Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 01.11.2012 Revision: 01.11.2012

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

· **Product identifier**

· **Trade name: BORIC ACID**

· **Article number:** 30-22-60
· **CAS Number:**
10043-35-3
· **EC number:**
233-139-2
· **Registration number** 01-2119486683-25
· **Relevant identified uses of the substance or mixture and uses advised against**
In the production of detergents and cleaners; glass production (borosilicate and crystal glass); glass fibre production ; frits production; refractories ;in metallurgy; Industrial fluids; adhesives; flame retardents; agriculture; construction materials; reagent chemicals; inks and paints; ; catalysts; polymer production; production of nonoxide ceramic powders; nuclear applications.
· **Sector of Use**
SU0 Other
SU1 Agriculture, forestry, fishery
SU2a Mining, (without offshore industries)
SU2b Offshore industries
SU6a Manufacture of wood and wood products
SU6b Manufacture of pulp, paper and paper products
SU7 Printing and reproduction of recorded media
SU8 Manufacture of bulk, large scale chemicals (including petroleum products)
SU9 Manufacture of fine chemicals
SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU11 Manufacture of rubber products
SU12 Manufacture of plastics products, including compounding and conversion
SU13 Manufacture of other non-metallic mineral products, e.g. plasters, cement
SU14 Manufacture of basic metals, including alloys
SU15 Manufacture of fabricated metal products, except machinery and equipment
SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
SU18 Manufacture of furniture
SU19 Building and construction work
SU20 Health services
SU21 Consumer uses: Private households / general public / consumers
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU23 Electricity, steam, gas water supply and sewage treatment
SU24 Scientific research and development
· **Product category**
PC1 Adhesives, sealants
PC4 Anti-Freeze and de-icing products
PC7 Base metals and alloys
PC9b Fillers, putties, plasters, modelling clay
PC12 Fertilizers
PC14 Metal surface treatment products, including galvanic and electroplating products
PC16 Heat transfer fluids
PC18 Ink and toners
PC19 Intermediate
PC20 Products such as ph-regulators, flocculants, precipitants, neutralization agents
PC21 Laboratory chemicals
PC23 Leather tanning, dye, finishing, impregnation and care products
PC24 Lubricants, greases, release products
PC25 Metal working fluids
PC26 Paper and board dye, finishing and impregnation products: including bleaches and other processing aids
PC30 Photo-chemicals
PC31 Polishes and wax blends
PC32 Polymer preparations and compounds

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PC34 Textile dyes, finishing and impregnating products; including bleaches and other processing aids
PC35 Washing and cleaning products (including solvent based products)
PC37 Water treatment chemicals
PC38 Welding and soldering products (with flux coatings or flux cores.), flux products

· **Process category**
PROC1 Use in closed process, no likelihood of exposure
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation)
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC6 Calendering operations
PROC7 Industrial spraying
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10 Roller application or brushing
PROC11 Non industrial spraying
PROC12 Use of blowing agents in manufacture of foam
PROC13 Treatment of articles by dipping and pouring
PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation
PROC15 Use as laboratory reagent
PROC17 Lubrication at high energy conditions and in partly open process
PROC18 Greasing at high energy conditions
PROC19 Hand-mixing with intimate contact and only PPE available
PROC21 Low energy manipulation of substances bound in materials and/or articles
PROC22 Potentially closed processing operations with minerals/metals at elevated temperature - Industrial setting
PROC23 Open processing and transfer operations with minerals/metals at elevated temperature
PROC24 High (mechanical) energy work-up of substances bound in materials and/or articles
PROC25 Other hot work operations with metals
PROC26 Handling of solid inorganic substances at ambient temperature

· **Environmental release category**
ERC1 Manufacture of substances
ERC2 Formulation of preparations
ERC3 Formulation in materials
ERC4 Industrial use of processing aids in processes and products, not becoming part of articles
ERC5 Industrial use resulting in inclusion into or onto a matrix
ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b Industrial use of reactive processing aids
ERC7 Industrial use of substances in closed systems
ERC8a Wide dispersive indoor use of processing aids in open systems
ERC8b Wide dispersive indoor use of reactive substances in open systems
ERC8c Wide dispersive indoor use resulting in inclusion into or onto a matrix
ERC8d Wide dispersive outdoor use of processing aids in open systems
ERC8f Wide dispersive outdoor use resulting in inclusion into or onto a matrix
ERC9a Wide dispersive indoor use of substances in closed systems
ERC9b Wide dispersive outdoor use of substances in closed systems
ERC10a Wide dispersive outdoor use of long-life articles and materials with low release
ERC10b Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)
ERC11a Wide dispersive indoor use of long-life articles and materials with low release

