

SAFETY DATA SHEET

BOROSTAR PLUS



Version	Revision Date:	SDS Number:	Date of last issue: -
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : BOROSTAR PLUS

Manufacturer or supplier's details

Company : FMC Corporation

Address : 2929 WALNUT ST
PHILADELPHIA PA 19104

Emergency telephone : 1 703 / 527-3887 (CHEMTREC - Alternate)
1 703 / 741-5970 (CHEMTREC - International)
All other countries: +1 651 / 632-6793 (Collect)

Recommended use of the chemical and restrictions on use

Recommended use : Crop supplement/Micronutrient

Restrictions on use : Use as recommended by the label.

2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Oral) : Category 5

Reproductive toxicity : Category 1B

Short-term (acute) aquatic hazard : Category 3

GHS label elements

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H303 May be harmful if swallowed.
H360 May damage fertility or the unborn child.
H402 Harmful to aquatic life.

Precautionary Statements : **Prevention:**
P203 Obtain, read and follow all safety instructions before use.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

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Response:

P301 + P317 IF SWALLOWED: Get medical help.
P318 IF exposed or concerned, get medical advice.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

Dust can form an explosive mixture in air.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture	:	Substance
Chemical nature	:	Inorganic borates
CAS-No.	:	12280-03-4

Components

Chemical name	CAS-No.	Concentration (% w/w)
disodium octaborate tetrahydrate	12280-03-4	>= 90 - <= 100

4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended.
If inhaled	:	If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	:	Wash off with soap and water. Get medical attention if irritation develops and persists.
In case of eye contact	:	Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Induce vomiting immediately and call a physician. Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

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Most important symptoms and effects, both acute and delayed : May be harmful if swallowed.
May damage fertility or the unborn child.

Notes to physician : Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Dry chemical
Carbon dioxide (CO₂)
Water spray
Foam

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : No hazardous combustion products are known

Specific extinguishing methods : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Avoid dust formation.
Avoid breathing dust.

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Avoid dust formation.
Provide appropriate exhaust ventilation at places where dust is formed.

Advice on safe handling : Avoid formation of respirable particles.
Do not breathe vapors/dust.
Avoid exposure - obtain special instructions before use.

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Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Further information on storage stability : Keep in a dry place.
No decomposition if stored and applied as directed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection : In case of dust exposure wear suitable personal respiratory protection and protective suit.

Hand protection
Material : Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber.

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles

Skin and body protection : Dust impervious protective suit
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : crystalline

Color : white

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Odor	:	odorless
pH	:	7.6 (10% solution in water)
Melting point/freezing point	:	> 1,000 °C
Boiling point/boiling range	:	Not applicable
Flash point	:	Not applicable
Flammability (solid, gas)	:	Will not burn
Self-ignition	:	Not applicable
Density	:	1.87 g/cm ³ (22 °C)
Solubility(ies) Water solubility	:	223.65 g/l (20 °C)
Solubility in other solvents	:	soluble Solvent: Alcohol
Partition coefficient: n-octanol/water	:	Not applicable
Decomposition temperature	:	25 - 1,000 °C
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed. Dust may form explosive mixture in air.
Conditions to avoid	:	moisture Heat, flames and sparks.
Incompatible materials	:	Strong oxidizing agents Strong acids and strong bases
Hazardous decomposition products	:	Stable under recommended storage conditions.

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11. TOXICOLOGICAL INFORMATION**Acute toxicity**

May be harmful if swallowed.

Product:

Acute oral toxicity : Acute toxicity estimate: 2,603 mg/kg
Method: Calculation method

Components:**disodium octaborate tetrahydrate:**

Acute oral toxicity : LD50 (Rat, male and female): 2,550 mg/kg

LD50 (Rat, male): > 2,600 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat, male and female): > 2.01 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Not classified based on available information.

Components:**disodium octaborate tetrahydrate:**

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:**disodium octaborate tetrahydrate:**

Species : Rabbit
Result : No eye irritation

Respiratory or skin sensitization**Skin sensitization**

Not classified based on available information.

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Respiratory sensitization

Not classified based on available information.

Components:**disodium octaborate tetrahydrate:**

Test Type	: Buehler Test
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: Not a skin sensitizer.

Germ cell mutagenicity

Not classified based on available information.

Components:**disodium octaborate tetrahydrate:**

Genotoxicity in vitro	: Test Type: reverse mutation assay
	Metabolic activation: with and without metabolic activation
	Method: OECD Test Guideline 471
	Result: negative
	Remarks: Based on data from similar materials

Carcinogenicity

Not classified based on available information.

