Potassium Pentaborate | 11128-29-3 | 1-5     | 15               | 10                | No              | Repr. Cat. 3<br>(T),R62, R63   | (H361fd) Repr. 2  | (H361fd) Repr. 2  |
| Water                 | 7732-18-5  | 10-20   | NR               | NR                | No              | Not Dangerous                  | Not Hazardous   | Not Hazardous   |

**Important:** This section covers the materials of which the products manufactured. The fumes and gases produced during normal use of this product are covered in section 10. The term "Hazardous" in "Hazardous Material" should be interpreted as a term required and defined in OSHA Hazard Communication Standard 29CFR 1910-1200 and it does not necessarily imply the existence of hazard. The chemicals or compounds reportable by Section 313 of SARA are marked by the symbol #.

**4. FIRST AID MEASURES:**

- Inhalation: Remove to fresh air immediately or administer oxygen. Get medical attention immediately.
- Skin: Flush skin with large amounts of water and soap. If irritation develops and persists, get medical attention.
- Eye: Flush eyes with water for at least 15 minutes. Get medical attention.
- Ingestion: Obtain medical attention immediately if ingested. Rinse mouth.

**5. FIRE-FIGHTING MEASURES:**

- Suitable Extinguishing Media: Not applicable. Non-combustible; inherent fire retardant.
- Unsuitable Extinguishing Media: Not applicable

**Safety  
Data  
Sheet**

Specific Hazards Arising From Chemical: 29 CFR 1910.120 (Non Flammable Solid). Boric oxide fumes. Borane/boron oxides, Potassium oxides

Protective Equipment: Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

**6. ACCIDENTAL RELEASE MEASURES:**

Personal Precautions: Refer to section 8.

Environment Precautions: Refer to section 13.

Cleaning Measures: Collect mechanically. Solid objects may be picked up and placed into a container. Liquids or paste should be scooped up and placed into a container. Wear proper protective equipment while handling these materials. Do not discard as refuse.

**7. HANDLING AND STORAGE:**

Precautions for Safe Handling: Keep container tightly sealed. Store in cool, dry location in tightly closed containers. Ensure good ventilation at the workplace. Open and handle the container with care.

Conditions for Safe Storage: Store away from oxidizing agents. Keep container tightly sealed. Store at room temperature. Store in cool dry conditions in well sealed containers.

**8. EXPOSURE CONTROLS/ PERSONAL PROTECTION:**

Engineering Controls: The usual precautionary measures for handling chemicals should be followed. Keep away from food, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before break and at the end of the work. Store all protective clothing separately. Maintain an ergonomically appropriate working environment. Wear protective equipment. Keep unprotected persons away. Avoid causing dust.

Exposure limits: Use industrial hygiene equipment to ensure that exposure does not exceed applicable national exposure limits. The limits defined under section 3 can be used as guidance. Unless noted, all values are for 8 hour time weighted average.

Biological limits: No available data

Personal protection:

Respiratory protection: Use an air purifying dust respirator when welding or brazing in a confined space, or when local exhaust or ventilation is not sufficient to keep exposure values within safe limits.

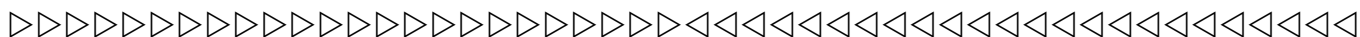
Hands protection: Wear appropriate gloves to prevent skin contact.

**EN 12477: Protection gloves for welders**

| Requirements (EN Levels) | Type A  | Type B  |
|--------------------------|---------|---------|
| Abrasion (Cycles)        | 2 (500) | 1 (100) |
| Cut (Factor)             | 1 (1.2) | 1 (1.2) |
| Tear (Newton)            | 2 (25)  | 1 (10)  |
| Puncture (Newton)        | 2 (60)  | 1 (20)  |
| Burning Behaviour        | 3       | 2       |
| Contact Heat             | 1       | 1       |
| Convective Heat          | 2       | -       |
| Small Splashes           | 3       | 2       |
| Dexterity                | 1 (11)  | 4 (6.5) |

Type B gloves are recommended when high dexterity is required as for TIG welding, while type A gloves are recommended for other welding processes. The contact temp (°C) is 100 and the threshold time (seconds) >15.

