



SAFETY DATA SHEET BORIC ACID

According to Regulation (EC) No 1907/2006

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

| | |
|---------------------------|---|
| Product Name | BORIC ACID |
| Product No. | B09 |
| REACH Registration Number | 01-2119486683-25 |
| REACH Registration Notes | This is a substance of very high concern (SVHC) and is on the REACH Regulation (EC 1907/2006) Candidate List. |
| CAS-No. | 10043-35-3 |
| EC No. | 233-139-2 |

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

| | |
|----------------------|---|
| Identified uses | Adhesive Catalyst Construction Products. Fertilisers. Grease Lubricant Printing ink. Water Treatment. Abrasives. Autocausticising. Brake Fluids. Carburizing Pastes. Ceramic glazes and frits. Cosmetics & Pharmaceuticals. Detergents and cleaners. Engine Coolants. Flame retardants. Glass. Intumescent Paints. Metallurgical flux. Nuclear applications. pH Buffers. Polymer production. Reagent chemicals. Refractory Products. Wallboard. |
| Uses Advised Against | None. |

1.3. Details of the supplier of the safety data sheet

| | |
|-----------|--|
| Supplier: | Norkem Limited, Norkem House, Bexton Lane, Knutsford, Cheshire, WA16 9FB. UK. T: + 44 (0)1565 755550 F: + 44 (0)1565 755496 datasheet@norkem.com |
|-----------|--|

1.4. Emergency telephone number

T: 01270 502891 (UK Transport emergencies only)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

| | | |
|-------------------------------|-------------------------------|-------------------|
| Classification (EC 1272/2008) | Physical and Chemical Hazards | Not classified. |
| | Human health | Repr. 1B - H360FD |
| | Environment | Not classified. |
| Classification (67/548/EEC) | Repr. Cat. 2;R60, R61. | |

The Full Text for all R-Phrases and Hazard Statements is Displayed in Section 16

2.2. Label elements

| | |
|---|-----------|
| EC No. | 233-139-2 |
| Label In Accordance With (EC) No. 1272/2008 | |



| | | |
|--------------------------|--------|---|
| Signal Word | Danger | |
| Hazard Statements | H360FD | May damage fertility or the unborn child. |
| Precautionary Statements | P201 | Obtain special instructions before use. |

BORIC ACID

| | |
|----------|---|
| P202 | Do not handle until all safety precautions have been read and understood. |
| P281 | Use personal protective equipment as required. |
| P308+313 | IF exposed or concerned: Get medical advice/attention. |
| P405 | Store locked up. |
| P501 | Dispose of contents/container to ... Dispose of waste and residues in accordance with local authority requirements. |

2.3. Other hazards

This product does not contain any PBT or vPvB Substances.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.1. Substances**

| | |
|----------------------------------|---|
| Product Name | BORIC ACID |
| REACH Registration Number | 01-2119486683-25 |
| REACH Registration Notes | This is a substance of very high concern (SVHC) and is on the REACH Regulation (EC 1907/2006) Candidate List. |
| CAS-No. | 10043-35-3 |
| EC No. | 233-139-2 |
| Gross Formula | BH3O3 |
| Composition Comments | |
| Purity >90 <100% w/w | |

SECTION 4: FIRST AID MEASURES**4.1. Description of first aid measures****Inhalation.**

Move the exposed person to fresh air at once. Provide rest, warmth and fresh air. If respiratory problems, artificial respiration/oxygen. Get medical attention.

Ingestion

Try to induce vomiting. NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Get medical attention.

Skin Contact

Wash the skin immediately with soap and water. Continue to rinse for at least 15 minutes. Get medical attention promptly if symptoms occur after washing.

Eye Contact

Remove victim immediately from source of exposure. Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.

4.2. Most important symptoms and effects, both acute and delayed**General Information**

Prolonged or repeated exposure may cause: Convulsions. Anaemia. May cause damage to the liver and kidneys.

Inhalation.

