

SAFETY DATA SHEET

BORIC ACID

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

1.1. Product identifier

Product name	BORIC ACID
Product number	3673
Synonyms; trade names	OPTIBO, ORTHOBORIC ACID, BORACIC ACID, SP, OPTIBOR EP GRAN, OPTIBOR HP, OPTIBOR TG, OPTIBOR TG GRAN, NF, SQ, BORIC ACID ETS, OPTIBOR TP EXTRA FINE, OPTIBOR EP, OPTIBOR TP PDR
REACH registration number	01-2119486683-25-XXXX
CAS number	10043-35-3
EU index number	005-007-00-2
EC number	233-139-2

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

Identified uses	Binding Agent Chemical Chemicals used in the synthesis and / or formulation of industrial products Complexing Agent Corrosion inhibitor. Scale Inhibition Fertilizer Flame retardant Chemical Intermediate Laboratory reagent. Lubricant. Oxidising Agent Photosensitive agents and other photo chemicals pH control plating agents and metal surface treating agents Process regulator Process Additive Stabilizer Concentrate Surface active agents Viscosity modifiers For further information, see attached Exposure Scenario.
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Uses advised against	Consumer
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1.3. Details of the supplier of the safety data sheet

Supplier	APT Chemicals Int Ltd Unit 7 Ricketts Close Firs Industrial Estate Kidderminster Worcestershire DY11 7QN
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1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
Sds No.	3673

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Not Classified
Health hazards	Repr. 1B - H360FD

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Environmental hazards Not Classified

2.2. Label elements

EC number 233-139-2

Hazard pictograms



Signal word Danger

Hazard statements H360FD May damage fertility. May damage the unborn child.

Precautionary statements P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308+P313 IF exposed or concerned: Get medical advice/ attention.
P405 Store locked up.
P501 Dispose of contents/ container in accordance with national regulations.

Supplemental label information RCH002a Restricted to professional users.

2.3. Other hazards

Pregnant or breastfeeding women should not work with this product if there is any risk of exposure.

SECTION 3: Composition/information on ingredients

3.1. Substances

Product name BORIC ACID
REACH registration number 01-2119486683-25-XXXX
EU index number 005-007-00-2
CAS number 10043-35-3
EC number 233-139-2
Composition comments The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information First aid personnel should wear appropriate protective equipment during any rescue. Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk.

Inhalation Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Rinse nose and mouth with water. Get medical attention if symptoms are severe or persist.

Ingestion Rinse mouth thoroughly with water. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Give a few small glasses of water or milk to drink. Get medical attention.

Skin contact Remove contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing.

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Eye contact Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention if symptoms are severe or persist after washing.

4.2. Most important symptoms and effects, both acute and delayed

General information May damage fertility. May damage the unborn child.

Ingestion Symptoms following overexposure may include the following: Nausea, vomiting. Diarrhoea. Effects may be delayed. Skin irritation. Redness. Dryness and/or cracking.

Skin contact Symptoms following overexposure may include the following: Nausea, vomiting. Diarrhoea. Effects may be delayed. Skin irritation. Redness. Dryness and/or cracking.

Eye contact Particles in the eyes may cause irritation and smarting.

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

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media The product is non-combustible. Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards None known.

Hazardous combustion products Heating may generate the following products: Boric acid (HBO₂), Boric acid (B₂O₃)

5.3. Advice for firefighters

Protective actions during firefighting No action shall be taken without appropriate training or involving any personal risk. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Control run-off water by containing and keeping it out of sewers and watercourses. Contain and collect extinguishing water. Evacuate area.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions No action shall be taken without appropriate training or involving any personal risk. Follow precautions for safe handling described in this safety data sheet. Approach the spillage from upwind. Keep unnecessary and unprotected personnel away from the spillage. Provide adequate ventilation. Avoid inhalation of dust and contact with skin and eyes. Do not touch or walk into spilled material.

6.2. Environmental precautions

Environmental precautions Avoid the spillage or runoff entering drains, sewers or watercourses. Avoid or minimise the creation of any environmental contamination. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

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Methods for cleaning up Avoid generation and spreading of dust. Avoid the spillage or runoff entering drains, sewers or watercourses. Remove spillage with vacuum cleaner or collect with a shovel and broom, or similar. Label the containers containing waste and contaminated materials and remove from the area as soon as possible.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. Collect and dispose of spillage as indicated in Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Handle all packages and containers carefully to minimise spills. Wear protective clothing as described in Section 8 of this safety data sheet. Pregnant or breastfeeding women should not work with this product if there is any risk of exposure. Avoid handling which leads to dust formation. Provide adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid inhalation of dust and contact with skin and eyes.

Advice on general occupational hygiene Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Provide eyewash station and safety shower.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Protect from moisture. Do not store near heat sources or expose to high temperatures. Store away from the following materials: Strong reducing agents. Inorganic hydrides. Alkali metals.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

8hr TWA, Manuf. data: 1 mg B/m³

Ingredient comments SUP = Supplier's recommendation.

