

SECTION 1: Identification

1.1. GHS Product identifier

| | |
|----------------|---|
| Product form | : Substance |
| Trade name | : BOROKSİT, BORON OXIDE |
| Chemical name | : Boron trioxide, diboron trioxide, anhydrous boric acid, boric oxide |
| IUPAC name | : diboron trioxide |
| Substance type | : Mono-constituent |
| EC-No. | : 215-125-8 |
| EC Index-No. | : 005-008-00-8 |
| CAS-No. | : 1303-86-2 |
| Formula | : B ₂ O ₃ |
| Product group | : Trade product |

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

| | |
|-----------------------------------|--|
| Recommended uses and restrictions | : Not restricted |
| Recommended use | : Ceramic, Detergent, Borosilicate glass, Fiberglass |

1.4. Supplier's details

| Manufacturer | Distributor |
|---|---|
| ETİ MADEN İŞLETMELERİ GENEL MÜDÜRLÜĞÜ Kızılırmak Mahallesi 1443. Cadde No:5 Çukurambar-Çankaya Zipcode: 06530 Ankara – TÜRKİYE Tel: +90 312 294 20 00 – Fax: +90 312 230 71 84 info@etimaden.gov.tr www.etimaden.gov.tr | SILVER FERN CHEMICAL INC. 2226 QUEEN ANNE AVE N SEATTLE, WA 98109 USA Tel: +1 (866) 282-3384; Fax: +1 (206) 282-0105 info@silverfernchemical.com |

1.5. Emergency phone number

INFOTRAC: USA & Canada 1-800-535-5053 -- Outside USA & Canada 1-352-323-3500

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification according to the United Nations GHS

Acute toxicity (oral), Category 5 H303
Reproductive toxicity, Category 2 H361d Expert judgment
Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects : Suspected of damaging the unborn child.

2.2. GHS Label elements, including precautionary statements

Labelling according to the United Nations GHS

Hazard pictograms (GHS UN) :



| | |
|-----------------------------------|--|
| Signal word (GHS UN) | : Warning |
| Hazard statements (GHS UN) | : H303 - May be harmful if swallowed H361d - Suspected of damaging the unborn child |
| Precautionary statements (GHS UN) | : P201 - Obtain special instructions 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/hearing protection/... P312 - Call a POISON CENTER/doctor/... if you feel unwell. P308+P313 - IF exposed or concerned: Get medical advice/attention. P405 - Store locked up. |

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, state, and federal regulations.

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according to the United Nations GHS (Rev. 7, 2017)

classification

with local, regional, national and/or international regulation.

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent
IUPAC name : diboron trioxide
Chemical name : Boron trioxide, diboron trioxide, anhydrous boric acid, boric oxide
Substance identification codes: See section 1.1

| Name | Product identifier | % | Classification according to the United Nations GHS |
|--|---------------------|------|--|
| Diboron trioxide (Main constituent) | (CAS-No.) 1303-86-2 | > 98 | Acute Tox. 5 (Oral), H303 Repr. 2, H361 |

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : Rinse eyes with water as a precaution.
First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms/effects, acute and delayed

No additional information available

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.

5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Special protective actions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and materials for containment and cleaning up

Methods for cleaning up : Mechanically recover the product. Notify authorities if product enters sewers or public waters.
Other information : Dispose of materials or solid residues at an authorized site.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store locked up. Store in a well-ventilated place. Keep cool.

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according to the United Nations GHS (Rev. 7, 2017)

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| BOROKSİT (1303-86-2) | |
|--|----------------------------|
| DNEL/DMEL (Workers) | |
| Long-term - systemic effects, dermal | 220.6 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 4.66 mg/m ³ |
| DNEL/DMEL (General population) | |
| Acute - systemic effects, oral | 0.55 mg/kg bodyweight/day |
| Long-term - systemic effects, oral | 0.55 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 2.34 mg/m ³ |
| Long-term - systemic effects, dermal | 110.3 mg/kg bodyweight/day |
| PNEC (Water) | |
| PNEC aqua (freshwater) | 2.9 mg/l |
| PNEC aqua (marine water) | 2.9 mg/l |
| PNEC aqua (intermittent, freshwater) | 13.7 mg/l |
| PNEC (Soil) | |
| PNEC soil | 5.7 mg/kg dwt |
| PNEC (STP) | |
| PNEC sewage treatment plant | 10 mg/l |

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

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

Hand protection : Protective gloves
Eye protection : Safety glasses
Skin and body protection : Wear suitable protective clothing
Respiratory protection : [In case of inadequate ventilation] wear respiratory protection.
Personal protective equipment symbol(s)



8.4. Exposure limit values for the other components

No additional information available

SECTION 9: Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state : Solid
Molecular mass : 69.6 g/mol
Colour : white.
Odour : odourless.
Odour threshold : N.A.
Relative evaporation rate (butylacetate=1) : No data available
Melting point : 450 °C
Freezing point : Not applicable
Boiling point : 1860 °C
Flammability (solid, gas) : N.A.
Non flammable.

