

SHORECHEM, LLC

MATERIAL SAFETY DATA SHEET

Sodium Fluoroborate

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Sodium Fluoroborate

OTHER/GENERIC NAMES: Sodium Tetrafluoroborate
Sodium Borofluoride

PRODUCT CODES: 194-2240, 194-2243

PRODUCT USE: Industrial manufacturing

DISTRIBUTOR: ShoreChem, LLC
12 Route 17 North, Suite 309
Paramus, NJ 07652

TELEPHONE: (201) 845-4666
(Monday-Friday, 8:30 AM – 5:00 PM)

CHEMTREC PHONE: 1800-424-9300
(24 Hours/Day, 7 Days/Week)

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT NAME:</u>	<u>CAS NO.</u>	<u>% WT</u>
Sodium fluoborate	13755-29-8	>95
Tricalcium phosphate (* free-flowing grade only)	7758-87-4	*

Trace impurities and additional material names not listed above may also appear in Section 15 towards the end of the MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

OSHA Hazard Communication Standard: *This product is considered hazardous under the OSHA Hazard Communication Standard.*

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: White or slightly off-white odorless crystals. Harmful or may be fatal if swallowed. Harmful if inhaled. May cause skin and eye irritation. Not flammable.

POTENTIAL HEALTH HAZARDS

SKIN: Contact with powder or solution may cause irritation. If skin is abraded, or if contact is prolonged or repeated, condition will intensify.

EYES: Direct eye contact with powder or mist may produce severe irritation; prolonged contact may cause corneal damage.

INHALATION: Breathing dust, mist or fumes (latter from heated solutions) may irritate nose, throat and lungs.

INGESTION: May cause severe corrosion injury to the gastrointestinal tract. May be fatal. Estimated to be a material of moderate toxicity. Fluoride content will precipitate calcium stored in the body, causing hypocalcemia, possibly severe.

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DELAYED EFFECTS: There is no chronic toxicity data on this material, however, NIOSH links inorganic fluoroborates with inorganic fluorides. Chronic exposure to fluorides is associated with osseous fluorosis – increased radiographic density of bones, mottling of teeth, etc. These conditions will not develop if permissible exposure levels are not exceeded. Kidney damage, asthma and symptoms resembling rheumatism may occur.

Ingredients found on one of the three OSHA designated carcinogen lists are listed below.

<u>INGREDIENT NAME</u>	<u>NTP STATUS</u>	<u>IARC STATUS</u>	<u>OSHA LIST</u>
No ingredients listed in this section			

SECTION 4: FIRST AID MEASURES

SKIN: Promptly wash with plenty of soap and water, then flush with water until all chemical is removed. Get medical attention for any irritation. Promptly remove contaminated clothing and wash before reuse.

EYES: Immediately flush eyes with large quantities of water for 15-20 minutes, holding eyelids open to allow thorough flushing. Get medical attention for potential corneal damage.

INHALATION: Remove to fresh air. If breathing is difficult, give oxygen, provided a qualified operator is available. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

INGESTION: Do not induce vomiting. If conscious, give several glasses of milk or other calcium-containing liquids, or several ounces of milk of magnesia, if available; otherwise, give large quantities of water and get immediate medical attention.

ADVICE TO PHYSICIAN: Keep patient warm (but not hot) and quiet. Focus medical efforts on combating shock and reducing systemic toxicity of the fluoride ion. Fluorides can reduce serum calcium levels resulting in potentially fatal hypocalcemia.

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT:	Not flammable
FLASH POINT METHOD:	Not applicable
AUTOIGNITION TEMPERATURE:	Not applicable
UPPER FLAME LIMIT (volume % in air)	Not applicable
LOWER FLAME LIMIT (volume % in air)	Not applicable
FLAME PROPAGATION RATE (solids)	Not applicable

EXTINGUISHING MEDIA:

Although not flammable, if involved in a fire, use water. Water spray will tend to reduce fumes and irritating gases.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Sodium fluoroborate decomposes at elevated temperatures, releasing toxic boron trifluoride gas and sodium fluoride.