May cause irritation to mucous membranes. Nausea, vomiting. Diarrhoea. Drowsiness, dizziness, disorientation, vertigo. Headache. Hypotension (low blood pressure). Renal injury. Cyanosis (blue tissue condition, nails, lips, and/or skin). Large quantities: Unconsciousness, death.

Ingestion

See above.

Skin Contact

Skin irritation.

Eye Contact

Irritating and may cause redness and pain.

4.3. Indication of any immediate medical attention and special treatment needed

Observation only is required for adult ingestion of less than 6 grams of boric acid. For ingestion in excess of 6 grams, maintain adequate kidney function and force fluids.

SECTION 5: FIREFIGHTING MEASURES**5.1. Extinguishing media****Extinguishing Media**

Use fire-extinguishing media appropriate for surrounding materials.

5.2. Special hazards arising from the substance or mixture**Specific Hazards**

The product is non-combustible. If heated, harmful vapours may be formed.

BORIC ACID

5.3. Advice for firefighters

Special Fire Fighting Procedures

Cool containers exposed to flames with water until well after the fire is out. Move container from fire area if it can be done without risk. Dike and collect extinguishing water.

Protective Measures In Fire

Self contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

For personal protection, see section 8.

6.2. Environmental precautions

Do not discharge into drains, water courses or onto the ground. Remove any intact containers from the water. Advise local water authority that none of the affected water should be used for irrigation or for the abstraction of potable water until natural dilution returns the boron level to its normal environmental background level.

6.3. Methods and material for containment and cleaning up

Ventilate well. Wear necessary protective equipment. Avoid dust formation. Collect spillage with shovel, broom or the like and reuse, if possible. For waste disposal, see section 13.

6.4. Reference to other sections

Wear protective clothing as described in Section 8 of this safety data sheet. See section 11 for additional information on health hazards. For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Good personal hygiene is necessary. Wash hands and contaminated areas with water and soap before leaving the work site. Avoid contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed. Store at specified temperature. 2-40°C (36-104°F). Suitable containers: Carbon steel. Aluminium. Store away from: Bases, alkalis (inorganic). Bases, alkalis (organic).

7.3. Specific end use(s)

For further information see attached Exposure Scenario. The identified uses for this product are detailed in Section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

| Name | STD | TWA - 8 Hrs | | STEL - 15 Min | | Notes |
|------------|-----|-------------|----------|---------------|--|-------|
| BORIC ACID | OEL | | 10 mg/m3 | | | |

OEL = Occupational Exposure Limit.

| | | | | |
|------|----------|-------------|------------|----------------|
| DNEL | Industry | Dermal | Long Term | 68.6 mg/kg/day |
| DNEL | Industry | Inhalation. | Long Term | 1.45 mg/m3 |
| DNEL | Consumer | Oral | Short Term | 0.17 mg/kg/day |
| DNEL | Consumer | Dermal | Long Term | 34.3 mg/kg/day |
| DNEL | Consumer | Inhalation. | Long Term | 0.97 mg/m3 |
| DNEL | Consumer | Oral | Long Term | 0.17 mg/kg/day |

The units given are 'mg' of: Boron. DNELS are derived for "systemic effects" only (CSR 2010). DNELS for "local effects" were not calculated - exposure based waiving (CSR 2010).

| | | | |
|------|-------------|--------|-------|
| PNEC | Freshwater | 1.3 | mg/l |
| PNEC | Marinewater | 1.35 | mg/l |
| PNEC | Freshwater | 9.1(*) | mg/l |
| PNEC | Sediment | 1.8 | mg/kg |
| PNEC | Soil | 5.4 | mg/kg |
| PNEC | STP | 1.75 | mg/l |

The units given are 'mg' of: Boron. (*) 'Intermittent release PNEC' for aquatic environments. These PNECs are added value PNECs- they are to be added to the natural background levels of Boron. in the appropriate compartments (e.g. soils, sediments).

BORIC ACID**8.2. Exposure controls****Protective Equipment****Engineering Measures**

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.