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|---|---|
| Explosive limits | : Not applicable |
| Lower explosive limit (LEL) | : Not applicable |
| Upper explosive limit (UEL) | : Not applicable |
| Flash point | : Non flammable |
| Auto-ignition temperature | : N.A |
| Decomposition temperature | : N.A |
| pH | : 4.4 |
| pH solution | : 1 % @20 C |
| Viscosity, kinematic (calculated value) (40 °C) | : No data available |
| Partition coefficient n-octanol/water (Log Pow) | : No data available |
| Partition coefficient n-octanol/water (Log Kow) | : Not available |
| Vapour pressure | : Negligible @20 C |
| Vapour pressure at 50 °C | : Not available |
| Density | : 1838 kg/m ³ Type: 'density' Temp.: 21,5 °C |
| Relative density | : No data available |
| Relative vapour density at 20 °C | : No data available |
| Solubility | : Water: 2.7 % @20 C |
| Viscosity, dynamic | : No data available |
| Particle size | : Not available |
| Particle size distribution | : Not available |
| Particle shape | : Not available |
| Particle aspect ratio | : Not available |
| Particle specific surface area | : Not available |

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

| | |
|-----------------------------|--------------------------------|
| Acute toxicity (oral) | : May be harmful if swallowed. |
| Acute toxicity (dermal) | : Not classified |
| Acute toxicity (inhalation) | : Not classified |

BOROKSİT (1303-86-2)

| | |
|----------------------------|--|
| LD50 oral rat | > 2600 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 401 (Acute Oral Toxicity), Guideline: EU Method B.1 (Acute Toxicity (Oral)) |
| LD50 dermal rabbit | > 2000 mg/kg bodyweight Animal: rabbit, Guideline: other:FIFRA (40 CFR 163) |
| LC50 inhalation rat (mg/l) | > 2.12 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity), Guideline: other:USEPA FIFRA 40 CFR Part 160 |

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|-----------------------------------|--|
| Skin corrosion/irritation | : Not classified pH: 4.4 |
| Serious eye damage/irritation | : Not classified pH: 4.4 |
| Respiratory or skin sensitisation | : Not classified |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Not classified |
| Reproductive toxicity | : Suspected of damaging fertility or the unborn child. |
| STOT-single exposure | : Not classified |
| STOT-repeated exposure | : Not classified |
| Aspiration hazard | : Not classified |

BOROKSİT (1303-86-2)

| | |
|----------------------|-------------------|
| Viscosity, kinematic | No data available |
|----------------------|-------------------|

SECTION 12: Ecological information

12.1. Toxicity

| | |
|---|---|
| Ecology - general | : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment. |
| Hazardous to the aquatic environment, short-term (acute) | : Not classified |
| Hazardous to the aquatic environment, long-term (chronic) | : Not classified |

BOROKSİT (1303-86-2)

| | |
|----------------------|--|
| LC50 - Fish [1] | 74 mg/l Test organisms (species): Limanda limanda |
| LC50 - Fish [2] | 79.7 mg/l Test organisms (species): Pimephales promelas |
| EC50 72h - Algae [1] | 66 mg/l Test organisms (species): Phaeodactylum tricornutum |
| EC50 72h - Algae [2] | 54 mg/l Test organisms (species): Phaeodactylum tricornutum |
| NOEC chronic fish | 6.4 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio) Duration: '34 d' |

12.2. Persistence and degradability

BOROKSİT (1303-86-2)

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| Persistence and degradability | Boron is naturally occurring and ubiquitous in the environment. Boron oxide decomposes in the environment to natural borate. |
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12.3. Bioaccumulative potential

BOROKSİT (1303-86-2)

| | |
|---|----------------------|
| Partition coefficient n-octanol/water (Log Kow) | No data available |
| Bioaccumulative potential | Not bioaccumulative. |

12.4. Mobility in soil

BOROKSİT (1303-86-2)

