ACTIBOR17 — Safety Data Sheet

SECTION I - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: ACTIBOR17
Product use: Agricultural Micronutrient
Ceramics, Detergent, Cosmetic
Borosilicate glass, Textiles fibreglass

Chemical formula: H_3BO_3
Chemical name/synonyms: Boric acid, Orthoboric acid, Boracic acid
Chemical Family: Inorganic borates
CAS Registry Number: 10043-35-3

MANUFACTURER:
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SECTION II - COMPOSITION / INFORMATION ON INGREDIENTS

The product contains greater than 99.9 percent (%) boric acid (H3BO3).

SECTION III - HAZARD IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE: Reproductive toxicant, Category 2
H361d: Suspected of damaging the unborn child

Acute Oral 5
H303: May be harmful if swallowed.

GHS Label element, including precautionary statements

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Warning
P201: Obtain special instruction before use.
P202: Do not handle until all safety precautions have been read
P280: Wear protective glove/protective clothing/eye protection/face protection
P308 + P313: if exposed or concerned: get medical advice/attention
P312: call a POISON CENTER/doctor/physician if you feel unwell
P405: Store locked up
EMERGENCY OVERVIEW: Actibor17 is a white, odorless, powdered substance that is not flammable, combustible, or explosive and has low acute oral and dermal toxicity.
POTENTIAL ECOLOGICAL EFFECTS: Large amounts of Actibor17 can be hamful to plants and other species. Therefore, releases to the environment should be minimized.

INGESTION: Products containing Actibor17 are not intended for ingestion. Actibor17 has a low acute toxicity. Small amounts (e.g., a teaspoonful) swallowed accidentally are not likely to cause effects; swallowing amounts larger than that may cause gastrointestinal symptoms.
CANCER: Actibor17 is not a known carcinogen.
SIGNS AND SYMPTOMS OF EXPOSURE:
Symptoms of accidental over-exposure to Actibor17 have been associated with ingestion or absorption through large areas of damaged skin. These may include nausea, vomiting and diarrhea, with delayed effects of skin redness and peeling.

POTENTIAL HEALTH EFFECTS: Inhalation is the most significant route of exposure in occupational and other settings. Dermal exposure is not usually a concern because Actibor17 is poorly absorbed through intact skin.
INHALATION: Occasional mild irritation effects to nose and throat may occur from inhalation of Actibor17 dust at levels greater than 5 mg/m^3 .
EYE CONTACT: Actibor17 is non-irritating to eyes in normal use.
SKIN CONTACT: Actibor17 does not cause irritation.

SECTION IV - FIRST AID MEASURES

Inhalation: If symptoms such as nose or throat are observed remove person to fresh air.
Eye Contact: Use eye wash fountain or fresh water to cleanse eye. If irritation persists for more than 30 minutes, seek medical attenion.

Skin Contact: No Treatment necessary because non-irritating.
Ingestion: 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.

SECTION V - FIRE FIGHTING MEASURES

General hazard: None, because Actibor17 is not flammable, combustible or explosive. The product is itself a flame retardant.

Extinguishing media: Any fire extinguishing media may be used on nearby fires.
Flammability: Nonflammable

SECTION VI - ACCIDENTAL RELEASE MEASURES

General: Actibor17 is a water-soluble white powder that may, at high concentrations cause damage to trees or vegetation by root absorption.
Land spell: Vacuum, Shovel or sweep up Actibor17 and place in containers for disposal in accordance with applicable local regulations. Avoid contamination of water bodies during cleanup and disposal.

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.

SECTION VII - HANDLING AND STORAGE

General: No special handling precautions are required, but dry, indoor storage is recommended. To maintain package integrity and to minimize caking of the product, bags should be handled on a first-in, first-out basis. Good housekeeping procedures should be followed to minimize dust generation and accumulation.

Storage temperature: Ambient

Storage pressure: Atmospheric

Special sensitivity: Moisture (caking)

SECTION VIII - EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: Use local exhaust ventilation to keep airborne concentrations of Actibor17 dust below permissible exposure levels.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White, Odorless, Crystalline Solid	**Melting point:**	170.9°C (heated in closed space)
Specific gravity:	1.43	**pH @ 20°C:**	6.1 (0.1% solution)
Vapor pressure:	Negligible @ 20°C		5.1 (1.0% solution)
Molecular weight:	61.83		3.7 (4.7 % solution)
Solubility in water:	4.7% @ 20°C; 27.5% @ 100°C	**Flash Point:**	Non flammable
		Explosion Hazard:	Non explosive

SECTION X - STABILITY AND REACTIVITY

General: Actibor17 is a stable product, but when heated it loses water, first forming metaboric acid (HBO_2), and on further heating it is converted into boric oxide (B_2O_3).

