

Safety Data Sheet – Etidot-67

SECTION 1. Identification

1.1. Product identifier

Etidot-67**CAS** 12280-03-4**ECN** 234-541-0**REACH Registration number:** 01-2119490860-33-0001**Trade names:** Etidot-67 (Disodium Octaborate Tetrahydrate)**Chemical name/synonyms:** Disodium octaborate, tetrahydrate, DOT

1.2. Details of the supplier of the safety data sheet

Supplier name: American Borate Company**Address:** 5701 Cleveland Street, Suite 350, Virginia Beach, VA 23462**Phone No:** (757) 490-2242 or (800)-486-1072

1.3. Emergency phone numbers:

Monday through Friday 8am – 5pm EST: (757) 490-2242 or (800) 486-1072

After 5pm and weekends: CHEMTREC 1-800-424-9300

1.4. Relevant identified uses of the substance and uses advised against

The product is used in industrial manufacturing, in particular in:

Agriculture (micronutrient)

Flame retardant

There is no restriction on use of chemical.

SECTION 2. Hazard Identification

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Reproductive toxicity (Category 2)

H361 Suspected of damaging fertility or the unborn child

Acute Oral (Category 5)

H303 May be harmful if swallowed.

2.2 GHS Label elements, including precautionary statements

Pictogram**Signal word**

Warning



Hazard statements

H361 Suspected of damaging fertility or the unborn child

H303 May be harmful if swallowed.

Precautionary statements

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P281 Use personal protective equipment as required.

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

P405 Store locked up.

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

2.3. Other hazards

Emergency overview

Etidot-67 is a white odorless, powder 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 Etidot-67 is poorly absorbed through intact skin.

Inhalation

Occasional mild irritation effects to nose and throat may occur from inhalation of Etidot-67 dusts at levels higher than 10 mg/m³.

Eye contact

Etidot-67 is non-irritating to eyes in normal industrial use.

Skin contact

Etidot-67 does not cause irritation to intact skin.

Ingestion

Products containing Etidot-67 are not intended for ingestion. Etidot-67 has low acute toxicity. Small amounts (e.g. a teaspoon) swallowed accidentally are not likely to cause effects; swallowing amounts larger than that may cause gastrointestinal symptoms.

Cancer

Etidot-67 is not a known carcinogen.

Reproductive/developmental

Animal ingestion studies in several species, at high doses, indicate that borates cause reproductive and developmental effects. A human study of occupational exposure to borate dust showed no adverse effect on reproduction. A recent epidemiological study and a peer reviewing report of the past epidemiological studies conducted in China didn't show any negative effect of boron on human fertility (10, 11).

Target organs

No target organ has been identified in humans. High dose animal ingestion studies indicate the testes are the target organs in male animals.

Potential ecological effects

Large amounts of Etidot-67 can be harmful to plants and other species. Therefore, the product should only be used as part of a balanced plant nutrition program preferably after soil and/or tissue analysis. Accidental releases to the environment should be minimized.

Signs and symptoms of exposure

Symptoms of accidental over-exposure to Etidot-67 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 (see section 11).

3.1. Substance

The product contains greater than 99 percent (%) disodium octaborate tetrahydrate.

Chemical Name	Purity	CAS	ECN	REACH Registration No.	Hazard Statement
Disodium octaborate, tetrahydrate	99.9 %	12280-03-4	234-541-0	01-2119490860-33-0001	H361 / H303

For other chemical inventory listings, please refer to section 15.

SECTION 4. First-aid Measures

4.1. Description of first aid measures

General advice

Move out of dangerous area. Seek medical attention. Show this safety data sheet to the doctor in attendance.

Skin contact

Wash with soap and water. Seek medical attention.

Eye contact

As with any chemical exposure to the eye, flush eyes with water for at least 20 minutes. Seek medical attention.

Inhalation

If symptoms such as nose or throat irritation are observed, remove person to fresh air. If not breathing, give artificial respiration. Seek medical attention.

