

# Material Safety Data Sheet

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|--|------------------------------------|--|
| <b>Revision Date</b><br>October 16, 2013                       | <b>Prepared by</b><br>Patti Rogers | <b>Technical Information</b><br>1-800-201-8822 or <a href="mailto:support@mgchemicals.com">support@mgchemicals.com</a> |
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## Section 1: Product Identification

**MSDS Code: 421 - liquid**

**Name: Liquid Tin**

**Related Part Numbers: 421-125ML, 421-500ML**

Use: Tin plates copper circuits.

## Section 2: Hazardous Ingredients

| CAS#       | Chemical Name         | Percentage by weight | ACGIH TWA            | Osha Pel             | Osha Stel |
|------------|-----------------------|----------------------|----------------------|----------------------|-----------|
| 16872-11-0 | Fluoroboric Acid      | 9-11%                | 2.5mg/m <sup>3</sup> | 2.5mg/m <sup>3</sup> | N/E       |
| 13814-97-6 | Stannous Fluoroborate | 9-11%                | 2mg/m <sup>3</sup>   | 2mg/m <sup>3</sup>   | N/E       |
| 62-56-6    | Thiourea              | 4-6%                 | 2.5mg/m <sup>3</sup> | N/E                  | N/E       |

## Section 3: Hazards Identification

**NFPA Ratings:** Health 3 Flammability 0 Reactivity 1

**HMIS Ratings:** Health 3 Flammability 0 Physical Hazard 1

**Eyes:** May cause severe eye burns.

**Skin:** May cause severe burns, dermatitis (red, cracked, irritated skin), and ulceration. May cause allergic skin reactions.

**Inhalation:** May cause pulmonary irritation, irritation of the mucus membranes, coughing, and a sore throat. Nausea, headaches, and vomiting may also occur. Inhalation of large doses may damage the tissues of the respiratory system resulting in chemical induced inflammation and pulmonary edema.

**Ingestion:** May cause severe burns to the mouth, throat, and esophagus. Thiourea is shown to be toxic via ingestion and shows the following systemic effects: hemorrhage and other adverse effects on the blood system (i.e. Anemia, bone marrow depression)

**Chronic:** Chronic exposure to thiourea may cause tumors of the liver.

## Section 4: First Aid Measure

**Eyes:** Remove contact lenses. Flush with water or saline for 20 minutes. Get medical aid.

**Skin:** Wash skin with large quantities of soap and water. Get medical aid.

**Inhalation:** Immediately remove from exposure to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Ingestion:** Do not induce vomiting. If conscious give 1-2 glasses of water. Get medical aid immediately.

## Section 5: Fire Fighting Measures

**Autoignition Temperature:** N/A

**Flash Point:** N/A

**LEL / UEL:** N/A

**Extinguishing Media:** Water spray, foam, Halon, Carbon Dioxide, and Dry chemical.

**General Information:** Will not burn.

## Section 6: Accidental Release Measures

**Spill Procedure:** Provide adequate ventilation. Wear appropriate personal protection. Sprinkle absorbent compound onto spill, then sweep into a plastic container. Wipe up further residue with paper towel and place into container. Wash spill area with soap and water.

## Section 7: Handling and Storage

**Handling:** Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Do not ingest or inhale. Do not expose container to heat or flame.

**Storage:** Keep away from sources of ignition. Store in a cool, dry, well-ventilated area, away from incompatible substances.

## Section 8: Exposure Controls

**Routes of entry:** Eyes, ingestion, inhalation, and skin.

**Ventilation:** Use adequate general or local exhaust ventilation to keep airborne concentrations below exposure limits.

**Personal Protection:** Wear appropriate protective eyeglasses or chemical safety goggles. Wear appropriate protective clothing to prevent skin contact. Use a NIOSH approved respirator when necessary.

## Section 9: Physical and Chemical Properties

|                               |                               |                                       |   |
|-------------------------------|-------------------------------|---------------------------------------|---|
| <b>Physical State:</b> Liquid | <b>Odor:</b> Pungent          | <b>Solubility in water:</b> Soluble   | <b>Evaporation Rate:</b> Similar to water     |
| <b>Boiling Point:</b> 100°C   | <b>Specific Gravity:</b> 1.12 | <b>Vapor Pressure:</b> 18mm hg @ 20°C | <b>Vapor Density:</b> Equal to Water<br>Air=1 |
|                               |                               |                                       | <b>pH:</b> <1                                 |

## Section 10: Stability and Reactivity

**Stability:** Stable at normal temperatures and pressures.

**Conditions to avoid:** Extreme heat may cause product to decompose, producing toxic fumes.

**Incompatibilities:** Alkali, alkaline earth metals and other water incompatible substances, strong bases, strong metals, and strong oxidizers.

