



# **ETİBOR-68**

## **SAFETY DATA SHEET**

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**ETİ MADEN İŞLETMELERİ GENEL MÜDÜRLÜĞÜ**

Ayvalı Mah. Halil Sezai Erkut Cad. Afra Sok. No: 1/A 06010 Keçiören/Ankara TÜRKİYE

## SECTION 1. Identification

### 1.1. GHS Product Identifier

ETİBOR-68 (Anhydrous borax)

### 1.2. Other means of identification

Chemical name/synonyms: Anhydrous borax, dehydrated borax, disodium tetraborate anhydrous

### 1.3. Recommended use of the chemical and restrictions on use

The product is used in industrial manufacturing, among others in:

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

There is no restriction on use of chemical.

### 1.4. Supplier's details

Name : ETİ MADEN İŞLETMELERİ GENEL MÜDÜRLÜĞÜ

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**1.5. Emergency phone number:** +90 312 294 23 73 (Monday - Friday, 08:30 am - 17:30 pm)

## SECTION 2. Hazard Identification

### 2.1. Classification of the substance according to GHS

Reproductive toxicant, Category 2

**H361d:** Suspected of damaging the unborn child

Eye irritant 2A

**H319:** Causes serious eye irritation.

Acute Oral 5

**H303:** May be harmful if swallowed.

### 2.2. GHS Label elements, including precautionary statements



**H361d:** Suspected of damaging the unborn child.

**H303:** May be harmful if swallowed.

**H319:** Causes serious eye irritation.

## Warning

**P201:** Obtain special instructions before use.

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

**P264:** Wash eyes thoroughly after handling.

**P280:** Wear protective gloves/ protective clothing/ eye protection/ face protection.

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

**P305+P351+P338:** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**P312:** Call a POISON CENTER/doctor/physician if you feel unwell

**P337+P313:** If eye irritation persists: Get medical advice/attention.

**P405:** Store locked up.

### 2.3. Other hazards which do not result in classification

Etibor-68 is a white, odourless, granular 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 Etibor-68 is poorly absorbed through intact skin.

#### Inhalation

Occasional mild irritation effects to nose and throat may occur from inhalation of Etibor-68 dusts at levels higher than 10 mg/m<sup>3</sup>.

#### Eye contact

Etibor-68 is a serious eye irritant.

#### Skin contact

Etibor-68 does not cause irritation to intact skin.

#### Ingestion

Products containing Etibor-68 are not intended for ingestion. Etibor-68 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.

#### Potential ecological effects

Large amounts of Etibor-68 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 Etibor-68 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.

Refer to section 11 for details on Toxicological data.

## SECTION 3. Composition / Information on Ingredients

### 3.1. Substances

The product contains greater than 99.9 percent (%) Etibor-68 (Na<sub>2</sub>B<sub>4</sub>O<sub>7</sub>)

Chemical Name	CAS No	EC No	Purity, %
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Anhydrous Borax (Anhydrous borax, dehydrated borax, disodium tetraborate anhydrous)	1330-43-4	215-540-4	min. 99.9
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For other "Chemical inventory listing", 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), contact a doctor or toxicity centre immediately.

#### **Note to physicians**

Observation only is required for adult ingestion of less than 5 grams of Etibor-68. For ingestion in excess of 5 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**

N.A.

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

N.A.

## **SECTION 5. Fire-fighting measures**

### **5.1. Suitable extinguishing media**

Any fire extinguishing media may be used on nearby fires.

### **5.2. Specific hazards arising from the chemical**

Etibor-68 is not 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 high level of airborne dust, wear a personal respirator in compliance with national legislation.

## 6.2. Environmental precautions

Etibor-68 is a water-soluble white product that may, at high concentrations cause damage to trees or vegetation by root absorption (see section 12).

## 6.3. Methods and material for containment and cleaning up

### Land spill

Vacuum, shovel or sweep up Etibor-68 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).

## 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 procedures should be followed to minimize dust generation and accumulation. Your supplier can advise you on safe handling, please contact the supplier.

### 7.2. Conditions for safe storage, including any incompatibilities

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. The product should be kept away from strong reducing agents.

## 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"*

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>

### 8.2. Appropriate engineering controls

Maintain air concentrations below occupational exposure standards

Use local exhaust ventilation to keep airborne concentrations of Etibor-68 dust below permissible exposure levels. Wash hands before breaks and at the end of the workday. Remove and wash soiled clothing.