**Safety  
Data  
Sheet**



Eyes protection: Welder's helmet or face shield with colour absorbing lenses. Shield and filter to provide protection from harmful UV radiation, infra red and molten metal approved to standard EN379. Filter shade to be a minimum of shade 9.

Skin protection: Heat-resistant protective clothing. Wear safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry. Clothing should be selected to suit the level, duration and purpose of the welding activity.

| Class 1                   |  |
|---------------------------|--|
| Impact of Spatter         | 15 Drops   |
| Heat Transfer (radiation) | RHTI 24 7 seconds  |
| Process                   | Manual welding with light formation of spatter and drops <ul style="list-style-type: none"> <li>• Gas Welding</li> <li>• TIG Welding</li> <li>• MIG Welding</li> <li>• Micro plasma welding</li> <li>• Brazing</li> <li>• Spot Welding</li> <li>• MMA Welding (with rutile-covered electrode)</li> </ul> |
| Environmental Conditions  | Operation of machines <ul style="list-style-type: none"> <li>• Oxygen cutting machines</li> <li>• Plasma cutting machines</li> <li>• Resistance welding machines</li> <li>• Machines for thermal spraying</li> <li>• Bench welding</li> </ul>  |

| Class 2                   |   |
|---------------------------|---|
| Impact of Spatter         | 25 Drops  |
| Heat Transfer (radiation) | RHTI 24 16 seconds  |
| Process                   | Manual welding with heavy formation of spatter and drops <ul style="list-style-type: none"> <li>• MMA welding (with basic or cellulose-covered electrodes)</li> <li>• MAG welding (with CO2 or mixed gases)</li> <li>• MIG Welding (with high current)</li> <li>• Self shielded flux core arc welding</li> <li>• Plasma cutting</li> <li>• Gouging</li> <li>• Oxygen cutting</li> <li>• Thermal spraying</li> </ul> |
| Environmental Conditions  | Operation of machines <ul style="list-style-type: none"> <li>• In confined spaces</li> <li>• At overhead welding/cutting or in comparable constrained positions</li> </ul>  |

**9. PHYSICAL AND CHEMICAL PROPERTIES:**

Appearance: Paste

Color: White/ Pink

Odour: Odourless

Odour Threshold: Not Available

pH Value: 8.8 to 9.1

Specific Gravity: (H2O= 1): 1.49

Melting Point/Melting Range: 422.4° C

Freezing Point: Not Available

Boiling Point/Boiling Range: 100° C

**Safety  
Data  
Sheet**



Flash point: Not Available  
Evaporation Rate:  
Self-in flammability: Not Available  
Explosion limits: Not Available  
Vapour pressure: (mm Hg): NA  
Vapour density: (Air= 1): NA  
Density at 20°C: 1.149 g/cm<sup>3</sup>  
Bulk Density: Not Available  
Relative density: Not Available  
Solubility: 100%  
Partition coefficient: Not Available  
Auto-ignition temperature: Not Available  
Decomposition temperature: Not Available  
Other Information: No available data.

**10. STABILITY AND REACTIVITY:**

Chemical Stability: This product is stable under normal conditions.  
Hazardous Reactions: Contact with chemical substances like acids or strong bases cause generation of gas.  
Conditions to Avoid: Excess heat, temperatures at or above 225° C  
Incompatible Materials: Oxidizing agents. 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 Decomposition Products: Boric oxide and potassium oxide.

**11. TOXICOLOGICAL INFORMATION:**

Acute Effects: Toxicity reported for borates in humans: ingestion or absorption may cause nausea, vomiting, diarrhea, abdominal cramps, and erythematous lesions on the skin and mucous membranes. Other symptoms include: circulatory collapse, tachycardia, delirium, convulsions and coma. Death has been reported to occur in infants from less than 5 grams and in adults from 5 to 20 grams. Potassium Bifluoride is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes and skin.

|   |      |                              |
|---|------|------------------------------|
| LD/LC50 Values that are relevant for classification |      |                              |
| Boric Acid 10043-35-3                               |      |                              |
| Oral  | LD50 | 2660 mg/kg (rat)             |
|   | LC50 | 53.2 mg/l (21d) (water flea) |

|   |      |                  |
|---|------|------------------|
| LD/LC50 Values that are relevant for classification |      |                  |
| Potassium Tetraborate 1332-77-0                     |      |                  |
| Oral  | LD50 | 3700 mg/kg (rat) |

Chronic Effects: Overexposure to brazing and soldering fumes may affect pulmonary function.