Components:**disodium octaborate tetrahydrate:**

Species	: Mouse, male and female
Application Route	: Ingestion
Exposure time	: 103 weeks
Method	: OECD Test Guideline 451
Result	: negative
Remarks	: Based on data from similar materials

Reproductive toxicity

May damage fertility or the unborn child.

Components:**disodium octaborate tetrahydrate:**

Effects on fertility	: Test Type: Three-generation study
	Species: Rat, male and female
	Fertility: LOAEL: 58.5 mg/kg bw/day
	Result: positive
	Remarks: Based on data from similar materials

Reproductive toxicity - Assessment	: Clear evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments
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STOT-single exposure

Not classified based on available information.

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Components:

disodium octaborate tetrahydrate:

Remarks : No significant adverse effects were reported

STOT-repeated exposure

Not classified based on available information.

Repeated dose toxicity

Components:

disodium octaborate tetrahydrate:

Species	: Rat, male and female
NOAEL	: 17.5 mg/kg bw/day
LOAEL	: 58.5 mg/kg bw/day
Application Route	: Ingestion
Exposure time	: 2 years
Remarks	: Based on data from similar materials

Aspiration toxicity

Not classified based on available information.

Components:

disodium octaborate tetrahydrate:

The substance does not have properties associated with aspiration hazard potential.

Further information

Product:

Remarks : No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

disodium octaborate tetrahydrate:

Toxicity to fish	: LC50 (Pimephales promelas (fathead minnow)): 79.7 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	: LC50 (Daphnia magna (Water flea)): 133 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	: EC50 (Pseudokirchneriella subcapitata (green algae)): 40 mg/l End point: Biomass Exposure time: 72 h NOEC (blue-green algae): >= 100 mg/l End point: Growth rate

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	Exposure time: 10 d
Toxicity to microorganisms	: EC50 (Soil micro-organisms): >17.5 Exposure time: 102 d EC10 (Soil micro-organisms): 15.4 Exposure time: 102 d NOEC (activated sludge): 17.5 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 EC10 (activated sludge): 35.4 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 EC20 (activated sludge): 112 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 EC50 (activated sludge): 175 mg/l Exposure time: 3 h Method: OECD Test Guideline 209
Toxicity to fish (Chronic toxicity)	: LOEC: 23 mg/l Exposure time: 32 d Species: Pimephales promelas (fathead minnow) NOEC: 11.2 mg/l Exposure time: 32 d Species: Pimephales promelas (fathead minnow)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: LOEC: 56 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) EC50: 34 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) NOEC: 25.9 mg/l Exposure time: 42 d Species: Hyalella azteca (Amphipod) LOEC: 51.1 mg/l Exposure time: 42 d Species: Hyalella azteca (Amphipod)
Toxicity to soil dwelling organisms	: EC50: 26.1 milligram per kilogram Exposure time: 28 d Species: Folsomia candida
Plant toxicity	: NOEC: 56 mg/kg Exposure time: 7 d Species: Allium cepa

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NOEC: 28 mg/kg
Exposure time: 5 d
Species: Brassica rapa

Sediment toxicity : LD50: 278 mg/kg body weight
Duration: 28 d
Species: Chironomus riparius

LOEC: 320 mg/kg body weight
Duration: 28 d
Species: Chironomus riparius

NOEC: 180 mg/kg body weight
Duration: 28 d
Species: Chironomus riparius

Persistence and degradability

Components:

disodium octaborate tetrahydrate:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulative potential

Components:

disodium octaborate tetrahydrate:

Bioaccumulation : Remarks: Not applicable

Mobility in soil

Components:

disodium octaborate tetrahydrate:

Distribution among environmental compartments : Remarks: The product is soluble in water and is leachable through normal soil.

Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.

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Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

Special precautions for user

Remarks : Not classified as dangerous in the meaning of transport regulations.

15. REGULATORY INFORMATION

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

The ingredients of this product are reported in the following inventories:

TCSI	: On the inventory, or in compliance with the inventory
TSCA	: All substances listed as active on the TSCA inventory
AIIC	: On the inventory, or in compliance with the inventory
DSL	: All components of this product are on the Canadian DSL
ENCS	: On the inventory, or in compliance with the inventory
ISHL	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory

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NZIoC	:	On the inventory, or in compliance with the inventory
TECI	:	On the inventory, or in compliance with the inventory

16. OTHER INFORMATION

Date format : dd.mm.yyyy

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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