

# SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.1  
Creation Date: July 15, 2019  
Revision Date: April 16, 2024

## SECTION 1: Identification

### 1.1 GHS Product identifier

Product name Trimethyl borate

### 1.2 Other means of identification

Product number C3D-5492

Other names Trimethyl borate; BORON METHOXIDE; TRIMETHOXYBORANE

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

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

### 1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F, Building B, No. 179 BASIGO, Guangpu Rd East, Huangpu Dist, Guangzhou

Telephone +86-20-81960175

### 1.5 Emergency phone number

Emergency phone number +86-20-81960175

Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Flammable liquids, Category 3

Acute toxicity - Category 4, Dermal

### 2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H226 Flammable liquid and vapour

H312 Harmful in contact with skin

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].

P370+P378 In case of fire: Use ... to extinguish.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P317 Get medical help.

P321 Specific treatment (see ... on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

Storage

P403+P235 Store in a well-ventilated place. Keep cool.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

## 2.3 Other hazards which do not result in classification

no data available

# SECTION 3: Composition/information on ingredients

## 3.1 Substances

| Chemical name    | Common names and synonyms | CAS number | EC number | Concentration |
|------------------|---------------------------|------------|-----------|---------------|
| Trimethyl borate | Trimethyl borate          | 121-43-7   | 204-468-9 | 100%          |

# SECTION 4: First-aid measures

## 4.1 Description of necessary first-aid measures

### If inhaled

Fresh air, rest.

### Following skin contact

Rinse skin with plenty of water or shower.

### Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

### Following ingestion

Rinse mouth. Refer for medical attention .

## 4.2 Most important symptoms/effects, acute and delayed

no data available

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

no data available

# SECTION 5: Fire-fighting measures

## 5.1 Suitable extinguishing media

Use dry chemical, carbon dioxide or alcohol-resistant foam.

## 5.2 Specific hazards arising from the chemical

Highly flammable. Gives off irritating or toxic fumes (or gases) in a fire. Vapour/air mixtures are explosive.

## 5.3 Special protective actions for fire-fighters

Use foam, powder, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact with water.

# SECTION 6: Accidental release measures

## 6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: filter respirator for organic vapours of low boiling point adapted to the airborne concentration of the substance. Collect leaking liquid in sealable containers. Do NOT wash away into sewer. Absorb remaining liquid in dry sand or inert absorbent. Then store and dispose of according to local regulations.

## 6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

## 6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

# SECTION 7: Handling and storage

## 7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

## 7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants and strong acids. Dry.

# SECTION 8: Exposure controls/personal protection

## 8.1 Control parameters

### Occupational Exposure limit values

no data available

### Biological limit values

no data available

## 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

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

### Eye/face protection

Wear safety goggles.

### Skin protection

Protective gloves.

### Respiratory protection

Use ventilation.

### Thermal hazards

no data available

## SECTION 9: Physical and chemical properties and safety characteristics

|                                                          |                                                                                                                                                                                                                                             |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical state                                           | Liquid. Clear.                                                                                                                                                                                                                              |
| Colour                                                   | Colorless.                                                                                                                                                                                                                                  |
| Odour                                                    | no data available                                                                                                                                                                                                                           |
| Melting point/freezing point                             | -23 °F.;-31 °C.                                                                                                                                                                                                                             |
| Boiling point or initial boiling point and boiling range | >= 68.2 - <= 68.6 °C. Atm. press.:101.325 kPa. Remarks:68.45°C.                                                                                                                                                                             |
| Flammability                                             | no data available                                                                                                                                                                                                                           |
| Lower and upper explosion limit/flammability limit       | no data available                                                                                                                                                                                                                           |
| Flash point                                              | >= -10 - <= -6 °C. Atm. press.:100 kPa.                                                                                                                                                                                                     |
| Auto-ignition temperature                                | >= 303 - <= 313 °C. Atm. press.:>= 99.1 - <= 100.5 kPa.                                                                                                                                                                                     |
| Decomposition temperature                                | no data available                                                                                                                                                                                                                           |
| pH                                                       | no data available                                                                                                                                                                                                                           |
| Kinematic viscosity                                      | no data available                                                                                                                                                                                                                           |
| Solubility                                               | In water: reacts                                                                                                                                                                                                                            |
| Partition coefficient n-octanol/water                    | log Pow = -1.09. Temperature:22 °C.                                                                                                                                                                                                         |
| Vapour pressure                                          | >= 88 550 - <= 88 650 Pa. Temperature:10 °C. Remarks:8.86 x 10 e3 +/- 50 Pa.;>= 147 942 - <= 148 058 Pa. Temperature:20 °C. Remarks:1.48 x 10 e4 +/- 58 Pa.;>= 234 885 - <= 235 115 Pa. Temperature:30 °C. Remarks:2.35 x 10 e4 +/- 115 Pa. |
| Density and/or relative density                          | 0.915 g/cm³. Temperature:0°C.                                                                                                                                                                                                               |
| Relative vapour density                                  | 3.59 (vs air)                                                                                                                                                                                                                               |
| Particle characteristics                                 | no data available                                                                                                                                                                                                                           |

