

# MATERIAL SAFETY DATA SHEET

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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**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: ACRYLONITRILE, INHIBITED**

**TRADE NAMES/SYNONYMS:**

MTG MSDS 106; 2-PROPENENITRILE; PROPENENITRILE; VINYL CYANIDE; CYANOETHYLENE; ACRYLONITRILE; AN; VCN; ACRYLON; CARBACRYL; VENTOX; FUMIGRAIN; STCC 4906420; RCRA U009; ENT 54; UN 1093; MAT00370; RTECS AT5250000

**CHEMICAL FAMILY:** nitriles, aliphatic

**CREATION DATE:** Jan 24 1989

**REVISION DATE:** Dec 11 2008

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## 2. COMPOSITION, INFORMATION ON INGREDIENTS

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**COMPONENT:** ACRYLONITRILE, INHIBITED  
**CAS NUMBER:** 107-13-1  
**PERCENTAGE:** >99

**COMPONENT:** METHYLHYDROQUINONE  
**CAS NUMBER:** 95-71-6  
**PERCENTAGE:** <0.1

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## 3. HAZARDS IDENTIFICATION

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**NFPA RATINGS (SCALE 0-4):** HEALTH=4 FIRE=3 REACTIVITY=2

**EMERGENCY OVERVIEW:**

**COLOR:** colorless

**PHYSICAL FORM:** liquid

**ODOR:** pungent odor

**MAJOR HEALTH HAZARDS:** harmful (if inhaled, on contact with the skin, or swallowed), eye burns, respiratory tract irritation, skin irritation, allergic reactions, cancer hazard (in humans)



**PHYSICAL HAZARDS:** Flammable liquid and vapor. Vapor may cause flash fire. May polymerize. Containers may rupture or explode.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

**SHORT TERM EXPOSURE:** irritation, itching, nausea, vomiting, diarrhea, stomach pain, irregular heartbeat, headache, drowsiness, dizziness, bluish skin color, suffocation, convulsions, coma

**LONG TERM EXPOSURE:** digestive disorders, reproductive effects, cancer

**SKIN CONTACT:**

**SHORT TERM EXPOSURE:** irritation (possibly severe), allergic reactions, blisters, suffocation

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

**EYE CONTACT:**

**SHORT TERM EXPOSURE:** burns, tearing, eye damage

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

**INGESTION:**

**SHORT TERM EXPOSURE:** suffocation

**LONG TERM EXPOSURE:** reproductive effects, cancer

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## 4. FIRST AID MEASURES

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**INHALATION:** When safe to enter area, remove from exposure. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Get medical attention immediately.

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

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

**INGESTION:** Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

**ANTIDOTE:** amyl nitrite, inhalation; sodium nitrite, intravenous; sodium thiosulfate, infusion; oxygen.

**NOTE TO PHYSICIAN:** Consider amyl nitrite inhalation, 1 ampoule (0.2 mL) every 5 minutes, and oxygen. For ingestion, consider gastric lavage. Consider oxygen.

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## 5. FIRE FIGHTING MEASURES

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**FIRE AND EXPLOSION HAZARDS:** Severe fire hazard. Moderate explosion hazard. Vapor/air mixtures are explosive. May explode when heated. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

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

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

**FIRE FIGHTING:** Do not get water inside container. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. 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). Water may be ineffective.

**FLASH POINT:** 30.0 F (-1.1 C) (CC)

**LOWER FLAMMABLE LIMIT:** 3%

**UPPER FLAMMABLE LIMIT:** 17%

**AUTOIGNITION:** 898 F (481 C)

**FLAMMABILITY CLASS (OSHA):** IA

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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:**

Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Flood with water. Large spills: Dike for later disposal. Remove sources of ignition. 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).

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## 7. HANDLING AND STORAGE

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**STORAGE:** Store and handle in accordance with all current regulations and standards. 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 Part B). Protect from physical damage. Store outside or in a detached building. Store with flammable liquids. Keep separated from incompatible substances. Monitor inhibitor content. Secure to prevent tipping. Use diking sufficient to contain total contents plus 10%. Keep separated from incompatible substances.

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## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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### **EXPOSURE LIMITS:**

#### **ACRYLONITRILE, INHIBITED:**

#### **ACRYLONITRILE:**

- 2 ppm OSHA TWA (skin)
- 10 ppm OSHA ceiling 15 minute(s) (skin)
- 1 ppm OSHA action level 8 hour(s)
- 2 ppm ACGIH TWA (skin)
- 1 ppm NIOSH recommended TWA 8 hour(s) (skin)
- 10 ppm NIOSH recommended ceiling 15 minute(s) (skin)

**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 1910.1045.

**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 1910.1045, 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 organic vapor canister.

