

# 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: ARSENIC PENTAFLUORIDE**

#### **TRADE NAMES/SYNONYMS:**

MTG MSDS 6; ARSORANE, PENTAFLUORO-; ARSENIC FLUORIDE (ASF5); ARSENIC FLUORIDE;  
ASF5; MAT02015

**CHEMICAL FAMILY:** non-metallic, halides

**CREATION DATE:** Jan 24 1989

**REVISION DATE:** Dec 11 2008

## 2. COMPOSITION, INFORMATION ON INGREDIENTS

**COMPONENT:** ARSENIC PENTAFLUORIDE

**CAS NUMBER:** 7784-36-3

**PERCENTAGE:** 100.0

## 3. HAZARDS IDENTIFICATION

**NFPA RATINGS (SCALE 0-4):** HEALTH=3 FIRE=0 REACTIVITY=1



#### **EMERGENCY OVERVIEW:**

**COLOR:** colorless

**PHYSICAL FORM:** fuming gas

**MAJOR HEALTH HAZARDS:** respiratory tract irritation, skin irritation, eye irritation, cancer hazard (in humans)

**PHYSICAL HAZARDS:** Containers may rupture or explode if exposed to heat. May ignite combustibles. May react on contact with water.

#### **POTENTIAL HEALTH EFFECTS:**

##### **INHALATION:**

**SHORT TERM EXPOSURE:** same as effects reported in short term ingestion, irritation (possibly severe),

vomiting, digestive disorders, chest pain, difficulty breathing, headache, bluish skin color, lung congestion, nerve damage

**LONG TERM EXPOSURE:** white lines on the fingernails, hair loss, tearing, tingling sensation, paralysis, cancer

**SKIN CONTACT:**

**SHORT TERM EXPOSURE:** irritation (possibly severe), blisters, frostbite

**LONG TERM EXPOSURE:** itching

**EYE CONTACT:**

**SHORT TERM EXPOSURE:** irritation (possibly severe), frostbite, itching, tearing, blurred vision

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

**INGESTION:**

**SHORT TERM EXPOSURE:** frostbite

**LONG TERM EXPOSURE:** no information on significant adverse effects

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## 4. FIRST AID MEASURES

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**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:** If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

**EYE CONTACT:** Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get medical attention immediately.

**INGESTION:** If a large amount is swallowed, get medical attention.

**NOTE TO PHYSICIAN:** For inhalation, consider oxygen.

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## 5. FIRE FIGHTING MEASURES

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

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

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. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Use extinguishing agents appropriate for surrounding fire.

Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Do not get water directly on material. Reduce vapors with water spray. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Consider downwind evacuation if material is leaking.

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## 6. ACCIDENTAL RELEASE MEASURES

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### **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:**

Stop leak if possible without personal risk. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.

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## 7. HANDLING AND STORAGE

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**STORAGE:** Store and handle in accordance with all current regulations and standards. Store in a cool, dry place. Store in a well-ventilated area. Keep separated from incompatible substances.

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## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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### **EXPOSURE LIMITS:**

#### **ARSENIC PENTAFLUORIDE:**

#### **ARSENIC AND INORGANIC COMPOUNDS EXCEPT ARSINE:**

10 ug(As)/m<sup>3</sup> OSHA TWA

5 ug/m<sup>3</sup> OSHA action level

0.01 mg(As)/m<sup>3</sup> ACGIH TWA

0.002 mg(As)/m<sup>3</sup> NIOSH recommended ceiling 15 minute(s)

**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. OSHA REGULATED SUBSTANCES: U.S. OSHA 29 CFR 1910.1018.

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

OSHA Standard:

Respirator selection should comply with 29 CFR 1910.134, 29 CFR 1910.1018, and the final rule published in the Federal Register on August 24, 2006.

NIOSH Recommendations:

**At any detectable concentration -**

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 (gas mask) with a chin-style, front-mounted or back-mounted acid gas canister having an N100, R100, or P100 filter.