Ingestion

If large amounts are swallowed (i.e. more than one teaspoon), give two glasses of water or milk to drink and seek medical attention. Never give anything by mouth to an unconscious person.

Note to physicians

Observation only is required for adult ingestion of less than 6 grams of Etidot-67. For ingestion in excess of 6 grams, maintain adequate kidney function and force fluids. Gastric lavage is recommended for symptomatic patients only. Hemodialysis should be reserved for massive acute ingestion or patients with renal failure. Boron analyses of urine or blood are only useful for documenting exposure and should not be used to evaluate severity of poisoning or to guide treatment (1) (see section 11).

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

Described in labelling.

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

No data available.

SECTION 5. Fire-fighting Measures Identification

5.1. Suitable extinguishing media

Use fire extinguishing media suitable for surrounding fires.

5.2. Specific hazards arising from the chemical

None, Etidot-67 is non-flammable, combustible or explosive. The product is itself a flame retardant.

5.3. Special protective actions for fire-fighters

Firefighters should wear pressure demand, self-contained breathing apparatus and full turn-out gear.

SECTION 6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing dust. 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

Etidot-67 is a water-soluble white powder that may, at high concentrations cause damage to trees or vegetation by root absorption (see section 12). Do not flush to drains.

6.3. Methods and materials for containment and cleaning up

Land spill

Vacuum, shovel or sweep up Etidot-67 and place in containers for disposal in accordance with applicable local, state, and federal laws and regulations. Avoid contamination of water bodies during clean up and disposal. Avoid breathing dust.

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 minimize 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 minimize dust generation and accumulation. Use with appropriate local exhaust ventilation. The product should be kept away from strong reducing agents. Apply above handling advice when mixing with other substances.

7.2. Conditions for safe storage

Keep containers closed and store indoors in a dry well ventilated location. Provide appropriate ventilation and store bags such as to prevent any accidental damage.

7.3. Specific end use

See section 1.4.

SECTION 8. Exposure Controls/Personal Protection

8.1. Control parameters

Respect regulatory provisions for dust (inhalable and respirable). Disodium octaborate tetrahydrate is treated by OSHA, Cal OSHA and ACGIH.

Respect regulatory provisions for dust (total and respirable).

ACGIH/TLV	10 mg/m ³
Cal OSHA/PEL	10 mg/m ³
OSHA/PEL (total dust)	15 mg/m ³
OSHA/PEL (respirable dust)	5 mg/m ³

DNEL values

Exposure pattern	Type/site of effect	Exposure route	DNEL value
DNELs for workers			
Long-term	Systemic	Inhalation	1.45 mg BA/m ³
Long-term	Systemic	Dermal	4800 mg BA/day
DNELs for the general public			
Acute	Systemic	Oral	0.17 mg BA/kg bw/day
Long-term	Systemic	Dermal (external)	34.3mg BA/kg bw/day
Long-term	Systemic	Dermal (systemic)	0.17 mg BA/kg bw/day
Long-term	Systemic	Inhalation	0.73 mg BA/m ³

Long-term	Systemic	Oral	0.17 mg BA/kg bw/day
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Source: Chemical Safety Report of Boric Acid

PNEC values

PNEC add, freshwater, marine water = 1.35 mg B/L

PNEC add aqua intermittent = 9.1 mg B/L

PNEC add freshwater sediment, marine water sediment = 1.8 mg B/kg sediment dry weight

PNEC add, STP = 1.75 mg B/L

Source: Chemical Safety Report of Boric Acid

8.2. Exposure controls

8.2.1. Appropriate engineering controls

No data available

Use local exhaust ventilation to keep airborne concentrations of Etidot-67 dust below permissible exposure levels.

8.2.2. Individual protection measures, such as personal protective equipment

Respiratory protection

Where airborne concentrations are expected to exceed exposure limits, respirators should be used.

Eyes and hand protection

Goggles and gloves are not required for normal industrial exposures, but may be warranted if environment is excessively dusty.