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ERC11b Wide dispersive indoor use of long-life articles and materials with high or intended release (including abrasive processing)
ERC12a Industrial processing of articles with abrasive techniques (low release)
ERC12b Industrial processing of articles with abrasive techniques (high release)

· **Article category**
AC1 Vehicles
AC2 Machinery, mechanical appliances, electrical/electronic articles
AC3 Electrical batteries and accumulators
AC4 Stone, plaster, cement, glass and ceramic articles
AC5 Fabrics, textiles and apparel
AC6 Leather articles
AC8 Paper articles
AC10 Rubber articles
AC11 Wood articles
AC13 Plastic articles

· **Application of the substance / the preparation** The substance is used in many industrial applications.

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Severn Biotech Ltd.
Unit 2,
Park Lane,
Kidderminster,
Worcestershire.
DY11 6TJ
UK
Tel: 0044 1562 825286
Fax: 0044 1562 825284
email: info@severnbiotech.com

· **Further information obtainable from:** Product safety department.
· **Emergency telephone number:** Tel: 0044 1562 825286 (not 24 hours)

2 Hazards identification

· **Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**

GHS08 health hazard

Repr. 1B H360FD May damage fertility. May damage the unborn child.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

T; Toxic
Repr. Cat. 2
R60-61: May impair fertility. May cause harm to the unborn child.

· **Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The substance is classified and labelled according to the CLP regulation.
· **Hazard pictograms** GHS08
· **Signal word** Danger

· **Hazard-determining components of labelling:**
Boric acid

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· **Hazard statements**
H360FD May damage fertility. May damage the unborn child.
· **Precautionary statements**
P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P103 Read label before use.
P260 Do not breathe dust.
P263 Avoid contact during pregnancy/while nursing.
P201 Obtain special instructions before use.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
10043-35-3 Boric acid
· **Identification number(s)**
· **EC number:** 233-139-2

· **SVHC**	
10043-35-3	Boric acid

4 First aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
May be absorbed through injured skin.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Immediately rinse with water.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Check for and remove any contact lenses.
Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.
Seek medical treatment.
Swallowing small quantities (one teaspoon) will cause no harm to healthy adults. If larger amounts are swallowed, give two glasses of water to drink and seek medical attention.
· **Information for doctor:**
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.
· **Most important symptoms and effects, both acute and delayed**
No further relevant information available.

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· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.
· **Special hazards arising from the substance or mixture**
Boric acid is not flammable, combustible or explosive.
Gives off irritating or toxic fumes (or gases) in a fire.
· **Advice for firefighters**
· **Protective equipment:**
Wear fully protective suit.
Wear self-contained respiratory protective device.
Do not inhale explosion gases or combustion gases.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Avoid formation of dust.
Ensure adequate ventilation
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Do not allow to penetrate the ground/soil.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Pick up mechanically.
Send for recovery or disposal in suitable receptacles.
· **Reference to other sections** No dangerous substances are released.

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Prevent formation of dust.
Ensure good ventilation/exhaustion at the workplace.
Avoid direct contact (skin contact, ingestion and/or inhalation of fume/mist/dust) with the product.
Warn relevant workers of the dangers of working with this product and provide suitable and sufficient training to ensure safe working.

The product is classified as toxic. Direct contact (skin, eyes and by inhalation) and ingestion must be prevented. A safe system of work, taking into account the product properties and the operation taking place, must be formulated (by a competent, trained and suitably experineced person) prior to work taking place and the system must be followed to ensure the safety of workers and other who may be affected.
· **Information about fire - and explosion protection:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Prevent any seepage into the ground.
· **Information about storage in one common storage facility:** Store away from foodstuffs.
· **Further information about storage conditions:**
Store in cool, dry conditions in well sealed receptacles.

