

# MATERIAL SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**MATHESON TRI-GAS, INC.**  
**150 Allen Road Suite 302**  
**Basking Ridge, New Jersey 07920**  
**Information: 1-800-416-2505**

**Emergency Contact:**  
**CHEMTREC 1-800-424-9300**  
**Calls Originating Outside the US:**  
**703-527-3887 (Collect Calls Accepted)**

**SUBSTANCE: ANTIMONY PENTAFLUORIDE**

**TRADE NAMES/SYNONYMS:**

ANTIMONY(V) PENTAFLUORIDE; ANTIMONY FLUORIDE; ANTIMONY(V) FLUORIDE;  
ANTIMONY FLUORIDE (SBF5); STCC 4932005; UN 1732; F5SB; MAT01660; RTECS CC5800000

**CHEMICAL FAMILY:** metal, halides

**CREATION DATE:** Jan 24 1989

**REVISION DATE:** Sep 04 2008

## 2. COMPOSITION, INFORMATION ON INGREDIENTS

**COMPONENT:** ANTIMONY PENTAFLUORIDE

**CAS NUMBER:** 7783-70-2

**PERCENTAGE:** 100.0

## 3. HAZARDS IDENTIFICATION

**NFPA RATINGS (SCALE 0-4):** HEALTH=4 FIRE=0 REACTIVITY=1



**EMERGENCY OVERVIEW:**

**CHANGE IN APPEARANCE:** hygroscopic

**COLOR:** colorless

**PHYSICAL FORM:** liquid

**ODOR:** pungent odor

**MAJOR HEALTH HAZARDS:** potentially fatal if inhaled, respiratory tract burns, skin burns, eye burns, mucous membrane burns

**PHYSICAL HAZARDS:** May ignite combustibles. May react on contact with air, heat, light or water.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

**SHORT TERM EXPOSURE:** irritation (possibly severe), metallic taste, vomiting, digestive disorders, loss of voice, difficulty breathing, headache, dizziness, convulsions, death

**LONG TERM EXPOSURE:** same as effects reported in other routes of exposure, tooth discoloration, lung damage

**SKIN CONTACT:**

**SHORT TERM EXPOSURE:** irritation (possibly severe)

**LONG TERM EXPOSURE:** itching

**EYE CONTACT:**

**SHORT TERM EXPOSURE:** irritation (possibly severe), blindness

**LONG TERM EXPOSURE:** same as effects reported in short term exposure

**INGESTION:**

**SHORT TERM EXPOSURE:** burns, metallic taste, nausea, vomiting, diarrhea, stomach pain, dizziness, bluish skin color, liver damage, convulsions, coma

**LONG TERM EXPOSURE:** same as effects reported in short term inhalation, headache

---

## 4. FIRST AID MEASURES

---

**INHALATION:** If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

**SKIN CONTACT:** Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

**EYE CONTACT:** Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

**INGESTION:** Get medical attention immediately.

**ANTIDOTE:** dimercaprol/oil, intramuscular.

**NOTE TO PHYSICIAN:** For inhalation, consider oxygen. For ingestion, consider gastric lavage.

---

## 5. FIRE FIGHTING MEASURES

---

**FIRE AND EXPLOSION HAZARDS:** Negligible fire hazard. Oxidizer. May ignite or explode on contact with combustible materials.

**EXTINGUISHING MEDIA:** regular dry chemical, carbon dioxide, water, regular foam

Large fires: Use regular foam or flood with fine water spray.

**FIRE FIGHTING:** Move container from fire area if it can be done without risk. Cool containers with water

spray until well after the fire is out. Stay away from the ends of tanks.

