

SAFETY DATA SHEET

Creation Date 20-Aug-2009

Revision Date 19-Dec-2025

Revision Number 6

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

1. Identification

Product Name Tributyl borate

Cat No. : AC428660000; AC428661000; AC428668000

CAS No 688-74-4
Synonyms Tributoxyborane

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

| | |
|--|------------|
| Flammable liquids | Category 4 |
| Skin Corrosion/Irritation | Category 2 |
| Serious Eye Damage/Eye Irritation | Category 2 |
| Specific target organ toxicity (single exposure) | Category 3 |
| Target Organs - Respiratory system. | |

Label Elements

Signal Word
Warning

Hazard Statements

Combustible liquid
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation

**Precautionary Statements****Prevention**

Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
Keep cool

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell

Skin

IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention

Fire

In case of fire: Use CO₂, dry chemical, or foam to extinguish

Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

Hazards classified under paragraph (d)(1)(ii) of 1910.1200

No information available

3. Composition/information on Ingredients

| Component | CAS No | Weight % |
|-----------------|----------|----------|
| Tributyl borate | 688-74-4 | >95 |

4. First-aid measures

General Advice

If symptoms persist, call a physician. Show this safety data sheet to the doctor in attendance.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

| | |
|--|--|
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. Get medical attention. |
| Inhalation | Remove to fresh air. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration. |
| Ingestion | Do NOT induce vomiting. Get medical attention. |
| Most important symptoms and effects | Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting |
| Notes to Physician | Treat symptomatically |

5. Fire-fighting measures

| | |
|---|---|
| Suitable Extinguishing Media | Water spray, carbon dioxide (CO ₂), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers. |
| Unsuitable Extinguishing Media | No information available |
| Flash Point | 93 °C / 199.4 °F |
| Method - | No information available |
| Autoignition Temperature | No information available |
| Explosion Limits | |
| Upper | No data available |
| Lower | No data available |
| Sensitivity to Mechanical Impact | No information available |
| Sensitivity to Static Discharge | No information available |

Specific Hazards Arising from the Chemical

Combustible material. Containers may explode when heated. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO₂). Oxides of boron.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health
2

Flammability
2

Instability
1

Physical hazards
N/A

6. Accidental release measures

| | |
|---|---|
| Personal Precautions | Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. |
| Environmental Precautions | Should not be released into the environment. See Section 12 for additional Ecological Information. |
| Methods for Containment and Clean Up | Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. |

7. Handling and Storage

| | |
|-----------------|--|
| Handling | Wear personal protective equipment/face protection. Keep away from open flames, hot surfaces and sources of ignition. Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. |
| Storage. | Keep containers tightly closed in a dry, cool and well-ventilated place. Store under an inert |

atmosphere. Keep away from heat, sparks and flame. Incompatible Materials. Strong oxidizing agents. Strong acids.

8. Exposure controls / personal protection

| | |
|--------------------------------------|---|
| Exposure Guidelines | This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies. |
| Engineering Measures | Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. |
| Personal Protective Equipment | |
| Eye/face Protection | Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. |
| Skin and body protection | Wear appropriate protective gloves and clothing to prevent skin exposure. |
| Respiratory Protection | No protective equipment is needed under normal use conditions. |
| Hygiene Measures | When using do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing. |

9. Physical and chemical properties

| | | |
|--|--|--|
| Appearance | | |
| Physical State | Liquid | |
| Color | Colorless | |
| Odor | No information available | |
| Odor Threshold | No information available | |
| Property | Values | Remarks • Method |
| Melting Point/Range | -70 °C / -94 °F | |
| Softening Point | No data available | |
| Boiling Point/Range | 230 - 235 °C / 446 - 455 °F | @ 760 mmHg |
| Flash Point | 93 °C / 199.4 °F | Method - No information available |
| Flammability (liquid) | Combustible liquid | On basis of test data |
| Flammability (solid,gas) | Not applicable | Liquid |
| Explosion Limits | No data available | |
| Autoignition Temperature | No data available | |
| Decomposition Temperature | No data available | |
| pH | No information available | |
| Viscosity | No data available | |
| Water Solubility | decomposes | |
| Solubility in other solvents | No information available | |
| Partition Coefficient (n-octanol/water) | | |
| Vapor Pressure | 10.7 Pa @ 25°C | |
| Density / Specific Gravity | 0.853 | |
| Bulk Density | Not applicable | Liquid |
| Vapor Density | 7.95 | (Air = 1.0) |
| Particle characteristics | Not applicable (liquid) | |
| Other Information | | |
| Molecular Formula | C12 H27 B O3 | |
| Molecular Weight | 230.15 | |
| Explosive Properties | explosive air/vapour mixtures possible | |

Evaporation Rate No information available

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Moisture sensitive.