Hazardous decomposition: None.

Incompatible materials and conditions to avoid: Actibor17 reacts as a weak acid which may cause corrosion of base metals. Reaction with strong reducing agents, such as metal hydrides or alkali metals, will generate hydrogen gas, which could create an explosive hazard.

SECTION XI - TOXICOLOGICAL INFORMATION

Acute toxicity
Ingestion: Low acute oral toxicity; LD50 in rats is 3,500 to 4,100 mg/kg of body weight.
Skin/dermal: Low acute dermal toxicity; LD50 in rabbits is greater than 2,000 mg/kg of body weight. Actibor17 is poorly absorbed through intact skin.

Inhalation: Low acute inhalation toxicity; LC50 in rats is greater than 2.0 mg/L (or g/m3).
Skin irritation: Non-irritant.
Eye irritation: Draize test in rabbits produced mild eye irritation effects. Fifty years of occupational exposure to Actibor17 indicates no adverse effects on human eye. Therefore, Actibor17 is not considered to be a human eye irritant in normal industrial use.
Sensitization: Actibor17 is not a skin sensitizer.

Other:
Human Data
Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to boric acid dust and sodium borate dust. Recent epidemological studies under the conditions of normal occupational exposure to borate dust indicated no effect on fertility.

SECTION XII - ECOLOGICAL INFORMATION

Ecotoxicity data
General: Boron (B) is the element in boric acid (Actibor17) which is used by convention to report borate product ecological effects. It occurs naturally in sea-water at an average concentration of 5 mg B/L and generally occurs in fresh water at concentrations up to 1 mg B/L. 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 high quantities. Care should be taken to minimize the amount of Actibor17 released to the environment.
Algal toxicity:
Green algae, Scenedesmus subspicatus
96-hr EC10 = 24 mg B/L†
Invertebrate toxicity:
Daphnids, Daphnia magna straus
48-hr LC50 = 133 mg B/L‡
21-day NOEC-LOEC = 6-13 mg B/L‡
Test substance: † sodium tetraborate ‡ boric acid

Fish toxicity:
Sea-water:
Dab, Limanda limanda
96-hr LC50 = 74 mg B/L†
Fresh water:
Rainbow trout, S. gairdneri (embryo-larval stage)
24-day LC50 = 150 mg B/L‡
32-day LC50 = 100 mg B/L‡
Goldfish, Carassius auratus (embryo-larval stage)
7-day LC50 = 46 mg B/L‡
3-day LC50 = 178 mg B/L‡
Environmental fate data
Persistence/degradation: Boron is naturally occurring and ubiquitous in the environment. Actibor17 decomposes in the environment to natural borate.
Octanol/water partition coefficient: Log Pow: -0.7570 at 25°C.
Soil mobility: Actibor17 is soluble in water and is leachable through normal soil.

SECTION XIII - DISPOSAL CONSIDERATIONS

Disposal guidance: Small quantities of Actibor17 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.

SECTION XIV - TRANSPORT INFORMATION

ACTIBOR17 has no UN number and is not regulated under international rail, road, water or air transport regulations.

SECTION XV-REGULATORY INFORMATION

Chemical inventory listing
- U.S. EPA TSCA Inventory 10043-35-3
- Canadian DSL 10043-35-3
- EINECS 233-139-2
- South Korea 1-439
- Japanese MITI (1)-63

Clean Air Act (Montreal protocol)
ACTIBOR 17 was not manufactured with and does not contain any Class I and Class II ozone depleting substances.

SECTION XVI- OTHER INFORMATION

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'.

For further information contact
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This MSDS summarises BRCM's best knowledge of the health and safety hazard information of the selected substance and how to safely handle the selected substance in the workplace however BRCM expressly disclaims that the MSDS is a representation or guarantee of the chemical specifications for the substance. Each user should read the MSDS and consider the information in the context of how the selected substance will be handled and used in the workplace including its use in conjunction with other substances.