COCREATE GLOBAL TECHNOLOGIES PRIVATE LIMITED
CIN: U21009KA2023PTC179006
Registered address: L73, Attic Space, 15th Cross Road, Sector 6, HSR Layout, Bangalore Urban- 560102, Karnataka, India.
Email: info@scimplify.com **Website:** www.scimplify.com

Material Safety Data Sheet
Boric Acid

Section 1: Chemical Product and Company Identification	
Product Name	Boric Acid
CAS#	10043-35-3
Synonym	Orthoboric acid, boracic acid
Company	Cocreate Global Technologies Private Limited (Scimplify)
Registered address	L73, Attic Space, 15th Cross Road, Sector 6, HSR Layout, Bangalore Urban- 560102, Karnataka, India

Section 2: Hazards Identification

2.1. Classification of the substance
2.1.1. Classification according to Regulation EC N°1272/2008 (CLP)
Harmonised classification provided in the 1st ATP to CLP (Regulation EC N°790/2009)
Repr. Cat. 1B; H360FD
Specific concentrations limits : Repr. 1B; H360FD: C ≥ 5.5%
Precautionary Statement Prevention : P201; P202; P280
Precautionary Statement Response : P308+P313
Precautionary Statement Storage : P405
Precautionary Statement Disposal : P501
2.1.2. Additional information
For the full text of Hazard Class/Statements and Precautionary Statements see SECTION 16.3.
2.2. Label elements
2.2.1. Label according to Regulation (EC) N°1272/2008 (CLP)
Hazard pictograms
Signal word : Danger



Hazard Statements : H360FD: May damage fertility or the unborn child.
Precautionary Statements:
P201 : Obtain special instruction 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.
2.2.2. According to REACH, Annex XVII
Restricted to professional users
2.3. Other hazards
Emergency overview
Boric Acid is a white odourless, powder/granular substance that is not flammable, combustible, or explosive, and has low acute oral and dermal toxicity.
Potential health effects
Inhalation is the most significant route of exposure in occupational and other settings. Dermal exposure is not usually a concern because Boric Acid poorly absorbed through intact skin.
Inhalation
Occasional mild irritation effects to nose and throat may occur from inhalation of Boric Acid dusts at levels higher than 10 mg/m³.
Eye contact
Boric Acid is non-irritating to eyes in normal industrial use.

Skin contact
Boric Acid does not cause irritation to intact skin.

Section 3: Composition and Information on Ingredients

3.1. Substances
The product contains greater than 99.9 percent (%) Boric Acid (H3BO3).

Identification Name	EC N°	CAS N°	REACH Registration Numbe	Wt. %
Boric Acid (Orthoboric acid, boracic acid)	233-139-2	10043-35-3	01-211948668-25-0006	> 99.9

For other "Chemical inventory listing", please refer to SECTION 15.

Section 4: First Aid Measures

4.1. Description of first aid measures
Skin contact
No treatment necessary because Boric Acid does not cause irritation to intact skin.
Eye contact
No treatment necessary because non-irritant.
Inhalation
If symptoms such as nose or throat irritation are observed, remove to fresh air. Boric Acid has low inhalation toxicity.
Ingestion
If large amounts are swallowed (i.e. more than one teaspoon), contact a doctor or toxicity centre immediately.

Section 5: Fire and Explosion Data

5.1. Extinguishing media
Any appropriate fire extinguishing media may be used on nearby fires.
5.2. Special hazards arising from the substance
Boric Acid is not flammable, combustible or explosive. The product is itself a flame retardant.
5.3. Advice for firefighters
N.A.

Section 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures.
Avoid dust formation. In case of exposure to prolonged or high level of airborne dust, wear a personal respirator in compliance with national legislation.
6.2. Environmental precautions
Boric Acid is a water-soluble white product that may, at high concentrations cause damage to trees or vegetation by root absorption (see SECTION 12).
6.3. Methods and material for containment and cleaning up
Land spill
Vacuum, shovel or sweep up Boric Acid and place in containers for disposal in accordance with applicable local regulations. Avoid contamination of water bodies during clean up and disposal. No personal protective equipment is needed to clean up land spills.
Spillage into water
Where possible, 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 value to its normal environmental background level (see SECTIONS 12, 13 and 15).
6.4. Reference to other sections
See SECTIONS 8 and 13 for further information.