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SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

As toxic gases may be present, firefighters should wear NIOSH-approved self-contained breathing apparatus, full protective clothing and goggles for needed eye protection. Do not splash onto personnel any water which has contacted this material. Cool fire-exposed containers with water spray or remove from fire area if without risk.

SECTION 6: ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (See section 8 for recommended personal protective equipment.)

Sweep or shovel up with a minimum of dusting to maximize recovery and collect in plastic container; cover, label and store for later use or disposal. Flush residue with water to complete clean-up, if permitted by applicable disposal regulations, taking care to keep solution that is formed from contacting eyes, skin and clothing.

Spills and releases may have to be reported to Federal and/or local authorities. See section 15 regarding reporting requirements.

SECTION 7: HANDLING AND STORAGE

NORMAL HANDLING: (See section 8 for recommended personal protective equipment.)

Avoid contact with eyes, skin and clothing. Avoid breathing dust. Observe good personal hygiene and good housekeeping practices. Wash thoroughly after handling. Use with adequate ventilation and do not eat or smoke while handling.

When completely dry, product will not etch glass. However, sodium fluoroborate solutions should not be handled in glass equipment. Do not reuse container.

STORAGE RECOMMENDATIONS:

Store at moderate temperatures in a dry, well-ventilated area away from food products. Material is an acid salt and should be kept away from water, acids and alkalis to prevent metal corrosion and increased irritation to skin and eyes. Keep containers tightly closed and protect from physical damage.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Ventilation should be adequate to meet TWA/TLV requirements. If dusty or misty conditions prevail, or if decomposition products are formed, provide local exhaust ventilation.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION: Wear protective rubber gloves and full protective clothing for routine product use. Exposed work clothing should be changed daily and never taken home. Shower daily after work.

EYE PROTECTION: Under normal working conditions, wear safety glasses in the work place. Where the possibility of contact of eyes with dust, mist or solution exists, wear chemical safety goggles and full facepiece. Do not wear contact lenses.

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RESPIRATORY PROTECTION

For low levels of dust or mist (<10 x TLV), use a NIOSH-approved dust or mist respirator. For intermediate levels of exposure (>10 x but <100 x TLV), use NIOSH-approved, full-face, air cleaning respirators for both lung and eye protection. For high levels, use NIOSH-approved self-contained or supplied-air breathing systems.

ADDITIONAL RECOMMENDATIONS

Provide eyewash stations and quick drench shower facilities near work areas.

EXPOSURE GUIDELINES:

<u>INGREDIENT NAME</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER LIMIT</u>
Sodium fluoborate (as fluoride)	2.5 mg/m ³ (as F) TWA	2.5 mg/m ³ (as F) TWA	F in urine: 3 mg/g creatinine pre shift, 10 mg/g postshift. ³

¹ = Limit established by Industry Standard.

² = Workplace Environmental Exposure Level (AIHA).

³ = Biological Exposure Index (ACGIH).

OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:

None

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	White or slightly off-white crystals
PHYSICAL STATE:	Solid
MOLECULAR WEIGHT:	109.79
CHEMICAL FORMULA:	NaBF ₄
ODOR:	Odorless
SPECIFIC GRAVITY (H₂O = 1):	2.47
SOLUBILITY IN WATER (weight %):	52% @ 26C
pH:	3-3.4 (1% solution @ 25C)
BOILING POINT:	Not applicable – decomposition begins ~ 350C
MELTING POINT:	384C
VAPOR PRESSURE:	Not applicable
VAPOR DENSITY (air= 1.0):	Not applicable
EVAPORATION RATE:	Not applicable
% VOLATILES:	Not applicable
FLASH POINT:	Not flammable

COMPARED TO: Not Applicable

(Flash point method and additional flammability data are found in Section 5.)

SECTION 10: STABILITY AND REACTIVITY

NORMALLY STABLE/(CONDITIONS TO AVOID):

Stable. Avoid high temperatures (material decomposes).