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**PHYSICAL STATE:** liquid

**COLOR:** colorless

**ODOR:** pungent odor  
**MOLECULAR WEIGHT:** 53.06  
**MOLECULAR FORMULA:** C<sub>3</sub>H<sub>3</sub>N  
**BOILING POINT:** 172-174 F (78-79 C)  
**FREEZING POINT:** -119 to -117 F (-84 to -83 C)  
**VAPOR PRESSURE:** 83 mmHg @ 20 C  
**VAPOR DENSITY (air=1):** 1.83  
**SPECIFIC GRAVITY (water=1):** 0.8060  
**WATER SOLUBILITY:** 7.35%  
**PH:** Not available  
**VOLATILITY:** 100%  
**ODOR THRESHOLD:** 13-19 ppm  
**EVAPORATION RATE:** 4.5 (butyl acetate=1)  
**VISCOSITY:** 0.34 cP @ 25 C  
**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not available  
**SOLVENT SOLUBILITY:**  
**Soluble:** alcohol, ether, acetone, benzene, toluene, carbon tetrachloride, organic solvents

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## 10. STABILITY AND REACTIVITY

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**REACTIVITY:** May polymerize violently or explosively. May explode if heated in closed container.

**CONDITIONS TO AVOID:** Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Minimize contact with material. Keep out of water supplies and sewers.

**INCOMPATIBILITIES:** acids, metals, amines, bases, halogens, peroxides, combustible materials, oxidizing materials

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products: cyanide compounds

**POLYMERIZATION:** May polymerize violently or explosively. Avoid contact with curing agents, accelerators, and/or initiators.

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## 11. TOXICOLOGICAL INFORMATION

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**ACRYLONITRILE, INHIBITED:**

**IRRITATION DATA:** 500 mg rinsed skin-human; 500 mg skin-rabbit severe; 100 mg eyes-rabbit moderate

**TOXICITY DATA:** 333 ppm/4 hour(s) inhalation-rat LC<sub>50</sub>; 63 mg/kg skin-rabbit LD<sub>50</sub>; 78 mg/kg oral-rat LD<sub>50</sub>

**CARCINOGEN STATUS:** OSHA: Carcinogen; NTP: Anticipated Human Carcinogen; IARC: Human Inadequate Evidence, Animal Sufficient Evidence, Group 2B; ACGIH: A3 -Confirmed Animal Carcinogen

**LOCAL EFFECTS:**

Irritant: inhalation, skin

Corrosive: eye

**ACUTE TOXICITY LEVEL:**

Highly Toxic: dermal absorption

Toxic: inhalation, ingestion

**TARGET ORGANS:** blood, immune system (sensitizer)

**TUMORIGENIC DATA:** Available.

**MUTAGENIC DATA:** Available.

**REPRODUCTIVE EFFECTS DATA:** Available.

**ADDITIONAL DATA:** Solvents may enhance the toxic effects.

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## 12. ECOLOGICAL INFORMATION

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**ECOTOXICITY DATA:**

**FISH TOXICITY:** 9300 ug/L 96 hour(s) LC50 (Mortality) Bluegill (*Lepomis macrochirus*)

**INVERTEBRATE TOXICITY:** 10950 ug/L 48 hour(s) EC50 (Immobilization) Water flea (*Daphnia magna*)

**FATE AND TRANSPORT:**

**BIOCONCENTRATION:** 48 ug/L 1-28 hour(s) BCF (Residue) Bluegill (*Lepomis macrochirus*) 9.94 ug/L

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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): U009. 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:** Acrylonitrile, stabilized

**ID NUMBER:** UN1093

**HAZARD CLASS OR DIVISION:** 3

**PACKING GROUP:** I

**LABELING REQUIREMENTS:** 3; 6.1

**QUANTITY LIMITATIONS:**

**PASSENGER AIRCRAFT OR RAILCAR:** Forbidden

**CARGO AIRCRAFT ONLY:** 30 L



**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**

**SHIPPING NAME:** Acrylonitrile, stabilized

**UN NUMBER:** UN1093

**CLASS:** 3; 6.1

**PACKING GROUP/CATEGORY:** I

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## 15. REGULATORY INFORMATION

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### **U.S. REGULATIONS:**

#### **CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):**

**Acrylonitrile:** 100 LBS RQ

#### **SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B):**

**Acrylonitrile:** 10000 LBS TPQ

#### **SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):**

**Acrylonitrile:** 100 LBS RQ

#### **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: No

#### **SARA TITLE III SECTION 313 (40 CFR 372.65):**

**Acrylonitrile**

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

### **STATE REGULATIONS:**

#### **California Proposition 65:**

Known to the state of California to cause the following:

**Acrylonitrile**

Cancer (Jul 01, 1987)

### **CANADIAN REGULATIONS:**

**WHMIS CLASSIFICATION:** BD1

### **NATIONAL INVENTORY STATUS:**

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

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

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

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## 16. OTHER INFORMATION

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