Section 7: Handling and Storage

7.1. Precautions for safe handling
To maintain package integrity and to minimise caking of the product, bags should be handled on a first-in first-out basis. Good housekeeping and dust prevention procedures should be followed to minimise dust generation and accumulation. Your supplier can advise you on safe handling, please contact the supplier.

Section 8: Exposure Controls / Personal Protection

8.1. Control parameters
Occupational Exposure Limit Values

Substance:	Boric Acid	
CAS N°	10043-35-3	
Limit value - Eight hours	Limit value - Short term	

Belgium	2 ppm	6 ppm
Germany (AGS)	0.5 (1) mg/m³	1 (1)(2) ppm
Germany (DFG)	10 inhalable aerosol (1) mg/m³	10 inhalable aerosol (1)(2) mg/m³
Latvia	10 mg/m³	
Spain	2 ppm	6 ppm
Switzerland	1.8 (1) ppm	1.8 (1)(2) ppm

Remarks
Germany (AGS) (1) Inhalable fraction
(2) 15 minutes average value
Germany (DFG) (1) calculated as boron: 1.8 mg/m³
(2) 15 minutes average value in the case of simultaneous appearance of boric acid and tetraborates counts 0.75 mg/m³ calculated as boron.
Switzerland (1) Inhalable fraction (2) 15 minutes average value
Occupational exposure limits for dust (total and respirable) are treated by OSHA, Cal OSHA and ACGIH as "Particulate Not Otherwise Classified" or " Nuisance Dust"
ACGIH/TLV : 10 mg/m³
Cal OSHA/PEL : 10 mg/m³
OSHA/PEL (total dust) : 15 mg/m³
OSHA/PEL (respirable dust) : 5 mg/m³
DNEL values

Exposure pattern	Type/site of effect	Exposure route	DNEL value
DNELs for workers			
Long-term	Systemic	Inhalation	8.3 mg/m³
Long-term	Systemic	Dermal	392 mg/ kg bw/day
DNELs for the general public			
Acute	Systemic	Oral	0.98 mg/ kg bw/day
Long-term	Systemic	Dermal	196 mg/ kg bw/day
Long-term	Systemic	Inhalation	4.15 mg/ kg bw/day
Long-term	Systemic	Oral	0.98 mg/ kg bw/day

Source: Chemical Safety Report of Boric Acid

Section 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties
Appearance : White solid, granular/powder
Odour : Odourless
Odour threshold : N.A.
pH @ 20°C : 5.1 (1.0 % solution)
Melting point : 450°C
Initial boiling point and boiling range : 1860°C
Flash point : Non flammable
Evaporation rate : N.A.
Flammability (solid, gas) : N.A.
Upper/lower flammability or explosive limits : Non explosive
Vapour pressure : Negligible @ 20°C
Vapour density : N.A.
Solubility in water : 4.7% @ 20°C; 27.5% @ 100°C
Partition coefficient: n-octanol/water : N.A.
Auto-ignition temperature : N.A.
Decomposition temperature : 170 to 300°C
Viscosity : N.A.
Explosive properties : Non explosive
Oxidising properties : N.A.
9.2. Other information
Molecular weight : 61.83
Specific gravity : 1.51 @ 20°C

Section 10: Stability and Reactivity Data

10.1. Reactivity
Boric Acid is a stable product.
10.2. Chemical stability
Boric Acid is a stable product, but when heated it loses water, first forming metaboric acid , and on further heating it is converted into boron oxide .
10.3. Possibility of hazardous reactions
Reaction with strong reducing agents such as metal hydrides or alkali metals will generate hydrogen gas which could create an explosive hazard.
10.4. Conditions to avoid
Avoid contact with strong reducing agents.
10.5. Incompatible materials
Avoid contact with strong reducing agents such as metal hydrides or alkali metals.
10.6. Hazardous decomposition products
N.A.

