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: CYANOGEN CHLORIDE, INHIBITED

TRADE NAMES/SYNONYMS:
CYANOGEN CHLORIDE ((CN)CL); CHLORINE CYANIDE; CHLORINE CYANIDE (CLCN);
CHLOROCYAN; CHLOROCYANIDE; CHLOROCYANIDE (CLCN); CHLOROCYANOGEN;
CYANOCHLORIDE (CNCL); CYANOGEN CHLORIDE (CLCN); RCRA P033; UN 1589; CCLN;
MAT05800; RTECS GT2275000

CHEMICAL FAMILY: cyanides

CREATION DATE: Jan 24 1989
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: CYANOGEN CHLORIDE, INHIBITED
CAS NUMBER: 506-77-4
PERCENTAGE: <99

COMPONENT: WATER
CAS NUMBER: 7732-18-5
PERCENTAGE: >0.9

3. HAZARDS IDENTIFICATION

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

EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: liquefied gas
ODOR: irritating odor
MAJOR HEALTH HAZARDS: potentially fatal if swallowed, harmful if inhaled, respiratory tract burns,
skin burns, eye burns, mucous membrane burns

**PHYSICAL HAZARDS:** Flammable gas. May cause flash fire. Containers may rupture or explode if exposed to heat.

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**
**SHORT TERM EXPOSURE:** burns, tearing, nausea, difficulty breathing, headache, dizziness, lung congestion
**LONG TERM EXPOSURE:** same as effects reported in short term exposure

**SKIN CONTACT:**
**SHORT TERM EXPOSURE:** burns, bluish skin color
**LONG TERM EXPOSURE:** same as effects reported in short term exposure

**EYE CONTACT:**
**SHORT TERM EXPOSURE:** burns, tearing, blurred vision
**LONG TERM EXPOSURE:** same as effects reported in short term exposure

**INGESTION:**
**SHORT TERM EXPOSURE:** burns, sore throat, nausea, vomiting, diarrhea, stomach pain, difficulty breathing, bluish skin color, death
**LONG TERM EXPOSURE:** same as effects reported in short term exposure

### 4. FIRST AID MEASURES

**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.

### 5. FIRE FIGHTING MEASURES
FIRE AND EXPLOSION HAZARDS: Negligible fire hazard. Containers may rupture or explode if exposed to heat.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

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

FIRE FIGHTING: Do not get water inside container. 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. Keep unnecessary people away, isolate hazard area and deny entry.

FLASH POINT: 124 F (51 C)

6. ACCIDENTAL RELEASE MEASURES

AIR RELEASE:
Reduce vapors with water spray. Collect runoff for disposal as potential hazardous waste. Reduce vapors with water spray. Collect runoff for disposal as potential hazardous waste.

SOIL RELEASE:
Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material. Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material.

WATER RELEASE:
Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash). Add an oxidizing agent. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash). Add an oxidizing agent.

OCCUPATIONAL RELEASE:
Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water directly on material. Do not get water inside container. Keep unnecessary people away, isolate hazard area and deny entry. Small spills: Flood with water. Large spills: Dike for later disposal. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. 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

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
CYANOGEN CHLORIDE, INHIBITED:
CYANOGEN CHLORIDE:
0.3 ppm (0.6 mg/m3) OSHA ceiling (vacated by 58 FR 35338, June 30, 1993)
0.3 ppm ACGIH ceiling
0.3 ppm (0.6 mg/m3) NIOSH recommended ceiling

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: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.
Any supplied-air respirator with a full facepiece that is operated in a 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.
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: gas
COLOR: colorless
PHYSICAL FORM: liquefied gas
ODOR: irritating odor
MOLECULAR WEIGHT: 61.47
MOLECULAR FORMULA: C-N-CL
BOILING POINT: 55 F (13 C)
FREEZING POINT: 21 F (-6 C)
VAPOR PRESSURE: 1000 mmHg @ 2 C
10. STABILITY AND REACTIVITY

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

CONDITIONS TO AVOID: Minimize contact with material. Avoid inhalation of material or combustion by-products. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: acids

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: cyanides, hydrochloric acid, oxides of carbon, nitrogen

POLYMERIZATION: Polymerizes with evolution of heat. Avoid contact with incompatible materials.

11. TOXICOLOGICAL INFORMATION

CYANOCYANIC CHLORIDE, INHIBITED:
TOXICITY DATA: 600 mg/m3/4 hour(s) inhalation-rat LC50; 6 mg/kg oral-cat LD50
LOCAL EFFECTS:
Corrosive: inhalation, skin, eye, ingestion
ACUTE TOXICITY LEVEL:
Highly Toxic: ingestion
Toxic: inhalation

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
INVERTEBRATE TOXICITY: 29 ug/L 48 hour(s) LC50 (Mortality) Water flea (Daphnia magna)

13. DISPOSAL CONSIDERATIONS
14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Cyanogen chloride, stabilized
ID NUMBER: UN1589
HAZARD CLASS OR DIVISION: 2.3
LABELING REQUIREMENTS: 2.3; 8
QUANTITY LIMITATIONS:
PASSenger AIRCRAFT OR RAILcar: Forbidden
CARGO AIRCRAFT ONLY: Forbidden
ADDITIONAL SHIPPING DESCRIPTION: Toxic-Inhalation Hazard Zone A
MARINE POLLUTANT: Cyanogen chloride, stabilized

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Cyanogen chloride, stabilized
UN NUMBER: UN1589
CLASS: 2.3; 8

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
CYANOGEN CHLORIDE: 10 LBS RQ


SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: No
FIRE: No
REACTIVE: No
SUDDEN RELEASE: Yes


OSHA PROCESS SAFETY (29 CFR 1910.119):
CYANOGEN CHLORIDE: 500 LBS TQ

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

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