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· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **Control parameters**
· **Ingredients with limit values that require monitoring at the workplace:** Not required.
· **DNELs**
WORKERS
Long-term exposure - systemic effects
Dermal DN(M)EL
- DNEL (Derived No Effect Level): 392 mg/kg bw/day
Inhalation DN(M)EL
- DNEL (Derived No Effect Level): 8.3 mg/m³

GENERAL POPULATION
Acute / short-term exposure - systemic effects
Oral DN(M)EL
- DNEL (Derived No Effect Level: 0.98 mg/kg bw/day

Long-term exposure - systemic effects
Dermal DN(M)EL
- DNEL (Derived No Effect Level): 196 mg/kg bw/day
Inhalation DN(M)EL
- DNEL (Derived No Effect Level): 4.15 mg/m³
Oral DN(M)EL
- DNEL (Derived No Effect Level): 0.98 mg/kg bw/day
· **PNECs**
PNEC aqua (freshwater): 1.35 mg/L
PNEC aqua (marine water): 1.35 mg/L
PNEC aqua (intermittent releases): 9.1 mg/L
PNEC STP: 1.75 mg/L
PNEC sediment (freshwater): 1.8 mg/kg sediment dw
PNEC sediment (marine water): 1.8 mg/kg sediment dw
PNEC soil: 5.4 mg/kg soil dw
PNEC oral: No potential for bioaccumulation
· **Additional information:** The lists valid during the making were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
Select PPE appropriate for the operations taking place taking into account the product properties.
· **General protective and hygienic measures:**
Wash hands before breaks and at the end of work.
Do not eat, drink, smoke or sniff while working.
Avoid contact with the eyes and skin.
Do not breath dust
Storing food in the working area is prohibited.
Pregnant women should strictly avoid inhalation or skin contact.
A safe system of work must be formulated and followed to ensure that workers who may be pregnant or breastfeeding do not come into direct contact with the product.
A safe system of work must be formulated and followed to ensure safe working with this product. Relevant workers must receive suitable and sufficient training and supervision.
· **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

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· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:** Safety glasses
· **Body protection:** Protective work clothing

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Solid
Colour:	White
· **Odour:**	Odourless
· **pH-value (50 g/l) at 20 °C:**	3.7
· **Change in condition**	
Melting point/Melting range:	>1000 °C
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Product is not flammable.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Density at 20 °C:**	1.435 g/cm³
· **Bulk density at 20 °C:**	500 kg/m³
· **Solubility in / Miscibility with water at 20 °C:**	49 g/l
· **Partition coefficient (n-octanol/water) at 22 °C:**	-1 log POW
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
Boric acid is not flammable, combustible or explosive.
· **Possibility of hazardous reactions**
The solution in water is a weak acid.
Incompatible with alkali carbonates and hydroxides.
Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas which could create an explosive hazard.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:**
Strong bases.

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Reducing agents.
Acetic anhydride, alkali carbonates, alkali hydroxides.
· **Hazardous decomposition products:**
Boric acid is a stable substance, but when heated it loses water to form metaboric acid, and on further heating it is converted into boric oxide.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**		
10043-35-3 Boric acid		
Oral	LD50	>2000 mg/kg (rat)
Dermal	LD50	>2000 mg/kg (rat)
Inhalative	LC50/4 h	>2.03 mg/l (rat)

· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** No irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Subacute to chronic toxicity:**
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: Repeated or prolonged contact with skin may cause dermatitis.
Animal tests show that this substance possibly causes toxic effects upon human reproduction.
· **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Toxic

ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.

INHALATION RISK: Evaporation at 20 °C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly when dispersed.

EFFECTS OF SHORT-TERM EXPOSURE: The substance may cause effects on the gastrointestinal tract, liver and kidneys.
· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
Repr. 1B

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behaviour in environmental systems:**
· **Bioaccumulative potential** Product is not expected to bioaccumulate.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation**
Contact waste processors for recycling information.
Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.
· **European waste catalogue**
Waste key numbers in accordance with the European Waste catalogue (EWC) are origin-referred defined. Since this product is used in several industries, no waste key can be provided by the supplier. The waste key number should be determined in arrangement with your waste disposal partner or the responsible authority.

· **Uncleaned packaging:**
· **Recommendation:**
Disposal must be made according to official regulations.
Container remains hazardous when empty. Continue to observe all precautions.
· **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

· **UN-Number** · **ADR, ADN, IMDG, IATA**	Void
· **UN proper shipping name** · **ADR, ADN, IMDG, IATA**	Void
· **Transport hazard class(es)** · **ADR, ADN, IMDG, IATA** · **Class**	Void
· **Packing group** · **ADR, IMDG, IATA**	Void
· **Environmental hazards:** · **Marine pollutant:**	No
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	Not dangerous according to the above specifications.
· **UN "Model Regulation":**	-

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15 Regulatory information

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

· **National regulations:**

· **Other regulations, limitations and prohibitive regulations**

· **Substances of very high concern (SVHC) according to REACH, Article 57**	
10043-35-3	Boric acid

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing MSDS:** Product safety department.