Section 11: Toxicological Information

11.1. Information on toxicological effect
11.1.1. Substances
Acute toxicity
Low acute oral toxicity; LD50 in rats > 2,600 mg/kg of body weight (Test material: Boron Oxide) [6].
Skin corrosion/irritation
Low acute dermal toxicity; LD50 in rabbits is greater than 2,000 mg/kg of body weight [7]. Boric acid is poorly absorbed through intact skin. Non-irritant.
Serious eye damage/irritation
Boric acid has no eye damage/irritation.
Respiratory or skin sensitization
Boric acid has no respiratory or skin sensitization.
Germcell mutagenicity
Boric acid is not mutagenic.
Carcinogenicity
Boric acid is not carcinogenic.
Reproductive toxicity
Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated effects on fertility and testes [1]. Studies with the chemically related boric acid in rat, mouse and rabbit, at high doses, demonstrate developmental effects on the foetus including foetal weight loss and minor skeletal variations. The doses administered were many times in excess of those which humans would normally be exposed to [8, 9]. While boron has been shown to adversely affect male reproduction in laboratory animals, there is no clear evidence of male reproductive effects attributable to boron in studies of highly exposed workers. Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to borate dusts. A recent epidemiology study under the conditions of normal occupational exposure to borate dusts indicated no effect on fertility. A study conducted in Turkey with boron exposed mine workers showed that mean blood concentrations of the high exposure group is ~6 times and ~9 times lower than those of the highest no effect level of boron in blood with regard to developmental and reprotoxic effects (respectively) in rats. With those findings, no unfavourable effects of boron exposure on reproductive indicators are observed in humans [3, 4].
STOT-single exposure
N.A.
STOT-repeated exposure
N.A.
Aspiration hazard
Boric acid has no aspiration hazard.

Section 12: Ecological Information

12.1. Toxicity
Boron occurs naturally in sea water at an average concentration of 5 mg B/L and fresh water at 1 mg B/L or less. In dilute aqueous solutions the predominant boron species present is undissociated boric acid. To convert boric acid into equivalent boron (B) content, multiply by 0.1748.
Phytotoxicity
Boron is an essential micronutrient for healthy growth of plants; however, it can be harmful to boron sensitive plants in higher quantities. Care should be taken to minimise the amount of borate product released to the environment.
Algal toxicity
Green algae, Pseudokirchneriella subcapitata
72-hr EC50 -biomass = 40 mg B/L or 229 mg boric acid/L [10]
Invertebrate toxicity (7)
Daphnia, Daphnids, Daphnia magna
48-hr LC50 = 133 mg B/L or 760 mg boric acid/L [11]
Fish toxicity
Fish, Fathered minnow, Pimephales promelas

96-hr LC50 = 79.7 mg B/L or 456 mg boric acid/L [12]
12.2. Persistence and degradability
Boron is naturally occurring and ubiquitous in the environment. Boric acid decomposes in the environment to natural borate.
12.3. Bioaccumulative potential
Not bioaccumulative.
12.4. Mobility in soil
The product is soluble in water and is leachable through normal soil.
12.5. Results of PBT and vPvB assessment
N.A.
12.6. Other adverse effects
No data available.

Section 13: Disposal Considerations

13.1. Waste treatment methods
Small quantities of Boric Acid can usually be disposed of at landfill sites. No special disposal treatment is required, but local authorities should be consulted about any specific local requirements. Tonnage quantities of product are not recommended to be sent to landfills. Such product should, if possible, be used for an appropriate application.

Section 14: Transport Information

Boric acid has no UN Number, and is not regulated under international rail, road or air transport regulations yet, it is classified as Group B under IMO resolution MSC.393 (95) for bulk product shipments.
14.1. UN number : N.A.
14.2. UN proper shipping name : N.A.
14.3. Transport hazard class(es) : N.A.
14.4. Packing group : N.A.
14.5. Environmental hazards : N.A.
14.6. Special precautions for user : N.A.
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code : N.A.