**FLASH POINT:** No data available.

**FLAMMABILITY CLASS (OSHA):** IIIB

---

## 6. ACCIDENTAL RELEASE MEASURES

---

### **WATER RELEASE:**

Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

### **OCCUPATIONAL RELEASE:**

Do not touch spilled material. Stop leak if possible without personal risk. Small spills: Absorb with sand or other non-combustible material. Collect with absorbent into suitable container. Small dry spills: Collect spilled material in appropriate container for disposal. Move containers away from spill to a safe area. Large spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

---

## 7. HANDLING AND STORAGE

---

**STORAGE:** Store and handle in accordance with all current regulations and standards. NFPA 430 Code for the Storage of Liquid and Solid Oxidizing Materials. Keep separated from incompatible substances. Protect from physical damage. Store in a cool, dry place. Store in a well-ventilated area. Store outside or in a detached building. Store in a tightly closed container. Store in a cool, dry place. Store in a well-ventilated area. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30).

---

## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

---

### **EXPOSURE LIMITS:**

#### **ANTIMONY PENTAFLUORIDE:**

#### **ANTIMONY AND COMPOUNDS (as Sb):**

0.5 mg/m<sup>3</sup> OSHA TWA

0.5 mg/m<sup>3</sup> ACGIH TWA

0.5 mg/m<sup>3</sup> NIOSH recommended TWA 10 hour(s)

#### **INORGANIC FLUORIDES (as F):**

2.5 mg/m<sup>3</sup> OSHA TWA

2.5 mg/m<sup>3</sup> ACGIH TWA

2.5 mg/m<sup>3</sup> NIOSH recommended TWA 10 hour(s) (solid fluorides)

**VENTILATION:** Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

**EYE PROTECTION:** Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**CLOTHING:** Wear appropriate chemical resistant clothing.

**GLOVES:** Wear appropriate chemical resistant gloves.

**RESPIRATOR:** The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

Measurement Element:

Antimony (Sb)

**5 mg/m<sup>3</sup>**

Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100, R100 or P100.

Any supplied-air respirator.

**12.5 mg/m<sup>3</sup>**

Any supplied-air respirator operated in a continuous-flow mode.

Any powered, air-purifying respirator with a high-efficiency particulate filter.

**25 mg/m<sup>3</sup>**

Any air-purifying, full-facepiece respirator equipped with an N100, R100, or P100 filter.

Any supplied-air respirator with a tight-fitting facepiece that is operated in a continuous-flow mode.

Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter.

Any self-contained breathing apparatus with a full facepiece.

Any supplied-air respirator with a full facepiece.

**50 mg/m<sup>3</sup>**

Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.

Emergency or planned entry into unknown concentrations or IDLH conditions -

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

**Escape -**

Any air-purifying, full-facepiece respirator equipped with an N100, R100, or P100 filter.

Any appropriate escape-type, self-contained breathing apparatus.

**For Unknown Concentrations or Immediately Dangerous to Life or Health -**

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

**PHYSICAL STATE:** liquid  
**COLOR:** colorless  
**CHANGE IN APPEARANCE:** hygroscopic  
**TEXTURE:** viscous, oily  
**ODOR:** pungent odor  
**MOLECULAR WEIGHT:** 216.74  
**MOLECULAR FORMULA:** F5-SB  
**BOILING POINT:** 301.1 F (149.5 C)  
**FREEZING POINT:** 45 F (7 C)  
**VAPOR PRESSURE:** 10 mmHg @ 25 C approximate  
**VAPOR DENSITY (air=1):** 2.2  
**SPECIFIC GRAVITY (water=1):** 2.99 @ 23 C  
**WATER SOLUBILITY:** reacts  
**PH:** Not available  
**VOLATILITY:** 100%  
**ODOR THRESHOLD:** Not available  
**EVAPORATION RATE:** negligible  
**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not available  
**SOLVENT SOLUBILITY:**  
**Soluble:** liquid sulfur dioxide

---

## 10. STABILITY AND REACTIVITY

---

**REACTIVITY:** Contact with water or moist air may form flammable and/or toxic gases or vapors.

**CONDITIONS TO AVOID:** Avoid heat, flames, sparks and other sources of ignition. May ignite or explode on contact with combustible materials.