### 8.3. Individual protection measures, such as personal protective equipment (PPE)

#### Respiratory protection

In case of prolonged exposure to dust wear a personal respirator in compliance with national/international legislation (ISO standard)

#### Eyes and hands protection

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

## 9. Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Appearance	: White solid
Odour	: Odourless
Odour threshold	: N.A.
pH @ 20°C	: 9.2 (1% solution)
Melting point/freezing point	: 741°C
Boiling point	: 1575°C
Flash point	: Non flammable
Evaporation rate	: N.A.
Flammability (solid, gas)	: N.A.
Upper/lower flammability or explosive limits:	Non explosive
Vapour pressure	: Negligible @ 20°C
Vapour density	: N.A.
Relative density	: N.A.
Solubility in water	: 2.7% @ 20°C
Partition coefficient: n-octanol/water	: N.A.
Auto-ignition temperature	: N.A.
Decomposition temperature	: N.A.
Viscosity	: N.A.

### 9.2. Other information

Molecular weight	: 201.22
Specific gravity	: 2.367 @ 20°C

## SECTION 10. Stability and reactivity

### 10.1. Reactivity

Etibor-68 is a stable product.

### 10.2. Chemical stability

Etibor-68 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, acetic anhydride or alkali metals will generate hydrogen gas which could create an explosive hazard.

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

Avoid contact with strong reducing agents.

### **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; LD50 in rats > 2,500 mg/kg of body weight [2] (Test material: Disodium tetraborate anhydrous).

##### **Skin corrosion/irritation**

Low acute dermal toxicity; LD50 in rabbits is greater than 2,000 mg/kg of body weight [3]. Disodium tetraborate anhydrous is poorly absorbed through intact skin non-irritant.

##### **Serious eye damage/irritation**

Disodium tetraborate anhydrous is a serious eye irritant.

##### **Respiratory or skin sensitization**

Disodium tetraborate anhydrous has no respiratory or skin sensitization.

##### **Germcell mutagenicity**

Disodium tetraborate anhydrous is not mutagenic.

##### **Carcinogenicity**

Anhydrous borax is not carcinogenic.

##### **Reproductive/Developmental toxicity**

Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated effects on fertility and testes [4]. Studies in rat, mouse and rabbit, at high doses, demonstrate developmental effects on the foetus including foetal weight loss and minor skeletal variations. The doses administered were many times in excess of those which humans would normally be exposed to [5, 6]. While boron has been shown to adversely affect male reproduction in laboratory animals, there is no clear evidence of male reproductive effects attributable to boron in studies of highly exposed workers. An epidemiology study under the conditions of normal occupational exposure to borate dusts indicated no effect on fertility [7]. Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to borate dusts. A study conducted in Turkey with boron exposed mine workers showed that mean blood concentrations of the high exposure group is ~6 times and ~9 times lower than those of the highest no effect level of boron in blood with regard to developmental and reprotoxic effects (respectively) in rats. With those findings, no unfavourable effects of boron exposure on reproductive indicators are observed in humans [8, 9].

### **STOT-single exposure**

N.A.

### **STOT-repeated exposure**

N.A.

### **Aspiration Hazard**

Disodium tetraborate anhydrous has no aspiration hazard.

## **SECTION 12. Ecological information**

### **12.1. Toxicity**

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. To convert disodium tetraborate, anhydrous into equivalent boron (B) content, multiply by 0.2149.

#### **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**

Green algae, *Pseudokirchneriella subcapitata*

72-hr EC<sub>50</sub> –biomass = 40 mg B/L or 186 mg disodium tetraborate, anhydrous/L [10]

#### **Invertebrate toxicity**

Daphnia, Daphnids, *Daphnia magna*

48-hr LC<sub>50</sub> = 133 mg B/L or 619 mg disodium tetraborate , anhydrous/L [11]

#### **Fish toxicity**

Fish, Fathered minnow, *Pimephales promelas*

96-hr LC<sub>50</sub> = 79.7 mg B/L or 370 mg disodium tetraborate, anhydrous/L [12]

### **12.2. Persistence and degradability**

Boron is naturally occurring and ubiquitous in the environment. Disodium tetraborate anhydrous decomposes in the environment to natural borate.

### **12.3. Bioaccumulative potential**

Not bioaccumulative.

