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MATERIAL SAFETY DATA SHEET

Welding Consumables
and Related Products
Conforms to OSHA 1910.1200

IDENTIFICATION

PRODUCT NAME: Boron Tribromide	CHEMICAL FAMILY: Boron Halide
SYNONYMS: None	DOT HAZARD CLASS: Corrosive Material
CAS NUMBER: 10294-33-4	DOT IDENTIFICATION NUMBER: UN 2692
FORMULA: B Br ₃	CHEMTREC: 800-424-9300

HEALTH HAZARD DATA

TIME WEIGHTED AVERAGE EXPOSURE LIMIT:

1.0 Molar PPM; STEL = 3 Molar PPM (ACGIH, 1985-86). The 1984-85 and 1985-86 ACGIH pamphlets suggest a proposed change to a Ceiling Limit of 1 Molar PPM for Boron tribromide.

No OSHA (PEL) established.

SYMPTOMS OF EXPOSURE:

Corrosive and irritating to the upper and lower respiratory tracts, skin and eyes. It hydrolyzes yielding hydrobromic acid. Skin burns and mucosal irritation are like that from exposure to hydrobromic acid. Symptoms include lacrymation, cough, labored breathing and excessive salivary and sputum formation. Excessive irritation of the lungs causes acute pneumonitis and pulmonary edema which could be fatal. Hydrobromic acid burns exhibit severe pain, redness, possible swelling and early necrosis.

TOXICOLOGICAL PROPERTIES:

Boron tribromide is irritating and corrosive to all living tissues. Toxic level exposure to dermal tissue causes hydrochloric acid burns and skin lesions resulting in early necrosis and scarring. Chemical pneumonitis and pulmonary edema result from exposure to the lower respiratory tract and deep lung. Residual pulmonary malfunction might also occur. Burns to the eye result in lesions and possible loss of vision.

REACTIVITY DATA

Stability:

Stable

Incompatibility (Materials to Avoid): Water and water vapor.

Hazardous Decomposition Products:

Hydrolysis yields hydrobromic acid.

Hazardous Polymerization:

Will not occur

Conditions to Avoid: None

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact CHEMTREC for emergency assistance or call your closest Airco location.

Waste Disposal Method:

Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to Airco for proper disposal.

SPECIAL PROTECTION INFORMATION

Respiratory Protection: Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.

Ventilation: Hood with forced ventilation.

Local Exhaust: To prevent accumulation above the ceiling limit.

Special: N/A

Mechanical (Gen.): N/A

Other: N/A

Protective Gloves: Neoprene or butyl rubber, PVC or polyethylene.

Eye Protection: Safety goggles or glasses.

Other Protective Equipment: Safety shoes, safety shower, eyewash "fountain", face shield.

RECOMMENDED FIRST AID TREATMENT:

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO BORON TRIBROMIDE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

Inhalation: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Unconscious persons should be moved to an uncontaminated area and given mouth-to-mouth resuscitation and supplemental oxygen. Keep the victim warm and quiet. Assure that mucus or vomited material does not obstruct the airway by positional drainage. Delayed pulmonary edema may occur. Keep patient under medical observation for at least 24 hours.

Eye Contact: PERSONS WITH POTENTIAL EXPOSURE TO BORON TRIBROMIDE SHOULD NOT WEAR CONTACT LENSES.

Flush contaminated eye(s) with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes.

Skin Contact: Flush affected area with copious quantities of water. Remove affected clothing as rapidly as possible.

Hazardous Mixtures of Other Liquids, Solids, or Gases:

Reacts vigorously with water or moist air yielding boric and hydrobromic acids.

PHYSICAL DATA

Boiling Point: 196°F (91°C)

Liquid Density @ Boiling Point: Specific gravity (H₂O=1) @ 64°F (18°C) = 2.65

Vapor Pressure @ 70°F (21.1°C): less than 1 atmosphere

Specific Gravity @ 70°F, 1 atm (Air=1): (21.1°C) = greater than 1.0

Solubility in Water: Hydrolyzes violently.

Freezing Point: -50.8°F (-46°C)

Appearance and Odor: Colorless liquid (possible amber tinge), the vapors of which produce dense acrid fumes on contact with the moisture in the air.

FIRE/EXPLOSION HAZARDS DATA

Flash Point (Method Used): None

Auto Ignition Temperature: None

LEL: None

UEL: None

Extinguishing Media: Nonflammable

Electrical Classification: Nonhazardous

Special Fire Fighting Procedures: N/A

Unusual Fire and Explosion Hazards: N/A

SPECIAL PRECAUTIONS

Special Labeling Information:

DOT Shipping Name: Boron Tribromide.
DOT Shipping Label: Corrosive
DOT Hazard Class: Corrosive Material
I.D. No.: UN 2692

Special Handling Recommendations:

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.

For additional handling recommendations, consult Compressed Gas Association Pamphlets P-1.

Special Storage Recommendations:

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130°F (54°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time.

For additional recommendations, consult Compressed Gas Association Pamphlets P-1.

Special Packaging Recommendations:

Any materials suitable for use with anhydrous hydrogen bromide may be used with boron tribromide. Systems and equipment must be scrupulously dry.

Other Recommendations or Precautions:

Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).