

# 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: ACETONITRILE**

**TRADE NAMES/SYNONYMS:**

CYANOMETHANE; ETHANENITRILE; ETHYL NITRILE; METHANECARBONITRILE; METHYL CYANIDE; RCRA U003; STCC 4907405; UN 1648; A-999; A-998; A-24; O-1034; A-21; C<sub>2</sub>H<sub>3</sub>N; MAT00170; RTECS AL7700000

**CHEMICAL FAMILY:** nitriles, aliphatic

**CREATION DATE:** Jan 24 1989

**REVISION DATE:** Dec 11 2008

## 2. COMPOSITION, INFORMATION ON INGREDIENTS

**COMPONENT:** ACETONITRILE  
**CAS NUMBER:** 75-05-8  
**PERCENTAGE:** 100

## 3. HAZARDS IDENTIFICATION

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



**EMERGENCY OVERVIEW:**

**COLOR:** colorless

**PHYSICAL FORM:** liquid

**ODOR:** sweet odor

**MAJOR HEALTH HAZARDS:** respiratory tract irritation, eye irritation

**PHYSICAL HAZARDS:** Flammable liquid and vapor. Vapor may cause flash fire.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

**SHORT TERM EXPOSURE:** irritation, changes in blood pressure, nausea, vomiting, stomach pain, loss of

voice, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, loss of coordination, convulsions, unconsciousness, coma

**LONG TERM EXPOSURE:** loss of appetite, kidney damage

**SKIN CONTACT:**

**SHORT TERM EXPOSURE:** same as effects reported in short term inhalation

**LONG TERM EXPOSURE:** irritation

**EYE CONTACT:**

**SHORT TERM EXPOSURE:** irritation

**LONG TERM EXPOSURE:** irritation

**INGESTION:**

**SHORT TERM EXPOSURE:** same as effects reported in short term inhalation

**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. Get immediate medical attention.

**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:** Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

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

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## 5. FIRE FIGHTING MEASURES

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

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

Large fires: Use alcohol-resistant foam or flood with fine water spray.

**FIRE FIGHTING:** Move container from fire area if it can be done without risk. Dike for later disposal. Do not scatter spilled material with high-pressure water streams. 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). Water may be ineffective.

**FLASH POINT:** 43 F (6 C) (OC)

**LOWER FLAMMABLE LIMIT:** 3%  
**UPPER FLAMMABLE LIMIT:** 16%  
**AUTOIGNITION:** 975 F (524 C)  
**FLAMMABILITY CLASS (OSHA):** IB

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## 6. ACCIDENTAL RELEASE MEASURES

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### **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: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. 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. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Protect from physical damage. Store outside or in a detached building. Inside storage: Store with flammable liquids. Keep separated from incompatible substances. Grounding and bonding required.

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## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

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### **EXPOSURE LIMITS:**

#### **ACETONITRILE:**

40 ppm (70 mg/m<sup>3</sup>) OSHA TWA  
60 ppm (105 mg/m<sup>3</sup>) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)  
20 ppm ACGIH TWA (skin)  
20 ppm (34 mg/m<sup>3</sup>) NIOSH recommended TWA 10 hour(s)

**VENTILATION:** Provide local exhaust ventilation system. Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. 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.

**200 ppm**

Any air-purifying half-mask respirator equipped with organic vapor cartridge(s).  
Any supplied-air respirator.

**500 ppm**

Any supplied-air respirator operated in a continuous-flow mode.  
Any powered, air-purifying respirator with organic vapor cartridge(s).  
Any air-purifying full-facepiece respirator equipped with organic vapor cartridge(s).  
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.  
Any self-contained breathing apparatus with a full facepiece.  
Any supplied-air respirator with a full facepiece.  
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 (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:** sweet odor

**MOLECULAR WEIGHT:** 41.05

**MOLECULAR FORMULA:** C-H3-C-N

**BOILING POINT:** 180 F (82 C)

**FREEZING POINT:** -51 F (-46 C)

**VAPOR PRESSURE:** 73 mmHg @ 20 C

**VAPOR DENSITY (air=1):** 1.42

**SPECIFIC GRAVITY (water=1):** 0.7857

**WATER SOLUBILITY:** soluble

**PH:** Not available

**VOLATILITY:** Not available

**ODOR THRESHOLD:** 40 ppm

**EVAPORATION RATE:** 5.79 (butyl acetate=1)

**VISCOSITY:** 0.35 cP @ 20 C

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

**SOLVENT SOLUBILITY:**

**Soluble:** alcohol, ether, acetone, benzene, methyl acetate, ethyl acetate, chloroform, carbon tetrachloride, ethylene chloride

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## 10. STABILITY AND REACTIVITY

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**REACTIVITY:** Stable at normal temperatures and pressure.

**CONDITIONS TO AVOID:** Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers.

**INCOMPATIBILITIES:** acids, metals, bases, oxidizing materials, combustible materials, reducing agents

**HAZARDOUS DECOMPOSITION:**  
Thermal decomposition products: cyanides

**POLYMERIZATION:** Will not polymerize.

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## 11. TOXICOLOGICAL INFORMATION

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**ACETONITRILE:**

**IRRITATION DATA:** 500 mg open skin-rabbit mild; 100 ul/24 hour(s) eyes-rabbit moderate

**TOXICITY DATA:** 7500 ppm inhalation-rat LC50; 980 mg/kg skin-rabbit LD50; 2460 mg/kg oral-rat LD50

**CARCINOGEN STATUS:** ACGIH: A4 -Not Classifiable as a Human Carcinogen

**LOCAL EFFECTS:**

Irritant: inhalation, eye

**ACUTE TOXICITY LEVEL:**

Toxic: dermal absorption

Moderately Toxic: inhalation, ingestion

**TARGET ORGANS:** blood

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

**TUMORIGENIC DATA:** Available.

**MUTAGENIC DATA:** Available.

**REPRODUCTIVE EFFECTS DATA:** Available.

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## 12. ECOLOGICAL INFORMATION

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**ECOTOXICITY DATA:**

**FISH TOXICITY:** 1000000 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (*Pimephales promelas*)

**INVERTEBRATE TOXICITY:** 0.024-0.199 ug/L 4-72 hour(s) (Residue) Bent-nosed clam (*Macoma*)

nasuta)

**ALGAL TOXICITY:** 11.2 ug/L 24 hour(s) EC50 (Photosynthesis) Green algae (Selenastrum capricornutum)

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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): D001. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U003. 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:** Acetonitrile  
**ID NUMBER:** UN1648  
**HAZARD CLASS OR DIVISION:** 3  
**PACKING GROUP:** II  
**LABELING REQUIREMENTS:** 3



**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**  
**SHIPPING NAME:** Acetonitrile  
**UN NUMBER:** UN1648  
**CLASS:** 3  
**PACKING GROUP/CATEGORY:** II

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### 15. REGULATORY INFORMATION

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**U.S. REGULATIONS:**  
**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):**  
**ACETONITRILE:** 5000 LBS RQ

**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: No  
FIRE: Yes

REACTIVE: No  
SUDDEN RELEASE: No

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

**OSHA PROCESS SAFETY (29 CFR 1910.119):** 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:**  
**ACETONITRILE**  
**CAS NUMBER:** 75-05-8  
**SECTION 4**

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

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## 16. OTHER INFORMATION

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