

Safety Data Sheet – Etibor-68 (Anhydrous Borax)

SECTION 1. Identification

1.1. Product identifier

ETIBOR-68 (Disodium tetraborate, anhydrous)

Index No 005-011-00-4

CAS 1330-43-4

ECN 215-540-4

REACH Registration number: 01-2119490790-32-0002

Trade names: Etibor-68 (Anhydrous borax)

Chemical name/synonyms:

Anhydrous borax, dehydrated borax, borax, disodium tetraborate anhydrous

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:

| | | | |
|---------------|-------------|------------------|-------------|
| Metallurgical | Fluxes | Flame retardants | Fertilizers |
| Glass | Fiber glass | Ceramics | |

SECTION 2. Hazard Identification

2.1. Classification of the substance

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

Reproductive toxicity (Category 2), H361 Suspected of damaging fertility or the unborn child

Eye irritant (Category 2), H319 Causes serious eye irritation.

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
H319 Causes serious eye irritation.
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.
P264 Wash thoroughly after handling
P280 Wear protective gloves/protective clothing/eye protection/face protection
P281 Use personal protective equipment as required.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
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.

2.1.3. Additional information

For Full text of R-S phrases as well as Hazard Class/Statements and Precautionary Statements see section 16.

2.2. Other hazards

Emergency overview

Borax is a white odorless, powdered 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 borax is poorly absorbed through intact skin.

Inhalation

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

Eye contact

Borax is a serious eye irritant.

Skin contact

Borax does not cause irritation to intact skin.

Ingestion

Products containing borax are not intended for ingestion. Borax has 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.

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).

Potential ecological effects

Large amounts of borax can be harmful to plants and other species. Therefore releases to the environment should be minimized.

Signs and symptoms of exposure

Symptoms of accidental over-exposure to borax 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).

SECTION 3. Composition/ Information on Ingredients

3.1. Substances:

The product contains greater than 99.9 percent (%) anhydrous borax $\text{Na}_2\text{B}_4\text{O}_7$

| Chemical Name | Purity | CAS | ECN | REACH Registration No. | Hazard Statements |
|-----------------|--------|-----------|-----------|------------------------|--------------------|
| Anhydrous borax | 99.9% | 1330-43-4 | 215-540-4 | 01-2119490790-32-0002 | H361 / H319 / 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 7 grams of borax. For ingestion in excess of 7 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 – Borax 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. 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

Borax is a water-soluble white powder that may, at high concentrations cause damage to trees or vegetation by root absorption (see section 12).

6.3. Methods and materials for containment and cleaning up

Land spill

Vacuum, shovel or sweep up borax 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 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. Your supplier can advise you on safe handling, please contact the supplier. 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.

SECTION 8. Exposure Controls/Personal Protection

8.1. Control parameters

Occupational exposure limits for dust (total and respirable) are treated by OSHA, Cal OSHA and ACGIH as "Particulate Not Otherwise Classified" or "Nuisance Dust"

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 | | | |
| Acute | Local | Inhalation | 11.7 mg/m ³ |
| Long-term | Systemic | Inhalation | 6.7 mg/m ³ |
| Long-term | Systemic | Dermal | 22326 mg/day |
| DNELs for the general public | | | |
| Acute | Systemic | Oral | 0.79 mg/kg bw/day |
| Acute | Local | Inhalation | 11.7 mg/m ³ |
| Long-term | Systemic | Dermal (external) | 159.5 mg/kg bw/day |
| Long-term | Systemic | Dermal (systemic) | 0.79 mg/kg bw/day |
| Long-term | Systemic | Inhalation | 3.40 mg/m ³ |
| Long-term | Systemic | Oral | 0.79 mg/kg bw/day |
| Long-term | Local | Inhalation | 11.7 mg/m ³ |

Source: Chemical Safety Report of disodium tetraborate, anhydrous

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 soil = 5.4 mg B/kg soil 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

Maintain air concentrations below occupational exposure standards.

Use local exhaust ventilation to keep airborne concentrations of borax dust below permissible exposure levels. Wash hands before breaks and at the end of the workday. Remove and wash soiled clothing.

8.2.2. Individual protection measures, such as personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eyes and hand protection

Handle with gloves. Wear eye protection suitable for job tasks.

