

SHORECHEM, LLC

MATERIAL SAFETY DATA SHEET

Lead Fluoroborate Solution

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Lead Fluoborate Solution

OTHER/GENERIC NAMES: Lead fluoborate in water.

PRODUCT CODES: 194-1835

PRODUCT USE: Electroplating, curing agent, catalyst.

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>
Lead fluoborate	13814-96-5	50-52
Boric acid	10043-35-3	0.5-2
Fluoroboric acid	16872-11-0	0.25-0.75
Water	7732-18-5	Balance

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: A colorless liquid with relatively no odor. Harmful if inhaled. May be fatal if swallowed. Causes skin and eye irritation and/or burns. Not flammable.

POTENTIAL HEALTH HAZARDS

SKIN: Liquid contact causes irritation. Prolonged contact will intensify this condition and may cause burns.

EYES: Liquid contact causes irritation, possibly severe, and burns may result. Mists will also irritate.

INHALATION: Mist inhalation can cause headache, cramps, pain in legs and coma. Chronic exposure may damage the central and peripheral nervous system.

INGESTION: Symptoms include: metallic taste, abdominal pain, vomiting, diarrhea, collapse, convulsions and coma. Fatal human dose is estimated to be 0.5 grams of absorbed lead.

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

DELAYED EFFECTS: Extended inhalation of mist may cause some of the chronic symptoms noted from experience with lead fumes and dust. Among these are metallic taste, loss of appetite, indigestion, nausea, vomiting, constipation, abdominal cramps, nervousness, and insomnia.
Excess lead absorption may damage the central and peripheral nervous system and the kidneys. Chronic exposure to fluorides may damage the kidney and cause fluorosis. Excess exposure to lead can impair the formation of blood cells; in addition, the fetus of pregnant women workers may be at increased risk, because lead is able to traverse the placenta barrier and enter the blood stream of the fetus.

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>
Lead fluoborate (lead compounds)	Not listed	2B – Possible	Not listed

SECTION 4: FIRST AID MEASURES

SKIN: Promptly wash with soap and water, then flush with water until all chemical is removed. Treat as an acid burn, if severe, and get medical attention. Remove contaminated clothing and wash before reuse.

EYES: Immediately flush with running water for at least 15 minutes, holding eyelids open. Get medical attention.

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 if symptoms persist.

INGESTION: Do not induce vomiting. If conscious, give several glasses of milk or several ounces of milk of magnesia, if available; otherwise, give large quantities of water and keep patient warm and quiet. Get immediate medical attention.

ADVICE TO PHYSICIAN: Fluorides can reduce serum calcium levels resulting in potentially fatal hypocalcemia.

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT:	Not applicable
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:

Use foam, carbon dioxide or dry chemical. Do not use water stream directly on material itself. Use water spray to absorb or disperse vapors.

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UNUSUAL FIRE AND EXPLOSION HAZARDS:

At or above the boiling point (>212°F, 100°C), the solution gives off toxic mist.

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

Avoid breathing vapors and fumes from burning material. Avoid bodily contact with the material. Wear NIOSH-approved self-contained breathing apparatus. If contact with the material is anticipated, wear full protective clothing. Use water spray to keep fire-exposed containers cool.

SECTION 6: ACCIDENTAL RELEASE MEASURES

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

Contain spill with readily available material (earth, sand, etc.). Using caution, flush with water to dilute spill or neutralize it with alkali such as sodium carbonate. Keep out of sewer. Mop or pump into a suitable container, cover and label for storage and later disposal.

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.)

Do not get in eyes, on skin or on clothing. Avoid breathing mist, if formed. Observe scrupulous personal hygiene and good housekeeping practices. Wash thoroughly after handling. Use with adequate ventilation and do not eat or smoke while handling.