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**PHYSICAL STATE:** gas

**COLOR:** colorless

**PHYSICAL FORM:** fuming gas

**ODOR:** Not available

**MOLECULAR WEIGHT:** 169.91

**MOLECULAR FORMULA:** AS-F5

**BOILING POINT:** -63 F (-53 C)

**FREEZING POINT:** -112 F (-80 C)

**VAPOR PRESSURE:** 11790 mmHg @ 20 C

**VAPOR DENSITY:** Not available

**SPECIFIC GRAVITY:** Not applicable

**DENSITY:** 7.71 g/L

**WATER SOLUBILITY:** reacts

**PH:** Not applicable

**VOLATILITY:** Not applicable

**ODOR THRESHOLD:** Not available

**EVAPORATION RATE:** Not applicable

**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not applicable

**SOLVENT SOLUBILITY:**

**Soluble:** alcohol, ether, benzene

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## 10. STABILITY AND REACTIVITY

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**REACTIVITY:** Avoid contact with water or moisture. May react with evolution of heat on contact with water.

**CONDITIONS TO AVOID:** Protect from physical damage and heat. Containers may rupture or explode if

exposed to heat.

**INCOMPATIBILITIES:** bases, combustible materials, metals

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products: oxides of arsenic, fluorinated compounds

**POLYMERIZATION:** Will not polymerize.

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## 11. TOXICOLOGICAL INFORMATION

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**ARSENIC PENTAFLUORIDE:**

**CARCINOGEN STATUS:** OSHA: Carcinogen; NTP: Known Human Carcinogen; IARC: Human Sufficient Evidence, Animal Limited Evidence, Group 1; EC: Category 1

**LOCAL EFFECTS:**

Irritant: inhalation, skin, eye

Corrosive: inhalation, skin, eye

**TARGET ORGANS:** nervous system

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** diabetes, heart or cardiovascular disorders, immune system disorders or allergies, kidney disorders, liver disorders, nervous system disorders, skin disorders and allergies

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## 12. ECOLOGICAL INFORMATION

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Not available

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## 13. DISPOSAL CONSIDERATIONS

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Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D003. Hazardous Waste Number(s): D004. Dispose of in accordance with U.S. EPA 40 CFR 262 for concentrations at or above the Regulatory level. Regulatory level- 5.0 mg/L. Dispose in accordance with all applicable regulations.

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## 14. TRANSPORT INFORMATION

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

**PROPER SHIPPING NAME:** Compressed gas, toxic, n.o.s. (ARSENIC PENTAFLUORIDE)

**ID NUMBER:** UN1955

**HAZARD CLASS OR DIVISION:** 2.3

**LABELING REQUIREMENTS:** 2.3

**QUANTITY LIMITATIONS:**

**PASSENGER AIRCRAFT OR RAILCAR:** Forbidden



**CARGO AIRCRAFT ONLY:** Forbidden

**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**

**SHIPPING NAME:** Compressed gas, toxic, n.o.s. (ARSENIC PENTAFLUORIDE)

**UN NUMBER:** UN1955

**CLASS:** 2.3

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**15. REGULATORY INFORMATION**

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**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 Subpart B):** Not regulated.

**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):** Not regulated.

**SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):**

ACUTE: Yes

CHRONIC: Yes

FIRE: Yes

REACTIVE: Yes

SUDDEN RELEASE: Yes

**SARA TITLE III SECTION 313 (40 CFR 372.65):**  
**ARSENIC AND INORGANIC COMPOUNDS (as As)**

**OSHA PROCESS SAFETY (29 CFR 1910.119):** Not regulated.

**STATE REGULATIONS:**

**California Proposition 65:**

Known to the state of California to cause the following:

**ARSENIC AND INORGANIC COMPOUNDS (as As)**

Cancer (Feb 27, 1987)

Developmental toxicity (May 01, 1997)

**CANADIAN REGULATIONS:**

**WHMIS CLASSIFICATION:** ACD1EF

**NATIONAL INVENTORY STATUS:**

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

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

CANADA INVENTORY (DSL/NDSL): Not determined.

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## 16. OTHER INFORMATION

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### MSDS SUMMARY OF CHANGES

#### 15. REGULATORY INFORMATION

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