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: HYDROGEN CHLORIDE, ANHYDROUS

TRADE NAMES/SYNONYMS:  
MTG MSDS 51; HYDROCHLORIC ACID, ANHYDROUS; HYDROGEN CHLORIDE; SPIRITS OF SALT; MURIATIC ACID; HYDROCHLORIC ACID; HYDROCHLORIC ACID GAS; ANHYDROUS HYDROCHLORIC ACID; HYDROGEN CHLORIDE (HCl); UN 1050; CIH; MAT11150; RTECS MW4025000

CHEMICAL FAMILY: halogenated, gas

PRODUCT USE: industrial

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

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: HYDROGEN CHLORIDE, ANHYDROUS  
CAS NUMBER: 7647-01-0  
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

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

EMERGENCY OVERVIEW:
COLOR: colorless  
PHYSICAL FORM: gas  
ODOR: irritating odor  
MAJOR HEALTH HAZARDS: respiratory tract burns, skin burns, eye burns, mucous membrane burns  
PHYSICAL HAZARDS: Containers may rupture or explode if exposed to heat. May react on contact with water.
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:** If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention.

**NOTE TO PHYSICIAN:** For inhalation, consider oxygen. Avoid gastric lavage or emesis.

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.

**FIRE FIGHTING PROTECTIVE EQUIPMENT:** Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

**FLASH POINT:** Not applicable  
**LOWER FLAMMABLE LIMIT:** Not available  
**UPPER FLAMMABLE LIMIT:** Not available

### 6. ACCIDENTAL RELEASE MEASURES

**AIR RELEASE:**  
Reduce vapors with water spray. Stay upwind and keep out of low areas. 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. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).

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

**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

**STORAGE:** Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Protect from physical damage. Store in a cool, dry place. Store in a well-ventilated area. Keep separated from incompatible substances. Keep separated from incompatible substances. 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).

**HANDLING:** Subject to handling regulations: U.S. OSHA 29 CFR 1910.119.
8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
HYDROGEN CHLORIDE, ANHYDROUS:
HYDROGEN CHLORIDE (HYDROCHLORIC ACID):
5 ppm (7 mg/m3) OSHA ceiling
2 ppm ACGIH ceiling
5 ppm (7 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: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
50 ppm
Any air-purifying half-mask respirator equipped with cartridge(s) providing protection against the compound of concern.
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern.
Any powered, air-purifying respirator with cartridge(s) providing protection against this substance.
Any supplied-air respirator.
Any self-contained breathing apparatus 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 acid gas canister.
Any appropriate escape-type, self-contained breathing apparatus.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas
APPEARANCE: fumes in moist air
COLOR: colorless
ODOR: irritating odor
MOLECULAR WEIGHT: 36.46
MOLECULAR FORMULA: H-Cl
BOILING POINT: -121 F (-85 C)
FREEZING POINT: -175 F (-115 C)
DECOMPOSITION POINT: Not available
VAPOR PRESSURE: 30400 mmHg @ 17.8 C
VAPOR DENSITY (air=1): 1.268
SPECIFIC GRAVITY (water=1): 1.187 @ -85 C
WATER SOLUBILITY: 82.3% @ 0 C
PH: acidic in solution
VOLATILITY: Not applicable
ODOR THRESHOLD: 1-5 ppm
EVAPORATION RATE: Not applicable
VISCOITY: Not available
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable
SOLVENT SOLUBILITY:
Soluble: alcohol, ether, benzene, methanol

10. STABILITY AND REACTIVITY

REACTIVITY: May react with evolution of heat on contact with water.

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: cyanides, metals, amines, bases, metal carbide, oxidizing materials, acids, halo carbons, combustible materials, halogens, metal salts

HAZARDOUS DECOMPOSITION:
Decomposition products on contact with water or moisture: hydrochloric acid
Thermal decomposition products: chlorine

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

HYDROGEN CHLORIDE, ANHYDROUS:
IRRITATION DATA: 5 mg/30 second(s) rinsed eyes-rabbit mild; 4 percent/24 hour(s) skin-human mild
TOXICITY DATA: 3124 ppm/1 hour(s) inhalation-rat LC50; 900 mg/kg oral-rabbit LD50
CARCINOGEN STATUS: IARC: Human Inadequate Evidence, Animal Inadequate Evidence, Group 3;
ACGIH: A4 -Not Classifiable as a Human Carcinogen
LOCAL EFFECTS:
12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
FISH TOXICITY: 282 mg/L 96 hours LC50 (Mortality) Mosquitofish (Gambusia affinis)

INVERTEBRATE TOXICITY: 240 mg/L 48 hours LC50 (Mortality) Shore crab (Carcinus maenas)

ALGAL TOXICITY: No data available.

FATE AND TRANSPORT:
BIODEGRADATION: No data available.

OTHER ECOLOGICAL INFORMATION: Ionizes quickly in water; pH and buffering capacity of water determines impact on aquatic life.

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: Hydrogen chloride, anhydrous
ID NUMBER: UN1050
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 C

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Hydrogen chloride, anhydrous
UN NUMBER: UN1050
CLASS: 2.3; 8
15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
HYDROGEN CHLORIDE (HYDROCHLORIC ACID): 5000 LBS RQ (liquid)

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B):
HYDROGEN CHLORIDE (HYDROCHLORIC ACID): 500 LBS TPQ (gas)

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C):
HYDROGEN CHLORIDE (HYDROCHLORIC ACID): 5000 LBS RQ (gas)

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

SARA TITLE III SECTION 313 (40 CFR 372.65):
HYDROGEN CHLORIDE (HYDROCHLORIC ACID): except non-aerosol forms

OSHA PROCESS SAFETY (29 CFR 1910.119):
HYDROGEN CHLORIDE (HYDROCHLORIC ACID): 5000 LBS TQ (gas)

STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: A, E.

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