INCOMPATIBILITIES:

Solutions containing sodium fluoborate will be acidic and will react with acid-incompatible materials, e.g., cyanides, sulfides.

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HAZARDOUS DECOMPOSITION PRODUCTS:

Sodium fluoride and boron trifluoride gas.
In dilute solution, some hydrolysis to hydrofluoric acid may occur.

HAZARDOUS POLYMERIZATION:

Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:

Sodium fluoborate:
LD₅₀ (Subcutaneous-rat): 550 mg/kg

Hypocalcemia, possibly severe or fatal, may occur due to the fluoride content, which can precipitate calcium stored in the body.

DELAYED (SUBCHRONIC AND CHRONIC EFFECTS)

Chronic exposure to fluorides may damage the kidney and cause fluorosis.

OTHER DATA:

None.

SECTION 12: ECOLOGICAL INFORMATION

LC₅₀ (rainbow trout):

3444 mg/L / 48 hrs.
3098 mg/L / 96 hrs.

EC₅₀ (Daphnia magna):

2862 mg/L / 24 hrs.
1942 mg/L / 48 hrs.

SECTION 13: DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? No If yes, the RCRA ID number is: Not applicable.

OTHER DISPOSAL CONSIDERATIONS:

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product such as Mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

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SECTION 14: TRANSPORT INFORMATION

US DOT HAZARD CLASS: 8, PG III
US DOT ID NUMBER: UN 3260
PROPER SHIPPING NAME: Corrosive solid, acidic, inorganic, N.O.S.

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

SECTION 15: REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: Listed on the TSCA Inventory of Chemical Substances

OTHER TSCA ISSUES: None

SARA TITLE III/ CERCLA

"Reportable/ Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

<u>INGREDIENT NAME</u>	<u>SARA/CERCLA RQ (LB)</u>	<u>SARA EHS TPQ(LB)</u>
No ingredients listed in this section		-----

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center (800) 424-8803 and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: Immediate, delayed.

SARA 313 TOXIC CHEMICALS:

The following ingredients are SARA 313 "Toxic Chemicals" and may be subject to annual reporting requirements. CAS numbers and weight percents are found in Section 2.

<u>INGREDIENT NAME</u>	<u>COMMENT</u>
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STATE RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

<u>INGREDIENT NAME</u>	<u>WEIGHT%</u>	<u>COMMENT</u>
No ingredients listed in this section.		

ADDITIONAL REGULATORY INFORMATION:

None listed.

WHMIS CLASSIFICATION (CANADA):

Not determined

FOREIGN CHEMICAL CONTROL INVENTORY STATUS

Anhydrous form is listed on Canadian DSL and EU EINECS.

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SECTION 16: OTHER INFORMATION

CURRENT ISSUE DATE: November, 2005
PREVIOUS ISSUE DATE: January, 2005

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:
New Format

OTHER INFORMATION: None

All information, statements, data, advice and/or recommendations, including, without limitation, those relating to storage, loading/unloading, piping and transportation (collectively referred to herein as "information") are believed to be accurate and reliable. However, no representation or warranty, express or implied, is made as to its completeness, accuracy, fitness or a particular purpose or any other matter, including, including, without limitation, that the practice of application of any such information is free of patent infringement or other intellectual property misappropriation. ShoreChem, LLC is not engaged in the business of providing technical, operational, engineering or safety information for a fee, and therefore, any such information provided herein has been furnished as an accommodation and without charge. All information provided herein is intended for use by persons having requisite knowledge, skill and experience in the chemical industry. ShoreChem, LLC shall not be responsible or liable for the use, application or implementation of the information, provided herein, and all such information is to be used at the risk, and in the sole judgment and discretion, of such persons, their employees, advisors, and agents.

Date Created	Created By	Replaces	Area	Product/ Process	Special
11/04/05	JD	7/27/05	MSDS	Sod. Fluoroborate	CCS