**INCOMPATIBILITIES:** combustible materials, metals, reducing agents

**HAZARDOUS DECOMPOSITION:**  
Thermal decomposition products: oxides of antimony, fluorinated compounds

**POLYMERIZATION:** Will not polymerize.

---

## 11. TOXICOLOGICAL INFORMATION

---

**ANTIMONY PENTAFLUORIDE:**  
**TOXICITY DATA:** 270 mg/m<sup>3</sup> inhalation-mouse LC50  
**LOCAL EFFECTS:**  
Corrosive: inhalation, skin, eye, ingestion

**ACUTE TOXICITY LEVEL:**

Highly Toxic: inhalation

**ADDITIONAL DATA:** May cross the placenta. May be excreted in breast milk.

---

**12. ECOLOGICAL INFORMATION**

---

Not available

---

**13. DISPOSAL CONSIDERATIONS**

---

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D002. Dispose in accordance with all applicable regulations.

---

**14. TRANSPORT INFORMATION**

---

**U.S. DOT 49 CFR 172.101:**

**PROPER SHIPPING NAME:** Antimony pentafluoride

**ID NUMBER:** UN1732

**HAZARD CLASS OR DIVISION:** 8

**PACKING GROUP:** II

**LABELING REQUIREMENTS:** 8; 6.1

**QUANTITY LIMITATIONS:**

**PASSENGER AIRCRAFT OR RAILCAR:** Forbidden

**CARGO AIRCRAFT ONLY:** 30 L



**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**

**SHIPPING NAME:** Antimony pentafluoride

**UN NUMBER:** UN1732

**CLASS:** 8; 6.1

**PACKING GROUP/CATEGORY:** II

---

**15. REGULATORY INFORMATION**

---

**U.S. REGULATIONS:**

**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):** Not regulated.

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):**

**ANTIMONY PENTAFLUORIDE:** 500 LBS TPQ

**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):**

**ANTIMONY PENTAFLUORIDE:** 500 LBS RQ

**SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):**

ACUTE: Yes  
CHRONIC: Yes  
FIRE: No  
REACTIVE: Yes  
SUDDEN RELEASE: No

**SARA TITLE III SECTION 313 (40 CFR 372.65):  
ANTIMONY AND COMPOUNDS (as Sb)**

**OSHA PROCESS SAFETY (29CFR1910.119):** Not regulated.

**STATE REGULATIONS:**

**California Proposition 65:** Not regulated.

**CANADIAN REGULATIONS:**

**WHMIS CLASSIFICATION:** Not determined.

**NATIONAL INVENTORY STATUS:**

**U.S. INVENTORY (TSCA):** Listed on inventory.

**TSCA 12(b) EXPORT NOTIFICATION:** Not listed.

**CANADA INVENTORY (DSL/NDSL):** Not determined.

---

**16. OTHER INFORMATION**

---

**MSDS SUMMARY OF CHANGES**

4. FIRST AID MEASURES  
14. TRANSPORT INFORMATION

“RTECS®” is a United States trademark owned and licensed under authority of the U.S. Government, by and through Symyx Software, Inc. Portions ©Copyright 2001, U.S. Government. All rights reserved.

©Copyright 1984-2008 ChemADVISOR, Inc. All rights reserved.

**MATHESON TRI-GAS, INC. MAKES NO EXPRESS OR IMPLIED WARRANTIES, GUARANTEES OR REPRESENTATIONS REGARDING THE PRODUCT OR THE INFORMATION HEREIN, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR USE. MATHESON TRI-GAS, INC. SHALL NOT BE LIABLE FOR ANY PERSONAL INJURY, PROPERTY OR OTHER DAMAGES OF ANY NATURE, WHETHER COMPENSATORY, CONSEQUENTIAL, EXEMPLARY, OR OTHERWISE, RESULTING FROM ANY PUBLICATION, USE OR RELIANCE UPON THE INFORMATION HEREIN.**