



# American Borate Company

## Safety Data Sheet – Etibor-48 (Borax Pentahydrate)

### SECTION 1. Identification

#### 1.1. Product identifier

ETIBOR-48 (Disodium tetraborate, pentahydrate)

**Index No. 005-011-02-9**

**CAS No. 12179-04-3**

**EC No. 215-540-4**

**REACH Registration number: 01-2119490790-32-0002**

**Trade names:** Etibor-48 (Borax Pentahydrate)

#### **Chemical name/synonyms:**

Borax pentahydrate, borax 5 mol

#### 1.2. Details of the supplier of the safety data sheet

##### **Manufacturer**

**Name:** American Borate Company

**Address:** 5700 Cleveland Street, Suite 420, Virginia Beach, VA 23462

**Phone No:** (757) 490-2242 or (800)-486-1072

**1.3. Emergency phone number:** After 5pm and weekends - CHEMTREC 1-800-424-9300

#### 1.4. Recommended use of the chemical and restrictions on uses advised against

The product is used in industrial manufacturing, particularly in:

Ceramics

Detergent

Borosilicate glass

Insulation fiberglass

There is no restriction on use of chemical.

### SECTION 2. Hazard Identification

#### 2.1. Classification of the substance

##### 2.1.1. According to Directive 67/548/EEC (DSD):

Repr. Cat. 2; R60-R61

Xi; R36

**Concentrations limits:** C ≥6.5%; R; R60-61

**Risk Phrases:** R60; R61; R36

**Safety Phrases:** S45; S53; S26

##### 2.1.2. According to Regulation EC N°1272/2008 (CLP):

**a. 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 ≥6.5%

**b. Self-classification based on the classification criteria provided in CLP**

Eye irrit. Cat. 2; H319

**Specific concentrations limits:** C ≥ 10,0 % Xi ; H319

**Precautionary Statement Prevention:** P201; P202; P281; P264; P280

**Precautionary Statement Response:** P308 + P313; P305+P351+P338; P337+P313

**Precautionary Statement Storage:** P405

**Precautionary Statement Disposal:** P501

### 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. Label elements

### 2.2.1. According to CLP

**ETIBOR-48 (disodium tetraborate, pentahydrate)**

**EC No: 215-540-4, CAS No: 12179-04-3**

**Hazard pictograms:**



**Signal word:**

Danger

**Hazard Statements:**

H 360FD: May damage fertility or the unborn child.

H319: Causes serious eye irritation.

**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.

**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.

### 2.2.2. According to REACH, Annex XVII

Restricted to professional users

## 2.2. Other hazards

### Emergency overview

Borax pentahydrate 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 pentahydrate is poorly absorbed through intact skin.

### Inhalation

Occasional mild irritation effects to nose and throat may occur from inhalation of borax pentahydrate dusts at levels higher than 10 mg/m<sup>3</sup>.

**Eye contact**

Borax pentahydrate is a serious eye irritant.

**Skin contact**

Borax pentahydrate does not cause irritation to intact skin.

**Ingestion**

Products containing borax pentahydrate are not intended for ingestion. Borax pentahydrate 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 pentahydrate 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 pentahydrate 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 (%) borax pentahydrate  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 5\text{H}_2\text{O}$

Chemical Name	CAS/EC No.	REACH Registration No.	Purity	Risk Phrases (DSD)	Hazard Statement (CLP)
Borax pentahydrate	12179-04-3 / 215-540-4	01-2119490790-32-0002	99.9 %	R60 ; R61; Xi; R36	H 360FD H319

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

## SECTION 4. First-aid Measures

**4.1. Description of first aid measures****Skin contact**

No treatment necessary because non-irritating.

**Eye contact**

Use eye wash fountain or fresh water to cleanse eye. If irritation persists for more than 30 minutes, seek medical attention.

**Inhalation**

If symptoms such as nose or throat irritation are observed, remove to fresh air.

**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.

**Note to physicians**

Observation only is required for adult ingestion of less than 7 grams of borax pentahydrate. For ingestion in excess of 7 grams, maintain adequate kidney function and force fluids. Gastric lavage is recommended for symptomatic patients only. Haemodialysis 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**

N.A. (Not Applicable)

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

N.A.

## SECTION 5. Fire-fighting Measures Identification

**5.1. Suitable Extinguishing media**

Any fire extinguishing media may be used on nearby fires.

**Specific hazards arising from the chemical**

None – Borax pentahydrate is non-flammable, combustible or explosive. The product is itself a flame retardant.

**5.3. Special protective actions for fire-fighters**

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**

Borax pentahydrate 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 pentahydrate 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

No special handling precautions are required, but dry, indoor storage is recommended. No specific requirements. Provide appropriate ventilation and store bags such as to prevent any accidental damage.

