

# SAFETY DATA SHEET

M34514 NA\_EN



## Occidental Chemical Corporation

A subsidiary of Occidental Petroleum Corporation



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### HYDROCHLORIC ACID (HCl) (ALL GRADES)

MSDS No.: M34514

Rev. Date: 09-Aug-2012

Rev. Num. 06

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## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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**Company Identification:** Occidental Chemical Corporation  
5005 LBJ Freeway  
P.O. Box 809050  
Dallas, TX 75380-9050

**24 Hour Emergency Telephone Number:** 1-800-733-3665 or 1-972-404-3228 (U.S.); CHEMTREC (U.S.): 1-800-424-9300; CHEMTREC (outside U.S.): +1 703-527-3887

**To Request an SDS:** MSDS@oxy.com or 1-972-404-3245

**Customer Service:** 1-800-752-5151 or 1-972-404-3700

**Trade Name:** Hydrochloric Acid (HCl) aqueous all grades

**Synonyms:** Muriatic Acid, HCl Solution, Aqueous hydrogen chloride

**Product Use:** Process chemical, Metal cleaning, Water purification, Petroleum Industry

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## 2. HAZARDS IDENTIFICATION

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### EMERGENCY OVERVIEW:

**Color:** Colorless  
**Physical State:** Liquid  
**Appearance:** Clear  
**Odor:** Irritating, Pungent, Sharp

**Signal Word:** **Danger**

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**MAJOR HEALTH HAZARDS:** CAUSES BURNS TO THE RESPIRATORY TRACT, SKIN AND EYES. CAUSES PERMANENT EYE DAMAGE. DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING.

**PHYSICAL HAZARDS:** May spatter or generate heat when mixed with water. Contact with metals may evolve flammable hydrogen gas.

**PRECAUTIONARY STATEMENTS:** Do not breathe vapor or mist. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Wash thoroughly after handling. Use only with adequate ventilation.

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## POTENTIAL HEALTH EFFECTS:

**Inhalation:** May cause irritation (possibly severe), chemical burns, and pulmonary edema.

**Skin contact:** May cause irritation (possibly severe) and chemical burns.

**Eye contact:** May cause irritation (possibly severe), chemical burns, eye damage, and blindness.

**Ingestion:** Not a likely route of exposure.

**Chronic Effects:** Repeated or prolonged exposure to dilute solutions may result in dermatitis. Discoloration of the teeth may occur as a result of long term exposure.

**Interaction with Other Chemicals Which Enhance Toxicity:** None known.

**Medical Conditions Aggravated by Exposure:** None known.

See Section 11: TOXICOLOGICAL INFORMATION

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	%	CAS Number
Hydrogen chloride	9 - 36	7647-01-0
Water	63 - 91	7732-18-5

## 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. If respiration or pulse has stopped, have a trained person administer basic life support (Cardio-Pulmonary Resuscitation and/or Automatic External Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY.

**SKIN CONTACT:** Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately. Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing and shoes before reuse. GET MEDICAL ATTENTION IMMEDIATELY.

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Rev. Num. 06

---

**EYE CONTACT:** Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

**INGESTION:** Not a likely route of exposure.

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## 5. FIRE-FIGHTING MEASURES

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**Fire Hazard:** Negligible fire hazard.

**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. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

**Sensitivity to Mechanical Impact:** Not sensitive.

**Sensitivity to Static Discharge:** Not sensitive.

**Flash point:** Not flammable

**Hazardous Combustion Products:** Hydrogen chloride, Chlorine, Hydrogen gas

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## 6. ACCIDENTAL RELEASE MEASURES

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**Occupational Release:** Remove sources of ignition. Wear appropriate personal protective equipment recommended in Section 8 of the SDS. Stop leak if possible without personal risk. Consider evacuation of personnel located downwind if material is leaking. Shut off ventilation system if needed. Completely contain spilled material with dikes, sandbags, etc. Neutralize with soda ash or dilute caustic soda. Collect with appropriate absorbent and place into suitable container. Liquid material may be removed with a properly rated vacuum truck. 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.

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## 7. HANDLING AND STORAGE

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**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. Keep away from heat, sparks and open flames. Keep separated from incompatible substances (see Section 10 of SDS). Do not store in aluminum container or use aluminum fittings or transfer lines. Protect from physical damage. Dike and vent storage tanks.

