Chemical Safety Data Sheet MSDS / SDS

Boron tribromide SDS

Revision Date:2024-04-25 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: Boron tribromide

CAS: 10294-33-4

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 2, Oral
Skin corrosion, Sub-category 1A

Acute toxicity - Category 2, Inhalation

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H300 Fatal if swallowed
H314 Causes severe skin burns and eye damage
H330 Fatal if inhaled

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P271 Use only outdoors or in a well-ventilated area.
P284 [In case of inadequate ventilation] wear respiratory protection.

Response

P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P363 Wash contaminated clothing before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316 Get emergency medical help immediately.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P320 Specific treatment is urgent (see ... on this label).

Storage

P405 Store locked up.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

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.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Boron tribromide
Common names and synonyms:	Boron tribromide
CAS number:	10294-33-4
EC number:	233-657-9
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again. Refer for medical attention .

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. Do NOT induce vomiting. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Inhalation causes severe irritation of mucous membranes. Ingestion causes burns of mouth and stomach. Contact with eyes or skin causes severe burns. (USCG, 1999)

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

The symptoms of lung edema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.

SECTION 5: Firefighting measures

Suitable extinguishing media

Extinguish fire using agent suitable for surrounding fire. Use dry chemical, or carbon dioxide. DO NOT use water. Violent reaction may result.

Specific hazards arising from the chemical

Special Hazards of Combustion Products: Toxic fumes of the chemical or hydrogen bromide may form in fires. (USCG, 1999)

Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media. NO water. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Ventilation. NEVER direct water jet on liquid. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: chemical protection suit including self-contained breathing

apparatus. Ventilation. NEVER direct water jet on liquid. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

Releases may require isolation or evacuation. Keep water away from release. Stop or control the leak, if this can be done without undue risk. Approach release from upwind. Absorb in noncombustible material for proper disposal.

SECTION 7: Handling and storage

Precautions for safe handling

NO contact with water or steam. NO contact with hot surfaces. 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.

Conditions for safe storage, including any incompatibilities

Separated from incompatible materials. See Chemical Dangers. Cool. Dry. Ventilation along the floor.Separate from alkalies, oxidizing materials, alcohols, ethers, alkali metals, phosphorus, wood. Store in a cool, dry, well-ventilated location.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: (ceiling value): 0.7 ppm as STEL

Biological limit values

no data available

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.

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

Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation. Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Boron tribromide is a colorless, fuming liquid with a pungent odor. Boiling point 194°F. Freezing point -51°F. Very toxic by inhalation. Corrosive to metals and tissue.
Colour:	Colorless, fuming liquid
Odour:	Sharp, irritating odor
Melting point/freezing point:	233°C(lit.)
Boiling point or initial boiling point and boiling range:	~90°C(lit.)
Flammability:	Noncombustible Liquid
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	91°C
Auto-ignition temperature:	no data available

Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	0.731 cP at 75 deg F (liquid)
Solubility:	Decomposes (NIOSH, 2016)
Partition coefficient n-octanol/water:	no data available
Vapour pressure:	40 mm Hg (14 °C)
Density and/or relative density:	2.60g/mLat 20°C(lit.)
Relative vapour density:	8.6 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

May explode on heating. Decomposes on contact with alcohol. This produces toxic and corrosive fumes of hydrogen bromide. Reacts with water. This produces hydrogen bromide gas. This generates explosion hazard.

Chemical stability

Trialkylboranes are stable indefinitely when stored under an inert atmosphere. Trialkylboranes

Possibility of hazardous reactions

Not flammableThe vapour is heavier than air.BORON TRIBROMIDE strongly attacks wood and rubber with generation of flammable hydrogen gas. Reacts exothermically and violently with water. Mixing tungsten trioxide and boron tribromide caused an explosion when the reaction was not cooled in an ice bath.

Conditions to avoid

no data available

Incompatible materials

Reacts with water and various metals.

Hazardous decomposition products

On decomposition, /one mole of/ boron tribromide would be expected to produce three moles of hydrogen bromide.

SECTION 11: Toxicological information

Acute toxicity

Oral: no data available

Inhalation: no data available

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 corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation may cause lung oedema. See Notes.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

Other adverse effects

no data available

SECTION 13: Disposal considerations

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

UN Number

ADR/RID: UN2692 (For reference only, please check.)
IMDG: UN2692 (For reference only, please check.)
IATA: UN2692 (For reference only, please check.)

UN Proper Shipping Name

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

Transport hazard class(es)

ADR/RID: 8 (For reference only, please check.)
IMDG: 8 (For reference only, please check.)
IATA: 8 (For reference only, please check.)

Packing group, if applicable

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

Environmental hazards

ADR/RID: No
IMDG: No
IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

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.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Not Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

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: 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

Reacts violently with fire extinguishing agents such as water or foam. The occupational exposure limit value should not be exceeded during any part of the working exposure. The odour warning when the exposure limit value is exceeded is insufficient. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Immediate administration of an appropriate inhalation therapy by a doctor or a person authorized by him/her, should be considered. Do NOT take working clothes home.