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 granular solid |
| Color | white |
| Odor | odorless |
| Odor threshold | no data available |
| Molecular weight | 207.22 |
| Specific gravity | 2.37 gr/cm ³ @ 20°C |
| pH @ 20°C | 9.2.(1% solution) |

| | |
|----------------------------------------------|----------------------------------------------------------------|
| Melting point | 741°C |
| Initial boiling point and boiling range | 1575°C |
| Flash point | not applicable |
| Evaporation rate | not applicable |
| Flammability (solid, gas) | not flammable |
| Upper/lower flammability or explosive limits | not applicable |
| Vapor pressure | negligible @ 20°C |
| Vapor density | not applicable |
| Relative density | 2.37 @ 20° C |
| Solubility in water | 2.48% @ 20°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 applicable |
| Oxidizing properties | not applicable. |
| Bulk density: | Granular - 62.43 lbs/ft ³ (1.0 ton/m ³) |

SECTION 10. Stability and Reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

Borax is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. When heated it loses water, eventually forming anhydrous borax (Na₂B₄O₇).

10.3. Possibility of hazardous reactions

Reaction with strong reducing agents such as metal hydrides, acetic anhydride 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, acetic anhydride 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 2,400 to 2,600 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. Anhydrous borax is poorly absorbed through intact skin. Non-irritant.

Serious eye damage/ irritation

Anhydrous borax is a serious eye irritant.

Respiratory or skin sensitization:

Borax 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 with chemically related boric acid 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

Low acute inhalation toxicity; LC₅₀ in rats is greater than 2.0 mg/l (or g/m³).

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 undissociated boric acid.

12.1. Toxicity

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 (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. Borax is a naturally occurring 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

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

Anhydrous borax 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

IATA

Not dangerous goods

SECTION 15. Regulatory Information

15.1. Safety, health and environmental regulations/substance specific legislation

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.

Chemical inventory listing

| | |
|-------------------------|-----------|
| U.S. EPA TSCA Inventory | 1330-43-4 |
| Canadian DSL | 1330-43-4 |
| EINECS | 215-540-4 |
| South Korea | 1-760 |
| Japanese MITI | (1)-69 |

Ensure all national/local regulations are observed.

SARA 302 No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards Chronic Health Hazard

Massachusetts Right To Know Components

Disodium tetraborate CAS-No. 1330-43-4 Revision Date 1993-04-24

Pennsylvania Right To Know Components

Disodium tetraborate CAS-No. 1330-43-4 Revision Date 1993-04-24

New Jersey Right To Know Components

Disodium tetraborate CAS-No. 1330-43-4 Revision Date 1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Clean Air Act (Montreal Protocol)

Anhydrous borax was not manufactured with and does not contain any Class I or Class II ozone depleting substances.

EU Reach Regulation

Disodium tetraborates are listed in the Candidate List of Substances of Very High Concern "SVHC" for eventual inclusion in Annex XIV to REACH Regulation 1907/2006 ("Authorization List") (18.06.2010-ED/30/2010).

Disodium tetraborates are listed in the Annex XVII of REACH Regulation 1907/2006 (EU No.109/2012) and its use in consumer products above specific concentration limits is restricted. Note that this restriction is only specific to consumer products and do not cover its industrial and/or professional applications. Disodium Tetraborates can be used in consumer products below specific concentration limits (which is C \geq 4.5% for anhydrous borax).

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

H319 Causes serious eye irritation.

H303 May be harmful if swallowed.

References

1. Litovitz T L, Norman S A, Veltri J C, Annual Report of the American Association of Poison Control Centers Data Collection System. Am. J. Emerg. Med. (1986), 4, 427-458
2. Weir R J, Fisher R S, Toxicol. Appl. Pharmacol., (1972), 23, 351-364
3. National Toxicology Program (NTP) – Technical Report Series No. TR324, NIH Publication No. 88-2580 (1987), PB88 213475/XAB
4. Fail *et al.*, Fund. Appl. Toxicol. (1991) 17, 225-239
5. Heindel *et al.*, Fund. Appl. Toxicol. (1992) 18, 266-277
6. Hansveit and Oldersma, 2000; TNO Nutrition and Food Research Institute. Report No. V99.157.
7. Gersich, FM (1984a). Environ.Toxicol.Chem., 3 #1, 89-94 (1984)
8. Soucek *et al.*, 2010. Illinois Natural History Survey, University of Illinois.
9. Birge W J, Black J A, EPA-560/-76-008 (April 1977) PB 267 085
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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Date of issue 8-2007

Date of Last Revision 6-2014