



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material Name BXL-2
Revision Date 12/21/2011
Version # 3
Product Use Borate crosslinker.
Manufacturer / Supplier FRAC TECH SERVICES LLC
2500 HWY 62 West
Chickasha, OK 73018
US
General information: 1-405-222-2300
Emergency 24 Hour Emergency: INFOTRAC: 1-800-535-5053

2. Hazards Identification

Physical State Liquid.
Appearance Clear, colorless liquid.
Emergency Overview DANGER!
Causes skin and eye burns. Causes digestive tract burns. Mist or vapor irritating to eyes and respiratory tract.
OSHA regulatory status This product is hazardous according to OSHA 29 CFR 1910.1200.
Routes of exposure Inhalation. Eyes. Skin. Ingestion.
Eyes Causes eye burns.
Skin Causes skin burns.
Inhalation Causes respiratory tract irritation.
Ingestion Causes digestive tract burns.
Potential environmental effects The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Sodium metaborate	10555-76-7	0 - 25
Boric acid	10043-35-3	0 - 15
Potassium hydroxide	1310-58-3	3 - 12

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures

Eye Contact Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist.

Skin Contact Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Inhalation Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.

Ingestion Call a physician or poison control center immediately. DO NOT induce vomiting. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head lower than the hips to help prevent aspiration.

Notes to physician Not available.

5. Fire Fighting Measures

Flammable Properties	No unusual fire or explosion hazards noted.
Extinguishing media	
Suitable extinguishing media	Water. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Specific Hazards arising from the Chemical	Carbon oxides.
Firefighting equipment / instructions	Not available.
Specific Methods	Not available.
Hazardous combustion products	Not available.

6. Accidental Release Measures

Personal precautions	Wear appropriate personal protective equipment (See Section 8).
Methods for cleaning up	Absorb spill with vermiculite or other inert material, then place in a container for chemical waste for proper disposal. Large Spills: Flush area with water. Prevent runoff from entering drains, sewers, or streams. Dike for later disposal.

7. Handling and Storage

Handling	Do not get in eyes, on skin, on clothing. Avoid breathing material. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling.
Storage	Keep container tightly closed. Store away from incompatible materials, such as acids (See Section 10).

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Sodium metaborate	Not available.	2 (Inhalable Fraction)	Not available.	6 (Inhalable Fraction)
Boric acid	Not available.	2 (Inhalable Fraction)	Not available.	6 (Inhalable Fraction)
Potassium hydroxide	Not available.	2 (Inhalable Fraction)	Not available.	Not available.

US. OSHA Table Z-1 Limits for Air Contaminates (29 CFR 1910.1000)

Components	PEL	
	ppm	mg/m3
Sodium metaborate	Not available.	Not available.
Boric acid	Not available.	Not available.
Potassium hydroxide	Not available.	Not available.

Canada. Alberta OELs (Occupational Health Safety Code, Schedule 1, Table 2)

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Sodium metaborate	Not available.	Not available.	Not available.	Not available.
Boric acid	Not available.	Not available.	Not available.	Not available.
Potassium hydroxide	Not available.	2 (Ceiling)	Not available.	Not available.

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Sodium metaborate	Not available.	Not available.	Not available.	Not available.
Boric acid	Not available.	2 (Inhalable Fraction)	Not available.	6 (Inhalable Fraction)
Potassium hydroxide	Not available.	2 (Ceiling)	Not available.	Not available.

Canada. Ontario OELs. (Ministry of Labor - Control of Exposure to Biological or Chemical Agents) Components

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Sodium metaborate	Not available.	Not available.	Not available.	Not available.
Boric acid	Not available.	2 (Inhalable Fraction)	Not available.	6 (Inhalable Fraction)
Potassium hydroxide	Not available.	2 (Ceiling)	Not available.	Not available.

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) Components

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Sodium metaborate	Not available.	Not available.	Not available.	Not available.
Boric acid	Not available.	Not available.	Not available.	Not available.
Potassium hydroxide	Not available.	2 (Ceiling)	Not available.	Not available.

Mexico. Occupational Exposure Limit Values

Components	TWA		STEL	
	ppm	mg/m3	ppm	mg/m3
Sodium metaborate	Not available.	Not available.	Not available.	Not available.
Boric acid	Not available.	Not available.	Not available.	Not available.
Potassium hydroxide	Not available.	Not available.	Not available.	Not available.

Engineering controls	Ensure adequate ventilation, especially in confined areas.
Personal protective equipment	
Eye / face protection	Wear safety glasses with side shields (or goggles) and a face shield. Wear a full-face respirator, needed.
Skin protection	Wear chemical-resistant gloves, footwear and protective clothing appropriate for risk of exposure. Contact glove manufacturer for specific information.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister.
General hygiene consideration	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and Chemical Properties

Appearance:	Clear, colorless liquid.
Color	Colorless
Odor	Odorless.
Odor threshold	Not available.
Physical State	Liquid.
Form	Colorless liquid.
pH	12.1 1%v/v
Melting point	Not available.
Freezing point	20 °F (-6.7 °C)
Boiling point	210.2 °F (99 °C)
Flash point	Not available.
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Specific Gravity	1.17 (25 °C)
Solubility (water)	Complete.

Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Bulk Density	9.76 lb/gal
VOC	Not available.
Viscosity	Not available.
Percent volatile	Not available.