## 7.3. Specific end use(s)

The product should be kept away from strong reducing agents. Apply above handling advice when mixing with other substances.

# 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 <sup>3</sup>
Cal OSHA/PEL	10 mg/m <sup>3</sup>
OSHA/PEL (total dust)	15 mg/m <sup>3</sup>
OSHA/PEL (respirable dust)	5 mg/m <sup>3</sup>

### DNEL values

Exposure pattern	Type/site of effect	Exposure route	DNEL value
<b>DNELs for workers</b>			
Acute	Local	Inhalation	17 mg/m <sup>3</sup>
Long-term	Systemic	Inhalation	9.8 mg/m <sup>3</sup>
Long-term	Systemic	Dermal	32432 mg/day
<b>DNELs for the general public</b>			
Acute	Systemic	Oral	1.15 mg/kg bw/day
Acute	Local	Inhalation	17 mg/m <sup>3</sup>
Long-term	Systemic	Dermal (external)	231.8 mg/kg bw/day
Long-term	Systemic	Dermal (systemic)	1.15 mg/kg bw/day
Long-term	Systemic	Inhalation	4.93 mg/m <sup>3</sup>
Long-term	Systemic	Oral	1.15 mg/kg bw/day
Long-term	Local	Inhalation	17 mg/m <sup>3</sup>

Source: Chemical Safety Report of disodium tetraborate, anhydrous

### PNEC values

**PNEC**<sub>add, freshwater, marine water</sub> = 1.35 mg B/L

**PNEC**<sub>add aqua intermittent</sub> = 9.1 mg B/L

**PNEC**<sub>add freshwater sediment, marine water sediment</sub> = 1.8 mg B/kg sediment dry weight

**PNEC soil** = 5.4 mg B/kg soil dry weight

**PNEC**<sub>add, STP</sub> = 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 borax pentahydrate 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 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	crystalline solid
Color	white
Odor	odorless
Odor threshold	N.A.
Molecular weight	291.35
Specific gravity	1.81 gr/cm <sup>3</sup> @ 20°C
pH @ 20°C	9.3 (3 % solution)
Melting point	741°C
Initial boiling point and boiling range	1575°C
Flash point	Non flammable
Evaporation rate	N.A.
Flammability (solid, gas)	N.A.
Upper/lower flammability or explosive limits	N.A.
Vapor pressure	Negligible @ 20°C
Vapor density	N.A.
Relative density	1.81@ 20° C
Solubility in water	3.7% @ 20°C; 27.5% @ 100°C
Partition coefficient :n-octanol/water	N.A.
Auto-Ignition temperature	N.A.
Decomposition temperature	H2O at 120°C
Viscosity	N.A.
Explosion hazard	Non explosive
Oxidizing properties	N.A.
Bulk density:	Granular 62.43 lbs/ft <sup>3</sup> (1.0 ton/m <sup>3</sup> )

## SECTION 10. Stability and Reactivity

### **10.1. Reactivity**

Non-reactive

### **10.2. Chemical stability**

Borax pentahydrate is a stable product, but when heated it losses water, eventually forming anhydrous borax (Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub>).

### **10.3. Possibility of hazardous reactions**

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

### **10.4. Conditions to avoid**

N.A.

### **10.5. Incompatible materials**

Avoid contact with strong reducing agents such as metal hydrides, acetic anhydride 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; LD<sub>50</sub> in rats is 3,200 to 3,500 mg/kg of body weight.

##### Skin corrosion / irritation

Low acute dermal toxicity; LD<sub>50</sub> in rabbits is greater than 2,000 mg/kg of body weight. Borax pentahydrate is poorly absorbed through intact skin. Non-irritant.

##### Serious eye damage/ irritation

Borax pentahydrate is a serious eye irritant.

**Respiratory or skin sensitisation:** N.A.

**Germ cell mutagenicity** N.A.

**Carcinogenicity** N.A.

##### 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; LC<sub>50</sub> in rats is greater than 2.0 mg/l (or g/m<sup>3</sup>).

## 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. Not persistent, not bio-accumulative.

### 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 EC<sub>50</sub> –biomass = 40 mg B/L, or 229 mg boric acid/L.

#### Invertebrate toxicity (7)

Daphnia, Daphnids, *Daphnia magna* (Gersich, 1984a)

48-hr LC<sub>50</sub> = 133 mg B/L or 760 mg boric acid/L or 619 mg disodium tetraborate anhydrous/L

**Fish toxicity (8)**

Fish, Fathered 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 pentahydrate 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**

N.A.