### **12.4. Mobility in soil**

The product is soluble in water and is leachable through normal soil.

### **12.5. Other adverse effects**

No data available.



## **SECTION 13. Disposal considerations**

### **13.1. Disposal methods**

Small quantities of Etibor-68 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**

Disodium tetraborate anhydrous 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 of hazard classes** : 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 MARPOL 73/78 and the IBC Code:** N.A.

## **SECTION 15. Regulatory information**

### **15.1. Safety, health and environmental regulations**

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, we are in process of all possible legal actions.

#### **Clean Air Act (Montreal Protocol)**

Disodium tetraborate anhydrous was not manufactured with and does not contain any Class I or Class II ozone depleting substances.

#### **Chemical inventory listing**

U.S. EPA TSCA	: 1330-43-4
Canadian DSL	: 1330-43-4
EINECS	: 215-540-4
South Korea KECI	: KE-12384
South Korea PECs	: 252
Japan ENCS	: MITI 1-69
China IESCS	: 1330-43-4
New Zealand NZIoC	: 1330-43-4
Philippines PICCS	: 1330-43-4

Australia AICS : 1330-43-4

Ensure all national/local regulations are observed.

## SECTION 16. Other information

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

- This SDS complies with ISO 11014; the requirements of UN-GHS

Revision No	Revision date	Revision content
05	January 2016	<ul style="list-style-type: none"> <li>This SDS was updated in accordance with the GHS (Rev.6) (2015)-Guidance on the Compilation of Safety data Sheets.</li> <li>This SDS was updated in line with Eti Maden Corporate Identity".</li> </ul>
06	January 2018	<ul style="list-style-type: none"> <li>This SDS was updated in line with "Standardization and Simplification of Bag Printings".</li> </ul>

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

<b>ACGIH</b>	: American Conference of Governmental Industrial Hygienists
<b>Acute Oral Cat. 5</b>	: Substance which is of relatively low acute oral toxicity.
<b>AICS</b>	: Australian Inventory of Chemical Substances
<b>Cal OSHA</b>	: The State of California Division of Occupational Safety and Health (DOSH)
<b>Canadian DSL</b>	: Canadian Domestic Substances List
<b>CAS No</b>	: Chemical Abstracts Service number
<b>EC No</b>	: EINECS Number: European Inventory of Existing Commercial Substances
<b>EC<sub>50</sub></b>	: Half maximal effective concentration
<b>ENCS</b>	: Japan Inventory of Existing and New Chemical Substances
<b>Eti Maden</b>	: Eti Maden İşletmeleri Genel Müdürlüğü
<b>GHS</b>	: Globally Harmonised System of Classification and Labelling
<b>IECSC</b>	: Inventory of Existing Chemical Substances Produced or Imported in China
<b>Index N°</b>	: Atomic number of the element most characteristic of the properties of the substance
<b>KECI</b>	: South Korea Existing Chemicals List
<b>LC<sub>50</sub></b>	: Lethal Concentration, 50%
<b>LD<sub>50</sub></b>	: Median Lethal Dose
<b>N.A.</b>	: Not Applicable
<b>NZIoC</b>	: New Zealand Inventory
<b>OSHA</b>	: Occupational Safety & Health Administration
<b>PECs</b>	: South Korea Priority Existing Chemicals
<b>PEL</b>	: Permissible Exposure Limits
<b>PICCS</b>	: Philippines Inventory of Chemicals and Chemical Substances
<b>Repr. Cat. 2</b>	: Substance presumed human reproductive toxicant
<b>SDS</b>	: Safety Data Sheet
<b>TLV</b>	: Threshold Limit Value
<b>U.S. EPA TSCA</b>	: United States Environmental Protection Agency Toxic Substances Control Act
<b>UN</b>	: United Nations

### 16.3. List of relevant hazard statements and precautionary statements used in this SDS

<b>Hazard Statement</b>
<b>H361d:</b> Suspected of damaging the unborn child <b>H319:</b> Causes serious eye irritation <b>H303:</b> May be harmful if swallowed
<b>Precautionary Statements</b>
<u><b>Prevention</b></u> <b>P201:</b> Obtain special instructions before use. <b>P202:</b> Do not handle until all safety precautions have been read and understood. <b>P264:</b> Wash eyes thoroughly after handling. <b>P280:</b> Wear protective gloves/ protective clothing/ eye protection/ face protection.
<u><b>Response</b></u> <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.
<u><b>Storage</b></u> <b>P405:</b> Store locked up.
<u><b>Disposal:</b></u> <b>P501:</b> Dispose of contents/container to in accordance with local regulations.