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**Handling Procedures:** Avoid breathing vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. When mixing, slowly add to water to minimize heat generation and spattering.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Regulatory Exposure Limit(s):** As listed below

Component	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PEL Ceiling
Hydrogen chloride 7647-01-0	-----	-----	5 ppm 7 mg/m <sup>3</sup>

**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):** As listed below

Component	CAS Number	ACGIH TWA	ACGIH STEL	ACGIH Ceiling	OSHA TWA (Vacated)	OSHA STEL (Vacated)	OSHA Ceiling (Vacated)
Hydrogen chloride	7647-01-0	-----	-----	2 ppm	-----	-----	5 ppm 7 mg/m <sup>3</sup>

- 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 vapor or mist may be generated. Ensure compliance with applicable exposure limits.

### PERSONAL PROTECTIVE EQUIPMENT:

**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)
Hydrogen chloride	50 ppm IDLH

**Respiratory Protection:** A NIOSH approved full-face respirator equipped with acid gas cartridges (appropriate for hydrogen chloride) may be permissible when symptoms have been observed that are indicative of overexposure. When the level may be above the IDLH, use an SCBA or pressure-demand supplied air with an auxiliary self-contained escape pack. Pressure-demand SCBA (self-contained breathing apparatus) must be used when there is a potential for uncontrolled release or unknown concentrations. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Liquid
<b>Appearance:</b>	Clear
<b>Color:</b>	Colorless
<b>Odor:</b>	Irritating, Pungent, Sharp
<b>Odor Threshold:</b>	0.3 ppm (causes olfactory fatigue)
<b>Molecular Weight:</b>	36.46
<b>Molecular Formula:</b>	HCl
<b>Boiling Point/Range:</b>	140 - 221°F (60 - 105 °C)
<b>Freezing Point/Range:</b>	-29 to 5 °F (-34 to -15 °C)
<b>Vapor Pressure:</b>	14.6 - 80 mmHg @ 20 °C
<b>Vapor Density (air=1):</b>	1.3 @ 20 °C
<b>Specific Gravity (water=1):</b>	1.05 - 1.18
<b>Density:</b>	8.75 - 9.83 lbs/gal
<b>Water Solubility:</b>	100%
<b>pH:</b>	2 @ (0.2% solution)
<b>Volatility:</b>	9 - 36% by volume
<b>Evaporation Rate (ether=1):</b>	< 1.00 (butyl acetate = 1)
<b>Flash point:</b>	Not flammable

## 10. STABILITY AND REACTIVITY

**Reactivity/ Stability:** Stable at normal temperatures and pressures.

**Conditions to Avoid:** Avoid heat, flames, sparks and other sources of ignition. Avoid contact with water. 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.

**Incompatibilities/ Materials to Avoid:** Metals, Alkalis, 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

**IRRITATION DATA:** As listed below

<b>Standard Draize (Eye):</b>	rabbit-eye mild
<b>Standard Draize (Skin):</b>	human-skin mild

# HYDROCHLORIC ACID (HCl) (ALL GRADES)

M34514 NA\_EN

MSDS No.: M34514

Rev. Date: 09-Aug-2012

Rev. Num. 06

## TOXICITY DATA:

Component	LD50 Oral:	LC50 Inhalation:	LD50 Dermal:
Hydrogen chloride	700 mg/kg (Rat)	3124 ppm (1 hr-Rat)	5010 mg/kg (Rabbit)
Water	900 mg/kg (Rabbit)	1108 ppm (1hr-Rat)	

## **TOXICITY:**

Inhalation will cause severe irritation and possible burns with coughing and choking. If inhaled deeply, edema and hemorrhage of the lungs may occur. Prolonged exposure may cause discoloration and/or erosion of teeth. Contact with eyes causes immediate severe irritation with possible burns, permanent visual impairment, or total loss of sight. Skin contact with this material may cause severe irritation and corrosion of tissue. Ingestion may cause immediate burns of the mouth, esophagus, and stomach. Ingestion may cause intense pain, nausea, vomiting, bleeding, circulating collapse, shock, and death.

**CARCINOGENICITY:** This product is not classified as a carcinogen by NTP, IARC or OSHA.

## 12. ECOLOGICAL INFORMATION

### ECOTOXICITY DATA:

- **Aquatic Toxicity:**  
LC50 Gambusia affinis: 282 mg/L 96 hr.
- **Fish Toxicity:**  
LC50 Goldfish: 178 mg/L (1 to 2 hour survival time)
- **Freshwater Fish Toxicity:**  
LC50 Bluegill: 3.6 mg/L 48 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.