**12.6. Other adverse effects**

No Data Available

## SECTION 13. Disposal Considerations

**13.1. Disposal methods**

Small quantities of borax pentahydrate 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

Borax pentahydrate has no UN Number, and is not regulated under international rail, road, water or air transport regulations.

**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. 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. 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, some chemical borate manufacturers are in process of all legal action.



### Clean Air Act (Montreal Protocol)

Borax pentahydrate 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 talc, 0.5% in oral hygiene products and 3% in other products. In addition, the talc should not be used on children under 3 years of age.

### 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)-67

Ensure all national/local regulations are observed.

### 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 ≥5.5% for Borax Pentahydrate).

### 15.2. Chemical safety assessment

Chemical Safety Assessment of Borax Pentahydrate (disodium tetraborate pentahydrate) has been carried out under REACH Regulation of the EU.

## SECTION 16. Other Information

### 16.1. Mainly changes made to the previous version of this Material Safety Data Sheet (MSDS):

This MSDS complies with ISO 11014; the requirements of REACH Title IV and was updated to be in compliance with Annex II of REACH duly amended by **Commission Regulation (EU) No 453/2010 of 20 May 2010**.

### 16.2. List of abbreviation and acronyms used in this MSDS

<b>MSDS :</b>	Material Safety Data Sheet
<b>Index No:</b>	Atomic number of the element most characteristic of the properties of the substance
<b>CAS No:</b>	Chemical Abstracts Service number
<b>EC No:</b>	EINECS Number: European Inventory of Existing Commercial Substances
<b>REACH:</b>	Registration, Evaluation, Authorization and Restrictions of Chemicals Regulation (EC) N°1907/2006
<b>DSD:</b>	<b>Dangerous</b> Substances Directive 67/548/EEC
<b>Repr. Cat. 1B:</b>	substance presumed human reproductive toxicant
<b>CLP:</b>	Classification labeling Packaging Regulation: Regulation (EC) N°1272/2008
<b>1st ATP:</b>	1st Adaptation to Technical and scientific Progress
<b>LD<sub>50</sub>:</b>	Median Lethal Dose
<b>LC<sub>50</sub>:</b>	Lethal Concentration, 50%
<b>N.A.</b>	Not Applicable
<b>DNEL:</b>	Derived No effect Level
<b>PNEC:</b>	Predicted No Effect Concentration
<b>CSR:</b>	Chemical Safety Report
<b>OSHA:</b>	Occupational Safety & Health Administration
<b>Cal OSHA:</b>	The State of California Division of Occupational Safety and Health (DOSH)
<b>PEL:</b>	Permissible Exposure Limits
<b>ACGIH:</b>	American Conference of Governmental Industrial Hygienists
<b>TLV:</b>	Threshold Limit Value
<b>Japanese MITI:</b>	Japanese Ministry of International Trade and Industry

**EC<sub>50</sub>:** Half maximal effective concentration  
**PBT:** Persistent, Bioaccumulative and Toxic substance  
**vPvB:** Very Persistent and Very Bioaccumulative  
**UN:** United Nations

**U.S. EPA TSCA Inventory:** Inventory of the chemical substances manufactured or processed in the United States according to Toxic Substances Control Act compiled and published under the authority of the Environmental Protection Agency

**Canadian DSL:** Canadian Domestic Substances List

**16.3. List of relevant R phrases, hazard statements, safety phrases and/or precautionary statements used in this SDS**

According to DSD Directive	According to CLP Regulation
<b>Risk Phrases</b>	<b>Hazard Statement</b>
<b>R60</b> : May impair fertility <b>R61</b> : May cause harm to the unborn child <b>R36</b> Irritating to eyes	<b>H360 FD</b> : May damage fertility or the unborn child <b>H319</b> : Causes serious eye irritation

Safety Phrases	Precautionary Statements
<b>S45:</b> In case of accident or if you fell unwell, contact a doctor or poisons information center immediately (show the label where possible). <b>S53:</b> Avoid exposure-obtain special instructions before use. <b>S26:</b> In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.	<p><b>Prevention</b></p> <p><b>P201:</b> Obtain special instructions before use.  <b>P202:</b> Do not handle until all safety precautions have been read and understood.  <b>P281:</b> Use personal protective equipment as required.  <b>P280:</b> Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p><b>Response</b></p> <p><b>P308 + P313:</b> If exposed or concerned: get medical advice/attention.  <b>P305+P351+P338:</b> IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  <b>P337+P313:</b> If eye irritation persists: Get medical advice/attention.</p> <p><b>Storage</b></p> <p><b>P405:</b> Store locked up.</p> <p><b>Disposal</b></p> <p><b>P501:</b> Dispose of contents/container to in accordance with local regulations.</p>

#### **16.4. 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.

#### **16.4. Disclaimer of Liability**

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