### 16.4. References

- [1] Litovitz, T.L., Norman, S.A., & Veltri, J.C. (1986). Annual Report of the American Association of Poison Control Centers National Data Collection System. The American Journal of Emergency Medicine, 4(5), 427-458.
- [2] Denton, S.M. (1996). Acute oral toxicity study in the rat: anhydrous boric acid. Final report. Testing laboratory: Corning Hazleton (Europe) Otley Road, Harrogate, North Yorkshire, UK. Report no.: 1341/7-1032. Owner Company: Borax Europe Ltd. Report date: 1996-03-06.
- [3] Weiner, A.S., Conine, D.L., & Doyle, R.L. (1982). Acute Dermal Toxicity Screen in Rabbits; Primary Skin Irritation Study in Rabbits of Boric Acid. Testing laboratory: Hill Top Research, Inc. Report no.: 82-0280-21. Owner Company: US Borax Chemical Corporation. Report date: 1982-03-15.
- [4] Fail, P.A., George, J.D., Seely, J.C., Grizzle, T.B., & Heindel, J.J. (1991). Reproductive toxicity of boric acid in Swiss (CD-1) mice: Assessment using the continuous breeding protocol. Fundamental and Applied Toxicology, 17(2), 225-239.
- [5] Heindel, J.J., Price, C.J., Field, E.A., Marr, M.C., Myers, C.B., Morrissey, R.E. & Schwetz, B.A. (1992). Developmental toxicity of boric acid in mice and rats. Fundamental and Applied Toxicology, 18(2), 266-277.
- [6] Price, C.J., Marr, M.C., Myers, C.B., Heindel, J.J., & Schwetz, B.A. (1991). Final Report on the Developmental Toxicity of Boric Acid (CAS No 10043-35-3) in New Zealand White Rabbits. National Toxicology Program, National Institute of Environmental Health Sciences. Testing laboratory: National Toxicology Program, National Institute of Environmental Health Sciences (TER 90-003; NTIS Accession No PB92-129550). Report no.: TER 90-003; NTIS Accession No PB92-129550.
- [7] Scialli, A.R., Bonde, J.P., Brüske-Hohlfeld, I., Culver, D.B., Li, Y., & Sullivan, F.M. (2010). An overview of male reproductive studies of boron with an emphasis on studies of highly exposed Chinese workers. Reproductive Toxicology, 29(1), 10-24.

- [8] Duydu, Y., Başaran, A., & Bolt, H. (2012). Exposure assessment of boron in Bandırma boric acid production plant. *Journal of Trace Elements in Medicine and Biology*, 26(2-3), 161-164.
- [9] Başaran, N., Duydu, Y., & Bolt, H., (2012). Reproductive toxicity in boron exposed workers in Bandırma, Turkey. *Journal of Trace Elements in Medicine and Biology*, 26(2-3), 165-167.
- [10] Hanstveit, A.O. & Oldersma, H. (2000). Determination of the effect of Boric acid, Manufacturing grade on the growth of the fresh water green alga *Selenastrum capricornutum*. Testing laboratory: TNO Nutrition and Food Research Institute. Report no.: V99.157. Owner company: Borax Europe Limited. Study number: IMW-99-9047-05. Report date: 2000-03-06.
- [11] Gersich, F.M. (1984a). Evaluation of a Static Renewal Chronic Toxicity Test Method for *Daphnia magna* straus using Boric Acid. *Environmental Toxicology and Chemistry*, 3(1), 89-94.
- [12] Soucek, D., Dickinson, A., & Major, K. (2010). Acute and chronic toxicity of boron to freshwater organisms. Testing laboratory: Illinois Natural History Survey, University of Illinois, Champaign, Illinois. Owner Company: Illinois Natural History Survey, University of Illinois.

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'.

### **16.5. Disclaimer of Liability**

The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its accuracy, reliability or completeness. The conditions or methods of handling, storage use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use.

This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

Safety Data Sheet Prepared by Arzu DEMİŞ

Certificate Date: 30.09.2015

Certificate Number: 01.58.04

Safety Data Sheet Prepared by Zeynep GÜRTÜRK

Certificate Date: 30.09.2015

Certificate Number: 01.58.07