Section 15: Other Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance
It should be noted that borates are safe under conditions of normal handling and use, besides, they are essential nutrients to plants, and research shows that they play a beneficial role in human health. CLP classification has been solely based on animal tests where animals were exposed to high doses of boric acid over long periods of time. These doses were many times higher than humans are exposed to under conditions of normal handling and use. Consequently, a precautionary decision was taken by the European Commission. Although we will comply with the body of legislation triggered by that decision, we are in process of all possible legal actions.
Clean Air Act (Montreal Protocol)
Boric acid was not manufactured with and does not contain any Class I or Class II ozone depleting substances.
Cosmetics
The EC Directive 76/768/EEC sets an upper limit of 5% Boric acid in talcs, 0.5% in oral hygiene products and 3% in other products. In addition, the talcs should not be used on children under 3 years of age.
German Water Hazard Class (WGK): Substances and mixtures can pose a hazard to water bodies. To protect the water bodies from detrimental changes to their characteristics it is required that substances and mixtures that are handled or stored in facilities in Germany are classified for their water hazard properties.
Classification is carried out on the basis of the Ordinance on facilities for handling substances that are hazardous to water (Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (AwSV)) of 18 April 2017 (BGBl 2017, Teil I, Nr. 22, Seite 905).
There are three water hazard classes (WGK).
1: slightly hazardous to water
2: obviously hazardous to water
3: highly hazardous to water
Boric acid has been classified as WGK 1: slightly hazardous to water.
Boric acid Reg. No: 315.

Section 16: Other Information

16.1. Mainly changes made to the previous version of this Safety Data Sheet (SDS)
Revision no: 01
Revision date: 01-07-2026
16.2. List of abbreviation and acronyms used in this SDS
1st ATP : 1st Adaptation to Technical and scientific Progress

ACGIH : American Conference of Governmental Industrial Hygienists
AICS : Australian Inventory of Chemical Substances
Cal OSHA : The State of California Division of Occupational Safety and Health (DOSH)
Canadian DSL : Canadian Domestic Substances List
CAS N° : Chemical Abstracts Service number
CLP : Classification Labelling Packaging Regulation: Regulation (EC) N°1272/2008
CSR : Chemical Safety Report
DNEL : Derived No effect Level
EC N° : EINECS Number: European Inventory of Existing Commercial Substances
EC50 : Half maximal effective concentration
ENCS : Japan Inventory of Existing and New Chemical Substances
HazChem : Chinese Catalog of Hazardous Chemicals
IECSC : Inventory of Existing Chemical Substances Produced or Imported in China
IMO : International Maritime Organization
Index N° : Atomic number of the element most characteristic of the properties of the substance
KECI : South Korea Existing Chemicals List
LC50 : Lethal Concentration, 50%
LD50 : Median Lethal Dose
N.A. : Not Applicable
NZIoC : New Zealand Inventory of Chemicals
OSHA : Occupational Safety & Health Administration
PBT : Persistent, Bioaccumulative and Toxic substance
PECs : South Korea Priority Existing Chemicals
PEL : Permissible Exposure Limits
PICCS : Philippines Inventory of Chemicals and Chemical Substances
PNEC : Predicted No Effect Concentration
REACH : Registration, Evaluation, Authorisation and Restrictions of Chemicals Regulation (EC) N°1907/2006
Repr. Cat. 1B : Substance presumed human reproductive toxicant
SDS : Safety Data Sheet
TLV : Threshold Limit Value
U.S. EPA TSCA : United States Environmental Protection Agency Toxic Substances Control Act
UN : United Nations
vPvB : Very Persistent and Very Bioaccumulative

16.3. List of relevant hazard statements and precautionary statements used in this SDS

According to CLP Regulation

Hazard Statement

H360FD: May damage fertility or the unborn child

Precautionary Statements

Prevention

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.

Response

P308+P313: If exposed or concerned: get medical advice/attention.

Storage

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to in accordance with local regulations.