10. Chemical Stability Reactivity Information

Chemical Stability	Material is stable under normal conditions.
Conditions to avoid	None known.
Incompatible material	Strong oxidizing agents. Acids.
Hazardous decomposition products	No hazardous decomposition products are known.
Possibility of hazardous reaction	Hazardous polymerization does not occur.

11. Toxicology Information

Toxicological Data

Components

Sodium metaborate

Boric acid

Potassium hydroxide

Test Results

Acute Oral LD50 Rat: 2330 mg/kg

Acute Dermal LD50 Rabbit: > 2000 mg/kg

Acute Oral LD50 Rat: 2660 mg/kg

Acute Oral LD50 Rat: 273 mg/kg

Sensitization

No sensitizing effects known.

Carcinogenicity

Sodium metaborate

Boric acid

Potassium hydroxide

A4 Not classifiable as a human carcinogen.

A4 Not classifiable as a human carcinogen.

Not available.

Epidemiology

Not available.

Mutagenicity

Not available.

Reproductive effects

A human study of occupationally exposed Borate worker population showed no adverse reproductive effects. Animal studies indicate that Boric Acid reduces or inhibits sperm production, causes testicular atrophy, and, when given to pregnant animals during gestation, may cause developmental changes. These feed studies were conducted under chronic exposure conditions leading to doses well in excess of those that could occur through inhalation of dust in the occupational setting.

Teratogenicity

Not available.

Further Information

Causes skin and eye burns. Causes digestive tract burns. Mist or vapor irritating to eyes and respiratory tract.

12. Ecological Information**Ecotoxicological data****Components****Test Results**

Sodium metaborate	LC50 Fish: 74 mg/l 96 hours
Boric acid	LC50 Bonytail (<i>Gila elegans</i>): > 100 mg/l 96 hours
Potassium hydroxide	LC50 Western mosquitofish (<i>Gambusia affinis</i>): 80 mg/l 96 hours

Ecotoxicity The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

Persistence and degradability No data available.

Bioaccumulation / Accumulation No data available.

Mobility in environmental media No data available.

Partition coefficient (n-octanol/water) Not available.

13. Disposal Considerations

Waste codes Not available.

Disposal instructions Dispose of contents/container in accordance with local/ regional/ national/ international regulations. When this product as supplied is to be discarded as waste, it does not meet the definition of a RCRA waste under 40 CFR 261.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information**DOT**

UN number	UN3266
Proper shipping name	Corrosive liquid, basic, inorganic, n.o.s. (Potassium Hydroxide 12%)
Hazard class	8
Packing Group	III
Labels required	8
DOT Reportable Quantity:	1000
Additional information	
Special provisions	IB3, T7, TP1, TP28
Packaging exceptions	154
Packaging non bulk	203
Packaging bulk	241
ERG number	154

IATA

UN number	UN3266
Proper shipping name	Corrosive liquid, basic, inorganic, n.o.s. (Potass
Hazard class	8

Packing group III
Additional information
ERG code 8L

IMDG

UN number UN3266
Proper shipping name Corrosive liquid, basic, inorganic, n.o.s. (Potass
Hazard class 8
Packing group III
EmS No F-A, S-B
IMDG Additional information:

15. Regulatory Information

US federal regulation This product is hazardous according to OSHA 29 CFR 1910.1200.

CERCLA (Superfund) Reportable Quantity: Potassium hydroxide: 1000

Superfund amendments and Reauthorization Act of 1986 (SARA)

Hazard Categories Immediate Hazard: Yes
 Delayed Hazard: No
 Fire Hazard: No
 Pressure Hazard: No
 Reactivity Hazard: No

TSCA Section 12(b) Export Notification(40 CFR 707, Subpt. D): Not regulated.

Section 302 extremely hazardous substance (40 CRF 355, Appendix A): No

Section 311/312 (40 CFR 370): No

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15): Not controlled

Inventory Status

Country	Inventory Name	On Inventory *
Australia	AICS	Yes
Canada	DSL	No
Canada	NDSL	No
China	IECSC	Yes
Europe	EINECS	No
Europe	ELINCS	No
Japan	ENCS	Yes
Korea	ECL	No
New Zealand	NZI	Yes
United States / Puerto Rico	TSCA	No
Phillipines	PICCS	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).

WHMIS Information WHMIS status Controlled
 WHMIS classification E - Corrosive

State Regulation

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - California Hazardous Substances (Director's): Listed substance
Potassium hydroxide (CAS 1310-58-3) Listed.

US - Massachusetts RTK - Substance: Listed substance
Potassium hydroxide (CAS 1310-58-3) Listed.

US - New Jersey RTK - Substances: Listed substance
Boric acid (CAS 10043-35-3) Listed.
Potassium hydroxide (CAS 1310-58-3) Listed.
Sodium metaborate (CAS 10555-76-7) Listed.

US - Pennsylvania RTK - Hazardous Substances: Listed substance
Potassium hydroxide (CAS 1310-58-3) Listed.

16. Other Information**Further Information**

HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings

Health: 3
Flammability: 1
Physical Hazard: 0

A HMIS® rating including an * indicates a chronic hazard.

NFPA ratings

Health: 3
Flammability: 1
Instability: 0

Disclaimer

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Issue Date

12/21/2011