STORAGE RECOMMENDATIONS:

Store in a dry, well-ventilated area, out of the sun, away from heat and food products. Keep containers tightly closed and protect from physical damage. Periodically inspect drums and storage conditions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

If misty conditions prevail, provide local exhaust ventilation or a ventilated closed system (e.g., hood). Natural ventilation is normally adequate in the absence of misty conditions.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION:

Wear protective rubber gloves and protective clothing, if there is repeated or prolonged contact with liquid. Promptly remove any contaminated items of clothing and wash before reuse. Do not take home work clothes or shoes. Shower after work and change any clothing that may have been contaminated.

EYE PROTECTION:

Under normal working conditions, wear chemical safety goggles; add a full-face plastic shield if solution may be splashed or sprayed and there is any possibility of liquid contacting eyes. Do not wear contact lenses.

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RESPIRATORY PROTECTION

If misty conditions prevail and concentration is greater than the TLV but under 0.5 mg (Pb)/m³, wear a NIOSH-approved, high-efficiency particulate respirator. This may be used up to 2.5 mg (Pb)/m³, if a full facepiece is added. For very high concentrations (>50 mg (Pb)/m³), use a self-contained or supplied-air breathing system with full facepiece operated in pressure-demand mode, approved by NIOSH.

ADDITIONAL RECOMMENDATIONS

Provide eyewash stations and quick drench shower facilities near work areas. Neutralization supplies and equipment, if called for by pre-planned spill or leak procedures.

EXPOSURE GUIDELINES:

<u>INGREDIENT NAME</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER LIMIT</u>
Lead fluoborate (as lead)	0.05 mg/m ³ (dusts/fumes as Pb) TWA	0.05 mg/m ³ (as Pb) TWA	OSHA mandates medical removal at 30 micrograms/100mL blood lead.
Lead fluoborate (as fluoride)	2.5 mg/m ³ (as F) TWA F)	2.5 mg/m ³ (as 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:	Colorless liquid
PHYSICAL STATE:	Liquid
MOLECULAR WEIGHT:	380.81 (lead fluoborate)
CHEMICAL FORMULA:	Pb(BF ₄) ₂ + H ₂ O
ODOR:	Odorless.
SPECIFIC GRAVITY (H₂O = 1):	Approx. 1.75
SOLUBILITY IN WATER (weight %):	Complete
pH:	Not determined (acidic)
BOILING POINT:	>212°F (100°C)
MELTING POINT:	<-32°F (0°C)
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.)

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SECTION 10: STABILITY AND REACTIVITY

NORMALLY STABLE/(CONDITIONS TO AVOID):

Stable. Avoid evaporation to dryness with sustained heating.

INCOMPATIBILITIES:

Cyanides, calcium carbide, fluorine, water-reactive materials.

HAZARDOUS DECOMPOSITION PRODUCTS:

Heating solution to or above the boiling point gives off toxic mist. Heating of residue, if evaporated to dryness, may yield toxic gases.

HAZARDOUS POLYMERIZATION:

Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:

Fatal human dose is estimated to be 0.5 grams of absorbed lead. 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)

Excess lead absorption may damage the central and peripheral nervous system and the kidneys. Chronic exposure to fluorides may damage the kidney and cause fluorosis. Excess exposure to lead can impair the formation of blood cells.

OTHER DATA:

None.

SECTION 12: ECOLOGICAL INFORMATION

No data available

SECTION 13: DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? Yes If yes, the RCRA ID number is: D008

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 (6.1)
US DOT ID NUMBER: UN 2922
PROPER SHIPPING NAME: Corrosive liquid, toxic, 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>
Lead fluoborate	10	-----

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>
Lead fluoborate	Lead compounds

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):

D1B, D2B

FOREIGN CHEMICAL CONTROL INVENTORY STATUS

Listed on Canadian DSL and EU EINECS.

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SECTION 16: OTHER INFORMATION

CURRENT ISSUE DATE: November 3, 2005
PREVIOUS ISSUE DATE: JANUARY 1, 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
11/3/05	JD	01/01/05	MSDS	Lead Fluoroborate	SRE