16.4. Key literature references and sources for data

[1] Fail, P.A., George, J.D., Seely, J.C., Grizle, T.B., & Heindel, J.J. (1991). Reproductive toxicity of boric acid in Swiss (CD-1) mice: Assessment using the continuous breeding protocol. Fundamental and Applied Toxicology, 17(2), 225-239.
[2] Scialli, A.R., Bonde, J.P., Brüske-Hohlfeld, I., Culver, D.B., Li, Y., & Sullivan, F.M. (2010). An overview of male reproductive studies of boron with an emphasis on studies of highly exposed Chinese workers. Reproductive Toxicology, 29(1), 10-24.
[3] Duydu, , A., & Bolt, H. (2012). Exposure assessment of boron in boric acid production plant. Journal of Trace Elements in Medicine and Biology, 26(2-3), 161-164.
[4] , N., Duydu, Y., & Bolt, H., (2012). Reproductive toxicity in boron exposed workers in , Turkey. Journal of Trace Elements in Medicine and Biology, 26(2-3), 165-167.
[5] Litovitz, T.L., Norman, S.A., & Veltri, J.C. (1986). Annual Report of the American Association of Poison Control Centers National Data Collection System. The American Journal of Emergency Medicine, 4(5), 427-458.

[6] Denton, S.M. (1996). Acute oral toxicity study in the rat: anhydrous boric acid. Final report. Testing laboratory: Corning Hazleton (Europe) Otley Road, Harrogate, North Yorkshire, UK. Report no.: 1341/7-1032. Owner Company: Borax Europe Ltd. Report date: 1996-03-06.
[7] Weiner, A.S., Conine, D.L., & Doyle, R.L. (1982). Acute Dermal Toxicity Screen in Rabbits; Primary Skin Irritation Study in Rabbits of Boric Acid. Testing laboratory: Hill Top Research, Inc. Report no.: 82-0280-21. Owner Company: US Borax Chemical Corporation. Report date: 1982-03-15.
[8] Heindel, J.J., Price, C.J., Field, E.A., Marr, M.C., Myers, C.B., Morrissey, R.E. & Schwetz, B.A. (1992). Developmental toxicity of boric acid in mice and rats. Fundamental and Applied Toxicology, 18(2), 266-277.
[9] Price, C.J., Marr, M.C., Myers, C.B., Heindel, J.J., & Schwetz, B.A. (1991). Final Report on the Developmental Toxicity of Boric Acid (CAS No 10043-35-3) in New Zealand White Rabbits. National Toxicology Program, National Institute of Environmental Health Sciences. (Testing laboratory: National Toxicology Program, National Institute of Environmental Health Sciences (TER 90-003; NTIS Accession No PB92-129550). Report no.: 90-003; NTIS Accession No PB92-129550).
[10] Hanstveit, A.O. & Oldersma, H. (2000). Determination of the effect of Boric acid, Manufacturing grade on the growth of the fresh water green alga Selenastrum capricornutum. Testing laboratory: TNO Nutrition and Food research Institute. Report no.: V99.157. Owner Company: Borax Europe Limited. Study number: IMW-99-9047-05. Report date: 2000-03-06.
[11] Gersich, F.M. (1984a). Evaluation of a Static Renewal Chronic Toxicity Test Method for Daphnia magna straus using Boric Acid. Environmental Toxicology and Chemistry, 3(1), 89-94.
[12] Soucek, D., Dickinson, A., & Major, K. (2010). Acute and chronic toxicity of boron to freshwater organisms. Testing laboratory: Illinois Natural History Survey, University of Illinois, Champaign, Illinois. Owner Company: Illinois Natural History Survey, University of Illinois.
For general information on the toxicology of borates see ECETOC Technical Report No. 63 (1995); Patty's Industrial Hygiene and Toxicology, 4th Edition Vol. II, (1994) Chap. 42, 'Boron'.

16.5. Disclaimer of Liability

The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its accuracy, reliability or completeness. The conditions or methods of handling, storage use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use.

This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.