DNEL Workers - Inhalation; Long term systemic effects: 8.28 mg/m³
 Workers - Dermal; Long term systemic effects: 392 mg/kg/day
 Consumer - Oral; Short term systemic effects: 0.98 mg/kg/day
 Consumer - Oral; Long term systemic effects: 0.98 mg/kg/day
 Consumer - Inhalation; Long term systemic effects: 4.15 mg/m³
 Consumer - Dermal; Long term systemic effects: 196 mg/kg/day

PNEC - Fresh water; 2.02 mg B/L
 - marine water; 2.02 mg B/L
 - Intermittent release, Water; 13.7 mg B/L
 - Soil; 5.4 mg B/kg
 - STP; 10 mg B/L

8.2. Exposure controls

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Protective equipment



Appropriate engineering controls

Provide adequate general and local exhaust ventilation. As this product contains ingredients with exposure limits, process enclosures, local exhaust ventilation or other engineering controls should be used to keep worker exposure below any statutory or recommended limits, if use generates dust, fumes, gas, vapour or mist. Avoid inhalation of dust and contact with skin and eyes. Provide eyewash station and safety shower.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with European Standard EN166. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. To protect hands from chemicals, gloves should comply with European Standard EN374. The selected gloves should have a breakthrough time of at least 8 hours. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Frequent changes are recommended.

Other skin and body protection

Wear appropriate clothing to prevent repeated or prolonged skin contact.

Hygiene measures

Wash at the end of each work shift and before eating, smoking and using the toilet. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Care should be taken to avoid contact with contaminants when removing contaminated clothing. Wash contaminated clothing before reuse.

Respiratory protection

Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Protection against nuisance dust must be used when the airborne concentration exceeds 10 mg/m³. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. If ventilation is inadequate, suitable respiratory protection must be worn. Wear a respirator fitted with the following cartridge: Particulate filter, type P2.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Solid Crystalline solid.
Colour	White.
Odour	Odourless.
Odour threshold	No information available.
pH	pH (diluted solution): 6.1 (0.1% aq) pH (diluted solution): 5.1 (1.0% aq) pH (diluted solution): 3.7 (4.7% aq)
Melting point	> 1000°C
Initial boiling point and range	No information available.
Flash point	No information available.
Evaporation rate	No information available.

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Evaporation factor	No information available.
Flammability (solid, gas)	The product is non-combustible.
Upper/lower flammability or explosive limits	No information available.
Other flammability	No information available.
Vapour pressure	No information available.
Vapour density	No information available.
Relative density	1.49 @ 22°C
Bulk density	No information available.
Solubility(ies)	Soluble in water. 49.2 g/l water @ 20°C
Partition coefficient	log Pow: -0.757
Auto-ignition temperature	No information available.
Decomposition Temperature	No information available.
Viscosity	No information available.
Explosive properties	Not considered to be explosive.
Explosive under the influence of a flame	No information available.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

Other information No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No test data specifically related to reactivity available for this product or its ingredients.

10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended.
Heating may generate the following products: Water Boric acid (meta HBO₂), Boric acid (B₂O₃)

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions May be corrosive to metals. The following materials may react with the product: Inorganic hydrides. Alkali metals. In contact with some metals can generate hydrogen gas, which can form explosive mixtures with air.

10.4. Conditions to avoid

Conditions to avoid Avoid excessive heat for prolonged periods of time. Protect from moisture.

10.5. Incompatible materials

Materials to avoid Avoid contact with the following materials: Strong reducing agents. Inorganic hydrides. Alkali metals.

10.6. Hazardous decomposition products

Hazardous decomposition products Does not decompose when used and stored as recommended. Heating may generate the following products: Boric acid (meta HBO₂), boric oxide (B₂O₃)

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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Notes (oral LD₅₀) LD₅₀ 2000 - 5000 mg/kg, Oral, Rat

Acute toxicity - dermal

Notes (dermal LD₅₀) LD₅₀ > 2000 mg/kg, Dermal, Rabbit

Acute toxicity - inhalation

Notes (inhalation LC₅₀) LC₅₀ (4h) >2 mg/l, Inhalation, Vapour, Rat

Skin corrosion/irritation

Skin corrosion/irritation Not irritating. Rabbit

Serious eye damage/irritation

Serious eye damage/irritation Not irritating. Fully reversible within 7 days. Rabbit

Respiratory sensitisation

Respiratory sensitisation Guinea pig: Not sensitising.

Skin sensitisation

Skin sensitisation Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro Bacterial reverse mutation test: Negative.

Genotoxicity - in vivo

Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met. Negative., Dose level: 446 - 1150 mg/kg/day, Oral, Mouse

Reproductive toxicity

Reproductive toxicity - fertility May damage fertility. Fertility, Multi-generation study - NOAEL 17.5 mg B/kg , Oral, Rat, Male

Reproductive toxicity - development

May damage the unborn child. Developmental toxicity: - NOAEL: 9.6 mg B/kg , Oral, Rat
Maternal toxicity: - NOAEL: 13.3 mg B/kg , Oral, Rat

Specific target organ toxicity - single exposure

STOT - single exposure Based on available data the classification criteria are not met.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met. Chronic, NOAEL (2yr) 17.5 mg B/kg/day , Oral, Rat, Male reproductive organs

Aspiration hazard

Aspiration hazard Based on available data the classification criteria are not met.