Respiratory Equipment

Respiratory protection must be used if air contamination exceeds acceptable level. Recommended: EN 149, NIOSH/ MSHA approved

Hand Protection

Wear protective gloves. Butyl rubber. Rubber (natural, latex). Nitrile.

Eye Protection

Wear approved safety goggles.

Personal Protection

Provide eyewash, quick drench.

Skin Protection

Wear apron or protective clothing in case of contact.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| | |
|--|--|
| Appearance | Crystalline powder |
| Colour | White |
| Odour | Odourless |
| Solubility | Very soluble in: Water |
| Initial Boiling Point and Boiling Range: | >1000 °C |
| Melting Point (°C) | > 1000 °C |
| Relative Density | 1.49 (23°C) |
| Vapour Density (Air=1) | Not applicable. |
| Vapour Pressure | 0.000099 Pa (25°C) |
| Evaporation Rate | Not applicable. |
| pH-Value, Diluted Solution | 5.1 0.1 M |
| Viscosity | Not applicable. |
| Solubility Value (G/100G H₂O@20°C) | 4.92 |
| Decomposition Temperature (°C) | Not applicable. |
| Flash Point (°C) | Not applicable. |
| Auto Ignition Temperature (°C) | Not applicable. |
| | Not classified. |
| Flammability Limit - Lower(%) | Not applicable. |
| | This product is not flammable. Not classified. |
| Partition Coefficient (N-Octanol/Water) | - 1.09 (22°C) |
| Explosive Properties | Not classified. |

BORIC ACID**Oxidising Properties**

Does not meet the criteria for oxidising.

9.2. Other information

Mol. Weight 61.833

SECTION 10: STABILITY AND REACTIVITY**10.1. Reactivity**

If moisture is present, boric acid can be corrosive to iron.

10.2. Chemical stability

Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

Formation of explosive mixtures with: Strong reducing agents. Alkali metals.

Hazardous Polymerisation

Will not polymerise.

10.4. Conditions to avoid

Avoid heat, flames and other sources of ignition. Water, moisture.

10.5. Incompatible materials**Materials To Avoid**

Potassium. Alkali, carbonates and hydroxides. Acetic anhydride.

10.6. Hazardous decomposition productsLoses chemically bound water upon heating, forming metaboric acid (HBO₂) (212-221°F), then pyroboric acid (H₂B₄O₇) (285-320°F), and boric anhydride at higher temperatures.**SECTION 11: TOXICOLOGICAL INFORMATION****11.1. Information on toxicological effects**

| | |
|--|---|
| Acute Toxicity (Oral LD50) | > 2000 mg/kg Rat Test method: OECD 401. |
| Acute Toxicity (Dermal LD50) | > 2000 mg/kg Rabbit Test method: FIFRA (40 CFR 163) |
| Acute Toxicity (Inhalation LC50) | > 2.03 mg/l (dust/mist) Rat 4 hours Test method: OECD 403. |
| Skin Corrosion/Irritation - Animal Data | 500 mg 24h exposure, 72h observation Primary Dermal Irritation Index (PDI) 0.1 (72hr) Erythema/Eschar Score Very slight erythema -barely perceptible (1). Oedema Score No oedema (0). Not classified. Test method: FIFRA (40 CFR 163) |
| Serious Eye Damage/Irritation | Not classified. Test method: equivalent or similar to OECD 405. |
| Skin Sensitisation | Buehler test: Guinea Pig Not Sensitising. Test method: OECD 406. |
| Germ Cell Mutagenicity (In Vitro) | Gene Mutation: Negative. Test method: OECD 471. |
| Germ Cell Mutagenicity (In Vivo) | Chromosome aberration: Negative. Test method: equivalent or similar to OECD 474. |
| Carcinogenicity | NOEL>1150 mg/kg Oral Mouse Not classified. Test method: equivalent or similar to OECD 451. |
| Reproductive Toxicity | Three-generation study: LOAEL 58.5 mg/kg Oral Rat P |

BORIC ACID

Known reproductive toxicant based on animal evidence.

