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Quebec	Quebec	Tel : 418-834-7447	Fax : 418-834-3774

MSDS: Boron Trifluoride

PRODUCT INFORMATION

PRODUCT: Boron Trifluoride

TRADE NAME: Boron Trifluoride

CHEMICAL NAME: Boron Trifluoride or Trifluoro Borane

SYNONYMS: Boron Fluoride

FORMULA: BF_3

CHEMICAL FAMILY: Inorganic Fluoride

SUPPLIER'S NAME: MEGS Inc.

SUPPLIER'S ADDRESS: 2675 De Miniac
Ville St-Laurent, Qc, H4S 1E5

EMERGENCY PHONE NUMBER: (514) 956-7503

MOLECULAR WEIGHT: 67.81

PRODUCT USE: Various

PRODUCT IDENTIFICATION NUMBER: UN 1008

HAZARDOUS INGREDIENTS

CHEMICAL ID	CONCENTRATION	CAS #	LD(50)	LC(50)
	100%			
Boron Trifluoride		7637-07-2	None	Inhl-Rat 750 ppm/5.5 h

PHYSICAL DATA

PHYSICAL STATE: Gas under pressure

APPEARANCE: Colorless gas forming thick acidic white fumes in moist air

ODOR: Pungent and irritating

ODOR THRESHOLD: Unknown

SPECIFIC GRAVITY (H_2O = 1): See Vapor Density (air = 1)

VAPOR PRESSURE:	Not applicable (gas)
VAPOR DENSITY (air = 1):	2.32
EVAPORATION RATE:	Not applicable (gas)
BOILING POINT:	-100.3°C
FREEZING POINT:	-128.7°C
pH:	Not applicable
GAS DENSITY:	2.86 kg/m³ @ 15°C, 101.3 kPa
COEFFICIENT OF WATER/OIL DISTRIBUTION:	Very soluble in cold water. Decomposes in hot water.

FIRE OR EXPLOSION HAZARD

CONDITIONS OF FLAMMABILITY:	Nonflammable gas
MEANS OF EXTINCTION:	Nonflammable gas
FLASHPOINT AND METHOD OF DETERMINATION:	Nonflammable gas
UPPER EXPLOSION LIMIT (% BY VOL):	Nonflammable gas
LOWER EXPLOSION LIMIT (% BY VOL):	Nonflammable gas
AUTO-IGNITION TEMPERATURE:	Nonflammable gas
FLAMMABILITY CLASSIFICATION:	Nonflammable gas
HAZARDOUS COMBUSTION PRODUCTS:	Nonflammable gas
EXPLOSION DATA:	Nonflammable gas
SENSITIVITY TO STATIC DISCHARGE:	None

REACTIVITY DATA

CHEMICAL STABILITY:	Stable
INCOMPATIBLE MATERIALS:	Alkali metals, alkyl nitrates, presence of moisture produces hydrogen formide
CONDITIONS OF REACTIVITY:	Ambient, moist conditions
HAZARDOUS DECOMPOSITION PRODUCTS:	In hot water releases hydrogen fluoride

TOXICOLOGICAL PROPERTIES

ROUTES OF ENTRY:

SKIN CONTACT: Slight exposure results in irritation of the nose and eyes, and "stinging" of the skin. Higher concentrations cause severe burns of the skin. Concentrations as low as 50 molar ppm may be fatal if inhaled for approximately

one hour.

SKIN ABSORPTION: None

EYE: Low concentration causes irritation; higher concentrations cause severe irritation of the eyes and eyelids.

INHALATION: Slight irritation results in cough or other respiratory irritation. Higher concentrations cause inflammation and congestion of the lungs and other mucosal tissues. Concentrations as low as 50 molar ppm may be fatal if inhaled for approximately one hour.

INGESTION: None

ACUTE OVER EXPOSURE EFFECTS: It is corrosive and irritating to the upper and lower respiratory tracts, skin and all other mucosal tissue. This corrosiveness on inhalation can result in chemical pneumonitis and pulmonary edema. Inhaling large quantities can result in cardiovascular collapse. Toxic level exposure to dermal tissue causes inorganic acid like burns which exhibit lesions and early necrosis. Burns of the eye(s) result in lesions and possible loss of vision.

CHRONIC OVER EXPOSURE EFFECTS: None known

EXPOSURE LIMITS: Ceiling Limit = 1 molar ppm (ACGIH 1995-1996)

IRRITANCY OF PRODUCT: Yes to skin, eyes and mucous membranes. See above.

SENSITIZATION TO MATERIAL: None known

CARCINOGENICITY, REPRODUCTIVE EFFECTS: None known

TERATOGENICITY, MUTAGENICITY: None known

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: None known

PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT: Plastic or rubber gloves. Safety goggles or glasses. Safety shoes, safety shower and eyewash "fountain"

SPECIFIC ENGINEERING CONTROLS: Dry boron trifluoride may be used with mild steel, copper, copper-zinc and copper-silicon alloys, nickel or Monel®. The moist gas is best handled in Monel®. Fluoride "passivation" is also recommended. Kel-F® and Teflon® are the preferred gasketing materials.

Mercury manometers should not be used since boron trifluoride is soluble in mercury.

LEAK AND SPILL PROCEDURES: 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 on container or container valve, contact the closest MEGS location.

WASTE DISPOSAL: 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 MEGS for proper disposal. For emergency disposal, contact the closest MEGS location.

HANDLING PROCEDURES AND EQUIPMENT: USE ONLY IN WELL-VENTILATED AREAS.
Valve protection caps must remain in place unless container is secured with valve outlet piped to the point of use. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure piping or systems. 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. Close valve after each use and when empty.

STORAGE REQUIREMENTS: 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 52°C. Cylinders must 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.

TDG CLASSIFICATION: 2.3

WHMIS CLASSIFICATION: A, D1, E

SPECIAL SHIPPING INFORMATION: Always secure cylinders in an upright position before transporting them. NEVER transport cylinders in trunks of vehicles, enclosed vans, truck cabs or in passenger compartments. Transport cylinders secured in open flatbed or in open pick-up type vehicles.

FIRST AID MEASURES

SPECIFIC FIRST AID PROCEDURES: PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO BORON

TRIFLUORIDE. 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, given assisted 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. It has been reported that the inhalation of 100% oxygen for half hour periods for the first 6-8 hours after exposure is beneficial.

EYE CONTACT: PERSONS WITH POTENTIAL EXPOSURE TO BORON TRIFLUORIDE 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 30 minutes.

SKIN CONTACT: Flush affected area with copious quantities of water. Remove affected clothing as rapidly as possible. Dermal burns may be treated with a calcium gluconate gel or slurry in water or glycerine. This compound binds the active fluorides in an insoluble form and limits burn extension and relieves pain.

PREPARATION INFORMATION

PREPARED BY: Safety Department

DATE PREPARED: 09/01/1999

LAST REVISION DATE: 05/21/2002