**ADDITIONAL ECOLOGICAL INFORMATION:** This material has exhibited toxicity to terrestrial organisms. May decrease pH of waterways and adversely affect aquatic life.

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MSDS No.: M34514

Rev. Date: 09-Aug-2012

Rev. Num. 06

## 13. DISPOSAL CONSIDERATIONS

Reuse or reprocess, if possible. All disposals of this material must be done in accordance with local, state and federal regulations. Dispose in accordance with all applicable regulations. May be subject to disposal regulations: U.S. EPA 40 CFR 261.

## 14. TRANSPORT INFORMATION

### U.S. DOT 49 CFR 172.101:

**UN NUMBER:** UN1789  
**PROPER SHIPPING NAME:** Hydrochloric acid solution  
**HAZARD CLASS/ DIVISION:** 8  
**PACKING GROUP:** II  
**LABELING** 8  
**REQUIREMENTS:**  
**RQ (lbs):** RQ 5,000 Lbs. (Hydrochloric acid)

### CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

**UN NUMBER:** UN1789  
**SHIPPING NAME:** Hydrochloric acid solution  
**CLASS OR DIVISION:** 8  
**PACKING/RISK GROUP:** II

## 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:
Hydrogen chloride	5000 lb (final RQ)

- **EPCRA EXTREMELY HAZARDOUS SUBSTANCES (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.

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MSDS No.: M34514

Rev. Date: 09-Aug-2012

Rev. Num. 06

Component	EPCRA RQs	Threshold Planning Quantity (TPQs)
Hydrogen chloride	5000 lb (EPCRA RQ)	500 lb (TPQ) gas only

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

Acute Health Hazard, Reactive 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:
Hydrogen chloride	Listed – Aerosol form only

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

## NATIONAL INVENTORY STATUS

**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

### California Proposition 65:

This product is not listed, but it may contain impurities/trace elements known to the State of California to cause cancer or reproductive toxicity as listed under Proposition 65 State Drinking Water and Toxic Enforcement Act.

Hydrogen chloride	
<b>California Proposition 65 Cancer WARNING:</b>	Not Listed
<b>California Proposition 65 CRT List - Male reproductive toxin:</b>	Not Listed
<b>California Proposition 65 CRT List - Female reproductive toxin:</b>	Not Listed
<b>Massachusetts Right to Know Hazardous Substance List</b>	Listed
<b>New Jersey Right to Know Hazardous Substance List</b>	sn 1012; sn 2909 (gas only)
<b>New Jersey Special Health Hazards Substance List</b>	corrosive
<b>New Jersey - Environmental Hazardous Substance List</b>	Listed
<b>Pennsylvania Right to Know Hazardous Substance List</b>	Listed
<b>Pennsylvania Right to Know Special Hazardous Substances</b>	Not Listed
<b>Pennsylvania Right to Know Environmental Hazard List</b>	Listed
<b>Rhode Island Right to Know Hazardous Substance List</b>	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.

<b>Canada - CEPA Schedule I - Toxic Substance list</b>	Not Listed
<b>WHMIS - Classifications of Substances:</b>	• E - Corrosive material



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## 16. OTHER INFORMATION

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**Prepared by:** OxyChem Corporate HESS - Product Stewardship

**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:** 3                      **Flammability:** 0                      **Reactivity:** 1

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

**Health:** 3                      **Flammability:** 0                      **Reactivity:** 1

**Reason for Revision:**

- Updated 24 Hour Emergency Telephone Number: SEE SECTION 1
- PPE recommendations have been modified: SEE SECTION 8
- Updated Transportation Information: SEE SECTION 14
- Revised California Proposition 65 Statement: SEE SECTION 15
- Revised Preparer Information: SEE SECTION 16
- Added "End of Safety Data Sheet" phrase

**IMPORTANT:**

The information presented herein, while not guaranteed, was prepared by technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, SAFETY, SUITABILITY, STABILITY OR OTHERWISE. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and OxyChem assumes no liability whatsoever for the use of or reliance upon this information. While our technical personnel will be happy to respond to questions, safe handling and use of the product remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any Federal, State, local or foreign laws.

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.

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**End of Safety Data Sheet**