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

The vapour is heavier than air and may travel along the ground; distant ignition possible.Decomposes on burning. This produces toxic fumes including boron oxides. Reacts with oxidants. This generates fire and explosion hazard. Reacts with water, moist air and strong acids. This produces highly flammable methanol and boric acid.

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

no data available

## 10.6 Hazardous decomposition products

no data available

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: no data available
- Inhalation: LC50 - rat (male/female) - 128.2 mg/L air.
- Dermal: no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

no data available

### Reproductive toxicity

no data available

### STOT-single exposure

The substance is irritating to the eyes. The substance may cause effects on the central nervous system and kidneys. This may result in headache, dizziness and impaired functions.

### STOT-repeated exposure

The substance may have effects on the central nervous system and kidneys. Further see ICSC 0057 and ICSC 0991.

### Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

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## SECTION 12: Ecological information

### 12.1 Toxicity

- Toxicity to fish: LC50 - *Lepomis macrochirus* - 15 400 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - > 10 000 mg/L - 48 h.
- Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - ca. 22 000 mg/L - 96 h.
- Toxicity to microorganisms: NOEC - Fixed bed reactor with nitrifying organisms. - 500 mg/L.

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

no data available

### 12.4 Mobility in soil

no data available

### 12.5 Other adverse effects

no data available

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## SECTION 13: Disposal considerations

### 13.1 Disposal methods

#### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured

to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

## SECTION 14: Transport information

### 14.1 UN Number

ADR/RID: UN2416 (For reference only, please check.) IMDG: UN2416 (For reference only, please check.) IATA: UN2416 (For reference only, please check.)

### 14.2 UN Proper Shipping Name

ADR/RID: TRIMETHYL BORATE (For reference only, please check.) IMDG: TRIMETHYL BORATE (For reference only, please check.) IATA: TRIMETHYL BORATE (For reference only, please check.)

### 14.3 Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.) IMDG: 3 (For reference only, please check.) IATA: 3 (For reference only, please check.)

### 14.4 Packing group, if applicable

ADR/RID: II (For reference only, please check.) IMDG: II (For reference only, please check.) IATA: II (For reference only, please check.)

### 14.5 Environmental hazards

ADR/RID: No IMDG: No IATA: No

### 14.6 Special precautions for user

no data available

### 14.7 Transport in bulk according to IMO instruments

no data available

## SECTION 15: Regulatory information

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

| Chemical name                                                            | Common names and synonyms | CAS number | EC number |
|--------------------------------------------------------------------------|---------------------------|------------|-----------|
| Trimethyl borate                                                         | Trimethyl borate          | 121-43-7   | 204-468-9 |
| European Inventory of Existing Commercial Chemical Substances (EINECS)   |                           |            | Listed.   |
| EC Inventory                                                             |                           |            | Listed.   |
| United States Toxic Substances Control Act (TSCA) Inventory              |                           |            | Listed.   |
| China Catalog of Hazardous chemicals 2015                                |                           |            | Listed.   |
| New Zealand Inventory of Chemicals (NZIoC)                               |                           |            | Listed.   |
| Philippines Inventory of Chemicals and Chemical Substances (PICCS)       |                           |            | Listed.   |
| Vietnam National Chemical Inventory                                      |                           |            | Listed.   |
| Chinese Chemical Inventory of Existing Chemical Substances (China IECSC) |                           |            | Listed.   |
| Korea Existing Chemicals List (KECL)                                     |                           |            | Listed.   |

## SECTION 16: Other information

#### Information on revision

Creation Date July 15, 2019  
Revision Date April 16, 2024

#### Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

#### References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:



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- [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
  - ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
  - ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
  - Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
  - ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

#### **Other Information**

See ICSCs 0057 and 0991.

**Any questions regarding this SDS, Please send your inquiry to [info@cato-chem.com](mailto:info@cato-chem.com)**

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