8.2.3. Environmental exposure controls

No special requirement.

SECTION 9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical state	powder or crystalline solid
Color	white
Odor	odorless
Odor threshold	no data available
Molecular weight	412.5g/mol
pH @ 20°C	8.5 (1% solution) 8.0 (5% solution) 7.6 (10 % solution)
Melting point	815°C (heated in closed space)
Initial boiling point and boiling range	no data available
Flash point	not flammable
Evaporation rate	no data available
Flammability (solid, gas)	not applicable
Upper/lower flammability or explosive limits	not applicable
Vapor pressure	negligible @ 20°C
Vapor density	not applicable not applicable
Relative density	applicable
Solubility in water	9.7% @ 20°C; 27.4% @ 40°C
Partition coefficient :n-octanol/water	no data available
Auto-ignition temperature	not applicable
Decomposition temperature	no data available
Viscosity	not applicable
Explosion hazard	not explosive not applicable
Oxidizing properties	applicable
Bulk density:	Powder 37.46 lbs/ft ³ (0.60 ton/m ³)

SECTION 10. Stability and Reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

Etidot-67 is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3. Possibility of hazardous reactions

Reaction with strong reducing agents such as metal hydrides or alkali metals will generate flammable hydrogen gas which could create an explosive hazard.

10.4. Conditions to avoid:

Exposure to moisture and incompatible materials.

10.5. Incompatible materials

Avoid contact with strong reducing agents such as metal hydrides or alkali metals.

10.6. Hazardous decomposition products

Boranes, hydrogen, boron oxides.

SECTION 11. Toxicological Information

11.1. Information on toxicological effect

Acute toxicity

Low acute oral toxicity; LD₅₀ in rats is 2,550 mg/kg of body weight.

Skin corrosion / irritation

Low acute dermal toxicity; LD₅₀ in rabbits is greater than 2,000 mg/kg of body weight. Etidot-67 is poorly absorbed through intact skin. Non-irritant.

Serious eye damage/ irritation

Non-irritant.

Respiratory or skin sensitization:

Etidot-67 is not a skin sensitizer.

Germ cell mutagenicity / carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated effects on fertility and testes (2). Studies in rat, mouse and rabbit, at high doses, demonstrate developmental effects on the fetus including fetal weight loss and minor skeletal variations. The doses administered were many times in excess of those which humans would normally be exposed to (3, 4, 5). Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to boric acid dust and sodium borate dust. A recent epidemiology study under the conditions of normal occupational exposure to borate dusts indicated no effect on fertility.

STOT-single exposure

N.A.

STOT-repeated exposure

N.A.

Aspiration hazard

No data available

SECTION 12. Ecological Information

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 un-dissociated boric acid. To convert disodium octaborate tetrahydrate into equivalent boron (B) content, multiply by 0.2096.

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 minimize the amount of borate product released to the environment.

Algal toxicity (6)

Green algae, *Pseudokirchneriella subcapitata* (Hansveit and Oldersma, 2000)
72-hr EC50 –biomass = 40 mg B/L, or 229 mg boric acid/L.

Invertebrate toxicity (7)

Daphnia, Daphnids, *Daphnia magna* (Gersich, 1984a)
48-hr LC50 = 133 mg B/L or 760 mg boric acid/L or 619 mg disodium tetraborate , anhydrous/L

Fish toxicity (8)

Fish, Fathead minnow, *Pimephales promelas* (Soucek et al., 2010)
96-hr LC50 = 79.7 mg B/L or 456 mg boric acid/L or 370 mg disodium tetraborate, anhydrous

12.2. Persistence and degradability

Boron is naturally occurring and ubiquitous in the environment. Etidot 67 decomposes in the environment to natural borate.

12.3. Bio-accumulative potential

Not significantly bio-accumulative.

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

No data available

12.6. Other adverse effects

No data available

SECTION 13. Disposal Considerations**13.1. Disposal methods**

Dispose of in accordance with all local, state, and federal regulations. Contact a licensed waste disposal service to dispose of this material. Surplus product should, if possible, be used for an appropriate application.