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|------------------|---|
| Mobility in soil | The product is soluble in water and is leachable through normal soil. |
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12.5. Other adverse effects

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|-----------------------|---------------------------------------|
| Ozone | : Not classified |
| Other adverse effects | : No additional information available |

SECTION 13: Disposal considerations

13.1. Disposal methods

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|-------------------------|---|
| Waste treatment methods | : Dispose of contents/container in accordance with licensed collector's sorting instructions. |
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SECTION 14: Transport information

In accordance with IMDG / IATA / UN RTDG

| UN RTDG | IMDG | IATA |
|---|---|------------------------------------|
| 14.1. UN number | | |
| Not regulated for transport | | |
| 14.2. UN Proper Shipping Name | | |
| Not applicable | Not applicable | Not applicable |
| 14.3. Transport hazard class(es) | | |
| Not applicable | Not applicable | Not applicable |
| Not applicable | Not applicable | Not applicable |
| 14.4. Packing group | | |
| Not applicable | Not applicable | Not applicable |
| 14.5. Environmental hazards | | |
| Dangerous for the environment : No | Dangerous for the environment : No Marine pollutant : No | Dangerous for the environment : No |
| No supplementary information available | | |

14.6. Special precautions for user

- UN RTDG

No data available

- IMDG

No data available

- IATA

No data available

14.7. Transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations specific for the product in question

Regulatory reference

: Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Canadian DSL (Domestic Substances List)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the United States TSCA (Toxic Substances Control Act) inventory.

SECTION 16: Other information

Issue date : March 1, 2007
Revision date : October 10, 2021

| Section | Changed item | Change | Comments |
|---------|--------------|--------|--|
| | | Added | This SDS was updated in accordance with the GHS (Rev.6) (2015)-Guidance on the Compilation of Safety data Sheets. This SDS was updated in line with "Eti Maden Corporate Identity" (January, 2016/ Rev. No: 05) |
| | | Added | This SDS was updated in line with "Standardization and Simplification of Bag Printings" (January,2018/ Rev. No: 06) |
| | | Added | This SDS was updated to include K-REACH Registration number. (February, 2019/ Rev. No: 06.1) |

BOROKSİT

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Abbreviations and acronyms

: CAS-No. - Chemical Abstract Service number
 ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
 ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
 ATE - Acute Toxicity Estimate
 BCF - Bioconcentration factor
 BLV - Biological limit value
 BOD - Biochemical oxygen demand (BOD)
 CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
 COD - Chemical oxygen demand (COD)
 DMEL - Derived Minimal Effect level
 DNEL - Derived-No Effect Level
 EC50 - Median effective concentration
 EC-No. - European Community number
 EN - European Standard
 IARC - International Agency for Research on Cancer
 IATA - International Air Transport Association
 IMDG - International Maritime Dangerous Goods
 IOELV - Indicative Occupational Exposure Limit Value
 LC50 - Median lethal concentration
 LD50 - Median lethal dose
 LOAEL - Lowest Observed Adverse Effect Level
 N.O.S. - Not Otherwise Specified
 NOAEC - No-Observed Adverse Effect Concentration
 NOAEL - No-Observed Adverse Effect Level
 OECD - Organisation for Economic Co-operation and Development
 NOEC - No-Observed Effect Concentration
 OEL - Occupational Exposure Limit
 PBT - Persistent Bioaccumulative Toxic
 PNEC - Predicted No-Effect Concentration
 REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
 RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
 SDS - Safety Data Sheet
 STP - Sewage treatment plant
 ThOD - Theoretical oxygen demand (ThOD)
 TRGS - Technical Rules for Hazardous Substances
 TLM - Median Tolerance Limit
 VOC - Volatile Organic Compounds
 vPvB - Very Persistent and Very Bioaccumulative
 WGK - Water Hazard Class

Training advice

: Normal use of this product shall imply use in accordance with the instructions on the packaging.

Other information

: **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 correctness. 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. 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.

| Full text of H-statements & Precautionary statements (GHS UN): | |
|--|---|
| H303 | May be harmful if swallowed |
| H361d | Suspected of damaging the unborn child |
| P201 | Obtain special instructions 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/hearing protection/.... |
| P312 | Call a POISON CENTER/doctor/... if you feel unwell. |
| P308+P313 | IF exposed or concerned: Get medical advice/attention. |
| P405 | Store locked up. |

BOROKSİT

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according to the United Nations GHS (Rev. 7, 2017)

SDS UN - ETİ Maden

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.