The units given are 'mg' of: Boron. Test method: Toxicology and Applied Pharmacology 23: 351 - 364.

Reproductive Toxicity - Development

Developmental toxicity: NOAEC 21.8 mg/kg Oral Rabbit

Toxic to development.

The units given are 'mg' of: Boron. Test method: equivalent or similar to OECD 414.

STOT - Single Exposure

No information available.

STOT - Repeated Exposure

LOAEL 58.5 mg/kg Oral Rat

Not classified. Test method: Toxicology and Applied Pharmacology 23: 351 - 364.

Aspiration Hazard

Data lacking.

Inhalation

Dust may irritate throat and respiratory system and cause coughing.

Ingestion.

Irritating. May cause nausea, stomach pain and vomiting.

Skin Contact

May cause skin irritation/eczema.

Eye Contact

Irritating and may cause redness and pain.

SECTION 12: ECOLOGICAL INFORMATION**Ecotoxicity:**

Not regarded as dangerous for the environment.

12.1. Toxicity**LC 50, 96 Hrs, Fish mg/l**

423 to 4145 mg boric acid/L (summary values used in CSR).

Acute Toxicity - Fish

LC50 96 hours 79.7 mg/l Pimephales promelas (Fat-head Minnow)

The units given are 'mg' of: Boron. Test method: EPA OPPTS 850.1075 Not classified.

EC 50, 48 Hrs, Daphnia, mg/l

257 to 7867 mg boric acid/L (summary values used in CSR)

Acute Toxicity - Aquatic Invertebrates

EC50 48 hours 133 mg/l Daphnia magna

The units given are 'mg' of: Boron. Test method: ASTM Standard E 729-80 Not classified.

IC 50, 72 Hrs, Algae, mg/l

>229 mg-boric acid/L (summary value used in CSR)

Acute Toxicity - Aquatic Plants

EC50 72 hours 52.5 mg/l Selenastrum capricornutum

OECD Guideline 201 (Alga, Growth Inhibition Test). Not classified.

12.2. Persistence and degradability**Degradability:**

Not Applicable - Inorganic chemical.

12.3. Bioaccumulative potential**Bioaccumulative Potential:**

None.

Partition Coefficient

- 1.09 (22°C)

12.4. Mobility in soil**Mobility:**

The product is soluble in water. Mobile.

Adsorption/Desorption Coefficient Soil 3.5 (Kd value) - You et al, 1996

12.5. Results of PBT and vPvB assessment

This product does not contain any PBT or vPvB Substances. Not Applicable - Inorganic chemical.

12.6. Other adverse effects

None known.

SECTION 13: DISPOSAL CONSIDERATIONS**General Information**

Recover and reclaim or recycle, if practical.

13.1. Waste treatment methods

Should be disposed of through an approved and appropriate waste disposal facility. Contaminated containers and packaging of dangerous substances or preparations must be treated in the same manner as the actual products contained in them.

BORIC ACID**SECTION 14: TRANSPORT INFORMATION**

General The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2 UN Proper shipping name

Not applicable.

14.3 Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant

No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

SECTION 15: REGULATORY INFORMATION**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU Legislation**

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

Water Hazard Classification

WGK 1

15.2. Chemical Safety Assessment

A chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION**General Information**

The following information is provided to conform with article 13 of the EC Directive on Packaging and Packaging Waste 94/62/EC:

- Wherever possible we use returnable packaging and pallets. Details of these are on our Sales Contracts
- For any non-returnable packaging the cost of disposal is at your expense, but we do have a list of reproprocessors available
- In most cases, but not all, we are able to supply products in returnable packaging but the additional cost of this will be for the customer's expense. Please ask for details with your specific requirements
- Any products supplied in returnable packaging is clearly marked to this effect.

Safety Data Sheet Status For further information please see the attached exposure scenarios.

Risk Phrases In Full

R61 May cause harm to the unborn child.

R60 May impair fertility.

Hazard Statements In Full

H360FD May damage fertility or the unborn child.

Disclaimer

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.