Conditions to Avoid Incompatible products. Excess heat. Exposure to moist air or water. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Strong acids

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO₂), Oxides of boron

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Information on expected route of exposure

Inhalation May cause irritation of respiratory tract. May be harmful if inhaled.

Ingestion May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Eyes Irritating to eyes.

Skin Irritating to skin. May be harmful in contact with skin.

Toxicology data for the components

Toxicologically Synergistic Products No information available

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

Respiratory No data available

Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity;

The table below indicates whether each agency has listed any ingredient as a carcinogen

| Component | CAS No | IARC | NTP | ACGIH | OSHA | Mexico |
|-----------------|----------|------------|------------|------------|------------|------------|
| Tributyl borate | 688-74-4 | Not listed | Not listed | Not listed | Not listed | Not listed |

(g) reproductive toxicity; No data available

| | |
|--|--|
| (h) STOT-single exposure; | Category 3 |
| Results / Target organs | Respiratory system. |
| (i) STOT-repeated exposure; | No data available |
| Target Organs | No information available. |
| (j) aspiration hazard; | No data available |
| Other Adverse Effects | The toxicological properties have not been fully investigated. |
| Symptoms / effects,both acute and delayed | Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. |
| Other Adverse Effects | The toxicological properties have not been fully investigated. |
| Endocrine Disrupting Properties | This product does not contain any known or suspected endocrine disruptors. |

12. Ecological information

Ecotoxicity

Do not empty into drains.

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT COMBUSTIBLE LIQUID, NOT REGULATED FOR TRANSPORT IN THIS QUANTITY
According to 49 CFR §173.150(f)(1), this material should be reclassified as NA1993, Combustible Liquid, NOS if it is shipped in bulk

UN-No NA1993
Proper Shipping Name Combustible liquid, n.o.s.
Packing Group III

TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory Information

United States of America Inventory

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | TSCA - EPA Regulatory Flags |
|-----------------|----------|------|---|-----------------------------|
| Tributyl borate | 688-74-4 | X | ACTIVE | - |

Legend:

TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'- Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)

Not applicable

TSCA 12(b) - Notices of Export

Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component | CAS No | DSL | NDSL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|-----------------|----------|-----|------|-----------|-------|------|------|------|-------|-------------|
| Tributyl borate | 688-74-4 | - | X | 211-706-5 | - | X | X | X | X | 2002-3-2205 |

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

U.S. Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

Not applicable

Clean Air Act

Not applicable

OSHA - Occupational Safety and Health Administration

Not applicable

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|-----------------|---------------|------------|--------------|----------|--------------|
| Tributyl borate | X | - | X | - | - |

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade

Slight risk, Grade 1

Authorisation/Restrictions according to EU REACH

Not applicable

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|-----------------|----------|---|---|---|
| Tributyl borate | 688-74-4 | - | - | - |

Safety, health and environmental regulations/legislation specific for the substance or mixture

| Component | CAS No | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|-----------------|----------|----------------|------------------------------|---------------------------|--|
| Tributyl borate | 688-74-4 | Not applicable | Not applicable | Not applicable | Not applicable |

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Other International Regulations

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|-----------------|----------|---|--|----------------------------|------------------------------------|
| Tributyl borate | 688-74-4 | Not applicable | Not applicable | Not applicable | Not applicable |

16. Other Information

Prepared By

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20-Aug-2009

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19-Dec-2025

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19-Dec-2025

Revision Summary

Updated to the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) which published its Final Rule in the Federal Register revising the Hazard Communication Standard (HCS/HazCom), 29 CFR 1910.1200 (2024) (HCS §1910.1200, 2024), May 20, 2024, effective July 19, 2024.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS