

SAFETY DATA SHEET

M5404 - ANSI - EN



Occidental Chemical Corporation

A subsidiary of Occidental Petroleum Corporation



HYDROGEN CHLORIDE GAS

SDS No.: M5404

SDS Revision Date: 30-Jul-2008

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, TX 75380-9050 1-800-752-5151
24 Hour Emergency Telephone Number:	1-800-733-3665 or 1-972-404-3228 (USA); CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186
To Request an SDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700
Product Identifier:	HYDROGEN CHLORIDE GAS
Synonyms:	HYDROGEN CHLORIDE (HCL), ANHYDROUS HYDROCHLORIC ACID, HYDROCHLORIC ACID GAS, HYDROCHLORIC ACID, ANHYDROUS, Anhydrous HCl
Product Use:	Chemical Intermediate
Uses Advised Against:	None identified.

2. HAZARDS IDENTIFICATION

HYDROGEN CHLORIDE GAS

SDS No.: M5404

SDS Revision Date: 30-Jul-2008

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

EMERGENCY OVERVIEW:

Color: Colorless to yellow
Physical state Gas
Appearance: Forms white fumes in air
Odor: Irritating, Pungent, Sharp

Signal Word: Danger

MAJOR HEALTH HAZARDS: CORROSIVE. CAUSES SEVERE SKIN BURNS AND SERIOUS EYE DAMAGE. HARMFUL IF SWALLOWED. HARMFUL IF INHALED. CAUSES DAMAGE TO RESPIRATORY SYSTEM. CAUSES DAMAGE TO TEETH THROUGH PROLONGED OR REPEATED EXPOSURES.

PHYSICAL HAZARDS: CONTAINS GAS UNDER PRESSURE, MAY EXPLODE IF HEATED. Hydrogen chloride vapor is heavier than air and may cause asphyxiation in enclosed, poorly ventilated, or low lying areas.

PRECAUTIONARY STATEMENTS: Do not get in eyes, on skin, or on clothing. Wear gloves, protective clothing, eye, and face protection. Do not breathe gas, fumes, vapor, mist, or spray. Use outdoors or in a well-ventilated area. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Keep separated from incompatible substances.

ADDITIONAL HAZARD INFORMATION: This material is corrosive. To treat contacted tissue, flush with water to dilute. There is no specific antidote.

GHS CLASSIFICATION:

GHS: PHYSICAL HAZARDS:	Gas Under Pressure - Liquefied
GHS: CONTACT HAZARD - SKIN:	Category 1B - Causes severe skin burns and eye damage
GHS: CONTACT HAZARD - EYE:	Category 1 - Causes serious eye damage
GHS: ACUTE TOXICITY - INHALATION:	Category 4 - Harmful if inhaled
GHS: ACUTE TOXICITY - ORAL:	Category 4 - Harmful if swallowed
GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 1 - Causes damage to: Respiratory System
GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE):	Category 1 - Causes damage to teeth through prolonged or repeated exposure
GHS: CARCINOGENICITY:	Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC or OSHA.

UNKNOWN ACUTE TOXICITY:

Not applicable. This product was tested as a whole. This information only pertains to untested mixtures.

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GHS SYMBOL:

Corrosive, Health hazard, Exclamation mark, Gas cylinder



GHS SIGNAL WORD: DANGER

GHS HAZARD STATEMENTS:

GHS - Physical Hazard Statement(s)

Contains gas under pressure; may explode if heated

GHS - Health Hazard Statement(s)

Causes severe skin burns and eye damage

Causes serious eye damage

Harmful if swallowed

Harmful if inhaled

Causes damage to organs (Respiratory System)

Causes damage to organs through prolonged or repeated exposure (Teeth)

GHS - Precautionary Statement(s) - Prevention

Wear protective gloves, protective clothing, eye, and face protection

Do not breathe dust, fume, gas, mist, vapors, or spray

Wash thoroughly after handling

Do not eat, drink or smoke when using this product

Use only outdoors or in a well-ventilated area

GHS - Precautionary Statement(s) - Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Immediately call a POISON CENTER or doctor/physician

IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower

Wash contaminated clothing before reuse

IF INHALED: Remove person to fresh air and keep comfortable for breathing

Immediately call a POISON CENTER or doctor/physician

Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)

GHS - Precautionary Statement(s) - Storage

Protect from sunlight. Store in a well-ventilated place

Store locked up

GHS - Precautionary Statement(s) - Disposal

Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

Hazards Not Otherwise Classified (HNOC)

None Known

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See Section 11: TOXICOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: HYDROGEN CHLORIDE (HCL), ANHYDROUS HYDROCHLORIC ACID, HYDROCHLORIC ACID GAS, HYDROCHLORIC ACID, ANHYDROUS, Anhydrous HCl

Component	Percent [%]	CAS Number
Hydrochloric Acid [Hydrogen Chloride]	100	7647-01-0

4. FIRST AID MEASURES

INHALATION: If inhaled and adverse effects occur, remove victim to fresh air and keep at rest in a position comfortable for breathing. Evaluate ABC's (is Airway constricted, is Breathing occurring, and is blood Circulating) and treat symptomatically. IF exposed or concerned: Get medical advice/attention. If you feel unwell, GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT: If on skin or hair, immediately flush contaminated areas with water. Immediately remove all contaminated clothing, jewelry, and shoes. Rinse skin with large amounts of water. Thoroughly clean and dry contaminated clothing and shoes before reuse. The specific treatment is dilution with water. There is no antidote. If you feel unwell, IMMEDIATELY CONTACT A POISON CENTER, PHYSICIAN/DOCTOR, OR GET MEDICAL ATTENTION.

EYE CONTACT: Immediately rinse eyes cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION: If swallowed: Rinse mouth. Do NOT induce vomiting. Give large amounts of water. If vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. Never give anything by mouth to an unconscious or convulsive person. GET MEDICAL ATTENTION IMMEDIATELY.

Most Important Symptoms/Effects (Acute and Delayed) Hydrochloric acid may be corrosive to the eyes, skin, and mucus membranes. It may be corrosive to any tissue it comes in contact with. Depending on the concentration, duration, and nature of the exposure, it can cause serious burns and extensive tissue destruction.

Acute Symptoms/Effects: Hydrogen chloride gas in the presence of atmospheric moisture is corrosive to the eyes, skin, and mucus membranes. Hydrogen chloride vapor is heavier than air and may cause asphyxiation in enclosed, poorly ventilated, or low lying areas.

Inhalation (Breathing): Respiratory System Effects: Inhalation of this material may cause: irritation of the respiratory tract with sore throat, coughing, shortness of breath, hoarseness, laryngeal spasms, upper respiratory tract edema, inflammation and ulceration, hemorrhage, chest pain, and pulmonary edema. Measurements of distress include increased respiration rate and decreased tidal volume, decreased forced expiratory volume, increased airway resistance, and reduced vital capacity. You may observe sudden circulatory collapse, glottis or esophageal edema and death.

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Skin: Hydrogen chloride gas is not absorbed through the skin, but when hydrogen chloride gas comes in contact with moisture, it forms hydrochloric acid. Hydrochloric acid is corrosive to tissue, causing redness, irritation (possibly severe), burns, ulceration, scarring, and possible necrosis (tissue death). Sudden circulatory collapse can occur with shock if large areas of skin have been burned. Severe burns have been fatal.

Eye: Serious Eye Damage: Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn.

Ingestion (Swallowing): Ingestion of liquefied gas is not a likely route of exposure. Acute ingestion of concentrated hydrochloric acid may cause nausea, vomiting, abdominal pain, diarrhea, gastrointestinal bleeding, perforation, necrosis, and scarring, acidosis, and sudden circulatory collapse. May be fatal if swallowed.

Delayed Symptoms/Effects:

- Respiratory System Effects: Chronic occupational exposure to hydrochloric acid has been reported to cause chronic bronchitis
- Skin: Repeated and prolonged skin contact may cause a chronic dermatitis
- Eye: Blindness, resulting from corneal burns, damage/loss of internal contents of eye, and perforation of globe
- Gastrointestinal Effects: Chronic occupational exposure has been reported to cause gastritis
- Teeth: Prolonged exposure to low concentrations may also cause dental discoloration and erosion

Interaction with Other Chemicals Which Enhance Toxicity: None known.

Medical Conditions Aggravated by Exposure: May aggravate preexisting conditions such as: eye disorders that decrease tear production or have reduced integrity of the eye; skin disorders that compromise the integrity of the skin; and respiratory conditions including asthma and other breathing disorders.

Protection of First-Aiders: Hydrogen chloride vapor is heavier than air and may cause asphyxiation in enclosed, poorly ventilated, or low lying areas. Protect yourself by avoiding contact with this material. Avoid contact with skin and eyes. Do not breathe dust, fume, gas, mist, vapors, or spray. Do not ingest. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations.

Notes to Physician: Treat as a corrosive substance. Do not attempt to neutralize pH with sodium bicarbonate. Treat via dilution. Water or milk may be used. There is no antidote. Severe burns have been fatal. Treatment is supportive care. Follow normal parameters for airway, breathing, and circulation.

5. FIRE-FIGHTING MEASURES

Fire Hazard: Not combustible, but if involved in a fire decomposes to produce irritants and toxic gases.

Explosive properties: Contains gas under pressure; may explode if heated.

Extinguishing Media: Use media appropriate for surrounding fire.

Fire Fighting: Keep unnecessary people away, isolate hazard area and deny entry. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Move container from fire area if it can be done without risk. Cool non-leaking containers with water. Use water spray to keep fire-exposed containers cool. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

Component	Immediately Dangerous to Life/ Health (IDLH)
Hydrochloric Acid [Hydrogen Chloride] 7647-01-0	50 ppm IDLH

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Hazardous Combustion Products: Hydrogen chloride, Chlorine, Hydrogen gas**Sensitivity to Mechanical Impact:** Not sensitive.**Sensitivity to Static Discharge:** Not sensitive.**Lower Flammability Level (air):** Not flammable**Upper Flammability Level (air):** Not flammable**Flash point:** Not flammable**Auto-ignition Temperature:** Not determined**GHS: PHYSICAL HAZARDS:**- Gas Under Pressure - Liquefied

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:

Remove all ignition sources. Stop spill/leak if no risk involved. Keep unnecessary and unprotected persons away. Isolate hazard area and deny entry. Approach release from upwind. Consider evacuation of personnel located downwind if material is leaking. Do not get in eyes, on skin or on clothing. Do not breathe dust, fume, gas, mist, vapors, or spray. Do not ingest. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS.

Methods and Materials for Containment and Cleaning Up:

Use water fog or spray to knock down and absorb vapors. Shut off ventilation system if needed. Completely contain spilled materials with dikes, sandbags, etc. Reuse or reprocess where possible. Neutralize with soda ash or dilute caustic soda. Collect with appropriate, noncombustible absorbent and place into suitable container. Liquid material may be removed with a properly rated vacuum truck.

Environmental Precautions:

Keep out of water supplies and sewers. This material is acidic and may lower the pH of the surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies.

7. HANDLING AND STORAGE

Precautions for Safe Handling:

Avoid breathing vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section 8) of the MSDS. Use only equipment and hoses approved for this material. NEVER add water to this product. Always add product to large quantities of water. When mixing, slowly add to water to minimize heat generation and spattering. Water or caustic solutions should never be added directly to this product because of violent reaction and spattering.

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Safe Storage Conditions:

Store and handle in accordance with all current regulations and standards. Store in rubber-lined steel, acid-resistant plastic or glass containers. Keep container tightly closed. Store in a cool, dry area. Store in a well-ventilated area. Protect from sunlight. Keep away from heat, sparks and open flames. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet). Do not store in aluminum container or use aluminum fittings or transfer lines. Protect from physical damage. Dike and vent storage tanks.

Incompatibilities/ Materials to Avoid:

Alkalis, metals, oxidizing agents, Mercuric sulfate, Perchloric acid, Carbides of calcium, cesium, rubidium, Acetylides of cesium and rubidium, Phosphides of calcium and uranium, Lithium silicide

GHS: PHYSICAL HAZARDS:

- Gas Under Pressure - Liquefied

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Regulatory Exposure Limit(s): Listed below for the product components that have non-regulatory occupational exposure limits (OEL's).

Component	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PEL Ceiling
Hydrochloric Acid [Hydrogen Chloride] 7647-01-0	-----	-----	5 ppm 7 mg/m ³

OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit

NON-REGULATORY EXPOSURE LIMIT(S): Listed below for the product components that have non-regulatory occupational exposure limits (OEL's).

Component	CAS Number	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Hydrochloric Acid [Hydrogen Chloride]	7647-01-0	-----	-----	2 ppm	-----	-----	5 ppm 7 mg/m ³

- The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

ENGINEERING CONTROLS: Use closed systems when possible. Provide local exhaust ventilation where gas or fumes may be released. Provide local exhaust ventilation where vapor or mist may be generated. Ensure adequate ventilation, especially in confined areas. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

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Eye Protection: Wear chemical safety goggles with a face-shield to protect against eye and skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear chemical resistant clothing and rubber boots when potential for contact with the material exists. Always place pants legs over boots.

Hand Protection: Wear appropriate chemical resistant gloves. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types: Nitrile, Neoprene, Butyl rubber, Polyvinyl chloride (PVC), Responder®, Trelchem® HPS, Tychem®

Component	Immediately Dangerous to Life/ Health (IDLH)
Hydrochloric Acid [Hydrogen Chloride] 7647-01-0	50 ppm IDLH

Respiratory Protection: Where gas, fume, vapor, or mist concentration exceeds or is likely to exceed applicable exposure limits, a NIOSH approved respirator with acid gas cartridges (appropriate for hydrogen chloride) is required. When an air-purifying respirator is not adequate, for exposures above the IDLH or for spills and/or emergencies of unknown concentrations, a NIOSH approved self-contained breathing apparatus or airline respirator with a full-face piece and with an auxiliary self contained escape pack is required. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Gas
Appearance:	Forms white fumes in air
Color:	Colorless to yellow
Odor:	Irritating, Pungent, Sharp
Odor Threshold [ppm]:	0.3 ppm (causes olfactory fatigue).
Molecular Weight:	36.46
Molecular Formula:	HCl
Boiling Point/Range:	-121°F (-85°C)
Freezing Point/Range:	-168°F (-111°C).
Melting Point/Range:	Not applicable
Vapor Pressure:	25.5 atm @ 0°C
Vapor Density (air=1):	1.3 @ 20 °C
Relative Density - Specific Gravity (water=1):	1.19 @ -85°C
Density:	8.75 - 9.83 lbs/gal
Water Solubility:	100%
pH:	0.03647 wt% HCl solution (364 ppm) has a pH of 2
Volatility:	No data available
Evaporation Rate (ether=1):	No data available
Flash point:	Not flammable
Flammability (solid, gas):	Not flammable
Lower Flammability Level (air):	Not flammable

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Upper Flammability Level (air): Not flammable
Auto-ignition Temperature: Not determined

10. STABILITY AND REACTIVITY

Reactivity: Anhydrous hydrogen chloride is rapidly absorbed in water to form corrosive hydrochloric acid. Hydrochloric acid reacts vigorously with alkalis and with many organic materials. Reacts with strong oxidizing materials causing the release of chlorine.

Chemical Stability: Stable at normal temperatures and pressures.

Possibility of Hazardous Reactions:

Avoid heat, flames, sparks and other sources of ignition. Mixing with water may cause splattering and release of large amounts of heat. Will react with some metals forming flammable hydrogen gas. Hydrogen chloride may react with cyanide, forming lethal concentrations of hydrocyanic acid. Avoid contact with incompatible materials.

Conditions to Avoid:

(e.g., static discharge, shock, or vibration) -. None known.

Incompatibilities/ Materials to Avoid:

Alkalis, metals, oxidizing agents, Mercuric sulfate, Perchloric acid, Carbides of calcium, cesium, rubidium, Acetylides of cesium and rubidium, Phosphides of calcium and uranium, Lithium silicide

Hazardous Decomposition Products: chlorine, hydrogen chloride, hydrogen gas

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA:

PRODUCT TOXICITY DATA: HYDROGEN CHLORIDE GAS

LD50 Oral: 700 mg/kg (Rat)	LD50 Dermal: >5010 mg/kg (Rabbit)	LC50 Inhalation: 3124 ppm (1 hr - Rat), converted to 1562 ppm (4 hr - Rat)
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COMPONENT TOXICITY DATA:

Component	LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
Hydrochloric Acid [Hydrogen Chloride] 7647-01-0	700 mg/kg (Rat)	5010 mg/kg (Rabbit)	3124 ppm (1 hr-Rat)

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POTENTIAL HEALTH EFFECTS:

- Eye contact:** Causes serious eye damage. Eye exposure may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn.
- Skin contact:** Can cause severe skin burns. Concentrated hydrochloric acid is corrosive to tissue, causing redness, irritation (possibly severe), burns, ulceration, scarring, and possible necrosis (tissue death).
- Inhalation:** Inhalation of this material may cause: irritation of the respiratory tract with sore throat, coughing, shortness of breath, hoarseness, laryngeal spasms, upper respiratory tract edema, inflammation and ulceration, hemorrhage, chest pain, and pulmonary edema.
- Ingestion:** Ingestion of concentrated hydrochloric acid can cause nausea, vomiting, abdominal pain, diarrhea, gastrointestinal bleeding, perforation, necrosis and scarring, acidosis, and sudden circulatory collapse. May be fatal if swallowed.
- Chronic Effects:** Repeated or prolonged skin exposure to dilute solutions may result in dermatitis. Photosensitization has been reported in chronic occupational skin exposures. Discoloration and erosion of the teeth may occur as a result of long term exposure. Chronic occupational inhalation exposure to hydrochloric acid has been reported to cause chronic bronchitis.

SIGNS AND SYMPTOMS OF EXPOSURE:

Inhalation (Breathing): Respiratory System Effects: Inhalation of this material may cause: irritation of the respiratory tract with sore throat, coughing, shortness of breath, hoarseness, laryngeal spasms, upper respiratory tract edema, inflammation and ulceration, hemorrhage, chest pain, and pulmonary edema. Measurements of distress include increased respiration rate and decreased tidal volume, decreased forced expiratory volume, increased airway resistance, and reduced vital capacity. You may observe sudden circulatory collapse, glottis or esophageal edema and death.

Skin: Hydrogen chloride gas is not absorbed through the skin, but when hydrogen chloride gas comes in contact with moisture, it forms hydrochloric acid. Hydrochloric acid is corrosive to tissue, causing redness, irritation (possibly severe), burns, ulceration, scarring, and possible necrosis (tissue death). Sudden circulatory collapse can occur with shock if large areas of skin have been burned. Severe burns have been fatal.

Eye: Serious Eye Damage: Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn.

Ingestion (Swallowing): Ingestion of liquefied gas is not a likely route of exposure. Acute ingestion of concentrated hydrochloric acid may cause nausea, vomiting, abdominal pain, diarrhea, gastrointestinal bleeding, perforation, necrosis, and scarring, acidosis, and sudden circulatory collapse. May be fatal if swallowed.

TOXICITY:

Hydrochloric acid is corrosive to skin, eyes, and mucus membranes and causes immediate, severe irritation and corrosion of exposed tissue. Prolonged exposures may cause discoloration and erosion of teeth, gastritis, photosensitization, and bronchitis. Ingestion may be fatal. Direct contact with liquid may cause frostbite to exposed tissue (eyes, skin, etc.).

Interaction with Other Chemicals Which Enhance Toxicity: None known

GHS HEALTH HAZARDS:

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GHS: ACUTE TOXICITY - ORAL: Category 4 - Harmful if swallowed.

GHS: ACUTE TOXICITY - INHALATION: Category 4 - Harmful if inhaled.

Skin Absorbent / Dermal Route? No.

GHS: CONTACT HAZARD - SKIN: Category 1B - Causes severe skin burns and eye damage

GHS: CONTACT HAZARD - EYE: Category 1 - Causes serious eye damage

GHS: CARCINOGENICITY: Not classified as a carcinogen per GHS criteria. This product is not classified as a carcinogen by NTP, IARC or OSHA.

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):

Category 1 - Respiratory System

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure):

Category 1 - Teeth, Respiratory System

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

Fish Toxicity:

LC50 Goldfish: 178 mg/L (1 to 2 hour survival time)

LC50 Bluegill: 3.6 mg/L (48 hr)

LC50 Gambusia affinis: 282 mg/L (96 hr)

Invertebrate Toxicity:

LC50 Shrimp: 100 - 330 mg/L

FATE AND TRANSPORT:

BIODEGRADATION: This material is inorganic and not subject to biodegradation.

PERSISTENCE: This material is believed not to persist in the environment. This material is believed to exist in the disassociated state in the environment. If released to soil, hydrogen chloride will sink into the soil. The acid will dissolve some soil material (in particular, anything with a carbonate base) and will be somewhat neutralized. The remaining portion is thought to transport downward to the water table. If released to water, it dissociates almost completely and will be neutralized by natural alkalinity and carbon dioxide.

BIOCONCENTRATION: This material is not expected to bioconcentrate in organisms.

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ADDITIONAL ECOLOGICAL INFORMATION: This material has exhibited toxicity to terrestrial organisms. May decrease pH of waterways and adversely affect aquatic life. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your local or regional regulatory water boards and/or other appropriate regulatory offices.

13. DISPOSAL CONSIDERATIONS

Waste from material:

Reuse or reprocess, if possible. May be subject to disposal regulations. Dispose in accordance with all applicable regulations.

Container Management:

Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

14. TRANSPORT INFORMATION

IMPORTANT: The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

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

UN NUMBER: UN1050
PROPER SHIPPING NAME: Hydrogen chloride, anhydrous
HAZARD CLASS/ DIVISION: 2.3 8
PACKING GROUP: None
LABELING REQUIREMENTS: 2.3, 8
ADDITIONAL INFORMATION: Inhalation Hazard Zone C.
RQ (lbs): RQ 5,000 Lbs. (Hydrogen chloride)

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

UN NUMBER: UN1050
SHIPPING NAME: Hydrogen chloride, anhydrous
CLASS OR DIVISION: 2.3, 8
PACKING/RISK GROUP: None
LABELING REQUIREMENTS: 2.3, 8
OTHER INFORMATION: Inhalation Hazard Zone C

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15. REGULATORY INFORMATION**U.S. REGULATIONS****OSHA REGULATORY STATUS:**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

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

If a release is reportable under CERCLA section 103, notify the state emergency response commission and local emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

Component	CERCLA Reportable Quantities:
Hydrochloric Acid [Hydrogen Chloride]	5000 lb (final RQ)

SARA EHS Chemical (40 CFR 355.30)

If a release is reportable under EPCRA, notify the state emergency response commission and local emergency planning committee. If the TPQ is met, facilities are subject to reporting requirements under EPCRA Sections 311 and 312.

Component	EPCRA RQs	Section 302 Threshold Planning Quantity (TPQs)
Hydrochloric Acid [Hydrogen Chloride]	5000 lb (EPCRA RQ)	500 lb TPQ

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):

Sudden Release of Pressure, Extremely Hazardous, Acute Health Hazard

EPCRA SECTION 313 (40 CFR 372.65):

The following chemicals are listed in 40 CFR 372.65 and may be subject to Community Right-to Know Reporting requirements.

Component	Status:
Hydrochloric Acid [Hydrogen Chloride]	1.0 %

DEPARTMENT OF HOMELAND SECURITY (DHS)- Chemical Facility Anti-Terrorism Standards (6 CFR 27):

Hydrogen chloride is regulated under DHS as follows:

- DHS - Release Min. Concentration
- DHS - Release Screening Threshold Quantity
- DHS - Security Issue
- DHS - Theft Screening Threshold Quantity

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):

Regulated

NATIONAL INVENTORY STATUS

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U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA): All components are listed or exempt.

TSCA 12(b): This product is not subject to export notification.

Canadian Chemical Inventory: All components of this product are listed on either the DSL or the NDSL.

STATE REGULATIONS

Component	California Proposition 65 Cancer WARNING:	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List
Hydrochloric Acid [Hydrogen Chloride] 7647-01-0	Not Listed	Not Listed	Not Listed	Listed	1012	corrosive

Component	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List	Rhode Island Right to Know Hazardous Substance List
Hydrochloric Acid [Hydrogen Chloride] 7647-01-0	Listed	Listed	Not Listed	Present	Listed

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Canada - CEPA Schedule I - Toxic Substance list: Not Listed

WHMIS - Classifications of Substances:

- A - Compressed Gas
- D1A - Poisonous and Infectious Material; Materials causing immediate and serious toxic effects - Very toxic material
- E - Corrosive material

16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Product Stewardship

Rev. Date: 30-Jul-2008

Disclaimer:

This information is intended solely for the use of individuals trained in the NFPA and/or HMIS systems.

HMIS: (SCALE 0-4) (Rated using National Paint & Coatings Association HMIS: Rating Instructions, 2nd Edition)

Health Rating: 3

Flammability Rating: 0

Reactivity Rating: 1

NFPA 704 - Hazard Identification Ratings (SCALE 0-4)

HYDROGEN CHLORIDE GAS

SDS No.: M5404

SDS Revision Date: 30-Jul-2008

Health Rating: 3

Flammability: 0

Reactivity Rating: 1

Reason for Revision:

- Changed the SDS format to meet the GHS requirements of the revised 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)
- Updated the (M)SDS header
- Updated 24 Hour Emergency Telephone Number: SEE SECTION 1
- Product Identifier has been added or updated: SEE SECTION 1
- Updated Uses Advised Against information: SEE SECTION 1
- Added OSHA Status: SEE SECTION 2
- Added GHS Information: SEE SECTION 2
- Added synonym(s): SEE SECTION 3
- Updated First Aid Measures: SEE SECTION 4
- Modified Fire Fighting Measure Recommendations: SEE SECTION 5
- Revised Accidental Release Measures: SEE SECTION 6
- Revised Handling and Storage Recommendations: SEE SECTION 7
- Revised Exposure Controls/Personal Protection information: SEE SECTION 8
- Updated Physical and Chemical Properties. SEE SECTION 9
- Stability and Reactivity recommendations: SEE SECTION 10
- Toxicological Information has been revised: SEE SECTION 11
- Ecological Information has been modified: SEE SECTION 12
- Updated Disposal Considerations. SEE SECTION 13
- Updated Transportation Information: SEE SECTION 14
- Added SDS Revision Date: SEE SECTION 16

IMPORTANT:

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OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees

End of Safety Data Sheet