SECTION 14. Transport Information

Disodium octaborate tetrahydrate has no UN Number, and is not regulated under international rail, road, water or air transport regulations.

US DOT

Not dangerous goods

IMDG

Not dangerous goods

SECTION 15. Regulatory Information

15.1. Safety, health and environmental regulations

OSHA/Cal OSHA: This MSDS document meets the requirements of both OSHA (29 CFR 1910.1200) and Cal OSHA (title 8CCR 5194 (g)) hazards communication standards.

WHMIS Classification: Disodium octaborate tetrahydrate is classified as Class D-Division 2A under Canadian WHMIS guidelines

Chemical Inventory Listing: Disodium octaborate tetrahydrate 12280-03-4, appears on several chemical inventory lists including the EPA TSCA inventory, Canadian DSL, European EINECS, Japanese MITI, Australian and Korean lists, under the CAS No. representing anhydrous form of this inorganic borate.

U.S. EPA TSCA Inventory	12280-41-2
Canadian DSL	12280-41-2
ECN	234-541-0
South Korea	9312-3213

RCRA: Disodium octaborate tetrahydrate is not listed as a hazardous waste under any sections of the Resource Conservation and Recovery Act (RCRA) or regulations (40 CFR 261 et seq).

Superfund: CERCLA/SARA: Disodium octaborate tetrahydrate is not listed under CERCLA or its 1986 amendments, including substances listed under Section 313 of SARA, Toxic Chemicals, 42 USC 11023.40 CFR 372.65, Section 313 of SARA, Toxic Chemicals, 42 USC 11023.40 CFR 372.65, Section 302 of SARA Extremely Hazardous Substances List, 42 USC 11002, 40 CFR 355, or the CERCLA Hazardous Substances List, 42 USC 9604, 40 CFR 302.

Safe Drinking Water Act (SDWA): Disodium octaborate tetrahydrate is not regulated under the SDWA, 42 USC 300(g)-1, 40 CFR 141 et seq. Consult state and local regulations for possible water quality advisories regarding boron compounds.

Clean Water Act (CWA) (Federal Water Pollution Control Act): 33 USC 1251 et seq.

a) Disodium octaborate tetrahydrate is not itself a discharge covered by any water quality criteria of Section 304 of the CWA, 33 USC 1314.

b) It is not on the Section 307 List of Priority Pollutants, 33 USC 1317, 40 CFR 129.

c) It is not on the Section 311 List of Hazardous Substances, 33 USC 1321, 40 CFR 116.

Canadian Drinking Water Guidelines: An "Interim Maximum Acceptable Concentration" (IMAC) for boron is currently set at 5 mg/B/L.

California Proposition 65: Disodium octaborate tetrahydrate is not listed on the Proposition 65 list of carcinogens or reproductive toxicants.

Federal Food, Drug and Cosmetic Act: Pursuant to 21 CFR 175.105, 176.180 and 181.30, : Disodium octaborate tetrahydrate is approved by the FDA for use in adhesive compounds of packaging materials, as a component of paper coatings on such materials or for use in the manufacture thereof, which materials are expected to come in contact with dry food products.

Clean Air Act (Montreal Protocol): It was not manufactured with and does not contain any Class I or Class II ozone depleting substances.

Ensure all national/local regulations are observed.

SECTION 16. Other Information

Full text of H-Statements referred to under sections 2 and 3.

H361 Suspected of damaging fertility or the unborn child

H303 May be harmful if swallowed.

References

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4. Fail *et al.*, Fund. Appl. Toxicol. (1991) 17, 225-239
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10. Scialli AR, Bonde JP, Brüske-Hohlfeld I, Culver D, Li Y, Sullivan FM; ELSEVIER 2009
11. Robbins WA, Xun L, Jia J, Kennedy N, Elashoff DA, Ping L. ;ELSEVIER 2009;(Reproductive Toxicology)

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.

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