**12. ECOLOGICAL INFORMATION:**

Toxicity: No available data.  
Persistence and Degradability: No available data.  
Bio accumulative Potential: No available data.  
Mobility in Soil: No available data.  
Other Adverse Effects: No available data.

# Safety Data Sheet

Do not allow undiluted product or large quantities to reach ground water, water course or sewage systems. Do not allow product to be released in the environment without proper governmental permits.

## 13. DISPOSAL CONSIDERATIONS:

Product: For product elimination, dispose of in accordance with EPA regulations.

Package: May be disposed in approved landfills provided local regulations are observed.

## 14. TRANSPORT INFORMATION:

UN-number: UN3266

UN proper shipping name: Corrosive Materials, Basic, Inorganic, N.O.S., Mixture

Transport hazard class: 8 (C5) Corrosive Substance

Packing group: III

Environmental hazards: Not applicable

Special precautions for users: Warning: Corrosive Substances

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: No international regulations or restrictions are applicable.

## 15. REGULATORY INFORMATION:

Safety, health and environment regulations/legislation specific for the substance or mixture: Read and understand the manufacturer's instructions, your employer's safety practices and the health and safety instructions on the label. Observe any federal and local regulations. Take precautions when welding and protect yourself and others.

Warning: Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Use adequate ventilation. Electric shock can kill. Arc rays and sparks can injure eyes and burn skin. Wear correct hand, head, eye and body protection.

Chemical safety assessment: No

USA: Under the OSHA Hazard Communication Standard, this product is considered hazardous. This product contains or produces a chemical known to the state of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code § 25249.5 et seq.) United States EPA Toxic Substance Control Act: All constituents of this product are on the TSCA inventory list or are excluded from listing.

EPCRA/SARA Title III Toxic Chemicals

The following metallic components are listed as SARA 313 "Toxic Chemicals" and potential subject to annual SARA reporting. See Section 3 for weight percentage.

## 16. OTHER INFORMATION:

The information in this document is believed to be correct as of the date issued. However, no warranty is expressed to be implied regarding the accuracy or completeness of this information. This information and product are furnished on the condition that the person receiving them shall make his own determinations as to the suitability of the product for his particular purpose and on the condition that he assumes the risk of his use thereof.

This Material Safety Data Sheet complies with the EC directives 91/155/EEC and 93/112/EEC, including modifications 2001/58/EC.

Complies with OSHA Communication Standard 29 CFR 1910.1200 and Superfund Amendments and Reauthorization Act (SARA) of 1986 Public Law 99-499

### Hazard Statements:

**H301** – Toxic if swallowed.

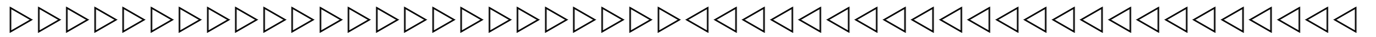
**H302** – Harmful if swallowed.

**H314** – Causes severe skin burns and eye damage.

**H315** – Causes skin irritation.

**H318** – Causes serious eye damage.

**Safety  
Data  
Sheet**



**H319** – Causes serious eye irritation.

**H335** – May cause respiratory irritation.

**H360FD** – May damage fertility. May damage the unborn child

**H361fd** – Suspected of damaging fertility. Suspected of damaging the unborn child

**R-Phrases:**

**R25** – Toxic if swallowed.

**R34** – Causes burns.

**R36/37/38** – Irritating to eyes, respiratory system and skin.

**R60** – May impair fertility.

**R61** – May cause harm to the unborn child.

**R62** – Possible risk of impaired fertility

**R63** – Possible risk of harm to the unborn child

**S-Phrases:**

**S22** – Do not breathe dust.

**S26** – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**S36** – Wear suitable protective clothing.

**S37** – Wear suitable gloves.

**S45** – In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).

**S53** – Avoid exposure – obtain special instructions before use.

End of the document.