**Polymerization:** Will not occur.

**Decomposition:** Halogens, halogen acids, possibly carbonyl halides.

## Section 11: Toxicological Information

**Sensitization:** (effects of repeated exposure) Exposure to Thiourea may cause allergic skin reactions.

**Carcinogenicity:** (risk of cancer) Thiourea is a suspected cancer causing agent; IARC group 2B (animal sufficient evidence); TDLo 151000g/kg/52 weeks (rat)

**Teratogenicity:** (risk of malformation in an unborn fetus) Thiourea has been reported to cause teratogenic effects in humans or during experimental studies on animals at relatively high doses; TDLo 4800 mg/kg

**Reproductive Toxicity (risk of sterility):** Thiourea has been reported to cause reproductive effects in humans or during experimental studies on animals

**Mutagenicity:** (risk of heritable genetic effects): No

| <b>Lethal Exposure Concentrations:</b> | <b>Ingestion (LD50):</b> | <b>Inhalation (LC50):</b> | <b>Skin (LD50):</b> | <b>Inhalation (TCLo):</b>                       |
|--|--------------------------|---------------------------|---------------------|---|
| Fluoroboric Acid                       | 100 mg/kg<br>Rat         | N/E                       | N/E                 | N/E   |
| Stannous Fluoroborate                  | N/E                      | N/E                       | N/E                 | N/E   |
| Thiourea                               | 125 mg/kg<br>Rat         | N/E                       | N/E                 | 25 mg/m <sup>3</sup> /17W<br>(intermittent) Rat |

## Section 12: Ecological Information

### General Information:

**Volatile Organic compounds, % by weight:** 8.1%  
**Volatile Organic compounds, grams per litre:** 90.72 g/L

## Section 13: Disposal Information

**General Information:** Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage.

## Section 14: Transportation Information

**Ground:** (all sizes 500ml or smaller)

Consumer Commodity, ORM-D

### Air:

**Shipper must be trained and certified. Refer to CFR 49 (USA), and TDG regulations (Canada).**

Shipping Name: **FLUOROBOROIC ACID**, UN number: **1775**, Class: **8**, Packing Group: **II**.  
For IATA, follow packing instructions Y809.

### Sea:

**Shipper must be trained and certified. Refer to IMDG regulations.**

Shipping Name: **FLUOROBOROIC ACID**, UN number: **1775**, Class: **8**, Packing Group: **II**.

## Section 15: Regulatory Information

**This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations.**

### **CANADA**

#### **DSL**

All ingredients in this product are listed on the Domestic Substances List

#### **Health Canada**

Products produced by MG Chemicals intended for retail display conform to the Canadian Consumer Labeling regulations.

#### **Industry and Science Canada**

MG Labels products intended for the workplace to conform to WHMIS labeling regulations. Product identification, net quantity declaration, minimum printing type size heights, and packaging of this product are in compliance.

#### **WHMIS**

This product belongs to the following categories: **D2A**

#### **CAA** (Clean Air Act, USA)

This product does not contain any class 1-ozone depletors.

This product does not contain any class 2-ozone depletors.

This product does not contain any chemicals listed as hazardous air pollutants.

#### **USA**

**SARA** (Superfund Amendments and Reauthorization Act of 1986, USA, 40 CFR 372.4)

Thiourea CAS# 62-56-6 is listed under section 313 as a toxic material.

**EPCRA** (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45)

This product contains Thiourea (5%) a toxic chemical subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

**TSCA** (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

**California Proposition 65** (Chemicals known to cause cancer or reproductive toxicity, May 1, 1997 revision, USA)

This product contains (Thiourea CAS# 62-56-6) a chemical known to the state of California to cause cancer.

### **EUROPE**

#### **RoHS**

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's, and complies with European RoHS regulations.

#### **WEEE**

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

## Section 16: Other Information

**Definitions:** N/A = not applicable, N/E = not established

**Disclaimer:** This material safety data sheet is provided as an information resource only. M.G. Chemicals believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with federal, state, and local regulations.