Inhalation

No significant hazard at normal ambient temperatures. Dust in high concentrations may irritate the respiratory system.

Ingestion

No harmful effects expected from quantities likely to be ingested by accident. May cause discomfort if swallowed. Symptoms following overexposure may include the following: Nausea, vomiting. Diarrhoea. Effects may be delayed. Skin irritation. Redness. Dryness and/or cracking.

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Skin contact	Symptoms following overexposure may include the following: Nausea, vomiting. Diarrhoea. Effects may be delayed. Skin irritation. Redness. Dryness and/or cracking.
Eye contact	Particles in the eyes may cause irritation and smarting.
Acute and chronic health hazards	May damage fertility. May damage the unborn child.

SECTION 12: Ecological information

Ecotoxicity Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

12.1. Toxicity

Acute aquatic toxicity

Acute toxicity - fish Acute, LC₅₀, : 79.7 mg/l, Pimephales promelas (Fat-head Minnow)
Read-across data.
Boron.
Chronic, NOEC, : 6.4 mg/l, Brachydanio rerio (Zebra Fish)
Read-across data.
Boron.

Acute toxicity - aquatic invertebrates NOEC, : 14.2 mg/l, Daphnia magna
Read-across data.
Boron.
LC₅₀, : 91 mg/l,
Ceriodaphnia dubia
Read-across data.
Boron.

Acute toxicity - aquatic plants Acute, EC₅₀, : 52.4 mg/l, Pseudokirchneriella subcapitata
Read-across data.
Boron.
Chronic, NOEC, : 17.5 mg/l, Pseudokirchneriella subcapitata
Read-across data.
Boron.

12.2. Persistence and degradability

Persistence and degradability Not applicable. Substance is inorganic.

12.3. Bioaccumulative potential

Bioaccumulative potential Bioaccumulation is unlikely.

Partition coefficient log Pow: -0.757

12.4. Mobility in soil

Mobility The product is soluble in water.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment Not applicable. Substance is inorganic.

12.6. Other adverse effects

Other adverse effects None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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General information	Waste is classified as hazardous waste. Do not puncture or incinerate, even when empty. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.
Disposal methods	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

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

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

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 MARPOL and the IBC Code

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78

and the IBC Code

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) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015.
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Restrictions (Annex XVII Regulation 1907/2006)	CAUTION - Chemical may be subject to REACH RESTRICTIONS - see Annex XVII. This product is/contains a substance that is included in REGULATION (EC) No 1907/2006 (REACH) ANNEX XVII - RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES. Entry number: 3, 30
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15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

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Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

Canada - DSL/NDSL

All the ingredients are listed or exempt.
DSL

US - TSCA

All the ingredients are listed or exempt.

Australia - AICS

All the ingredients are listed or exempt.

Japan - ENCS

All the ingredients are listed or exempt.

Korea - KECI

All the ingredients are listed or exempt.

China - IECSC

All the ingredients are listed or exempt.

Philippines – PICCS

All the ingredients are listed or exempt.

New Zealand - NZIOC

All the ingredients are listed or exempt.

Taiwan - TCSI

All the ingredients are listed or exempt.

SECTION 16: Other information

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Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
 CAS: Chemical Abstracts Service.
 DNEL: Derived No Effect Level.
 IATA: International Air Transport Association.
 IMDG: International Maritime Dangerous Goods.
 Kow: Octanol-water partition coefficient.
 LC₅₀: Lethal Concentration to 50 % of a test population.
 LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
 PBT: Persistent, Bioaccumulative and Toxic substance.
 PNEC: Predicted No Effect Concentration.
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
 vPvB: Very Persistent and Very Bioaccumulative.
 IARC: International Agency for Research on Cancer.
 MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
 cATpE: Converted Acute Toxicity Point Estimate.
 BCF: Bioconcentration Factor.
 BOD: Biochemical Oxygen Demand.
 EC₅₀: 50% of maximal Effective Concentration.
 LOAEC: Lowest Observed Adverse Effect Concentration.
 LOAEL: Lowest Observed Adverse Effect Level.
 NOAEC: No Observed Adverse Effect Concentration.
 NOAEL: No Observed Adverse Effect Level.
 NOEC: No Observed Effect Concentration.
 LOEC: Lowest Observed Effect Concentration.
 DMEL: Derived Minimal Effect Level.
 EL50: Exposure Limit 50
 hPa: Hectopascal
 LL50: Lethal Loading fifty
 OECD: Organisation for Economic Co-operation and Development
 POW: Octanol-water partition coefficient
 SCBA: self-contained breathing apparatus
 STP: Sewage Treatment Plant
 VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Aquatic Acute = Hazardous to the aquatic environment (acute)
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Key literature references and sources for data

Supplier's information.

Revision comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date

11/05/2021

Version number

5.003

Supersedes date

09/11/2020

SDS number

3673