

# Material Safety Data Sheet

Part No. 184713-A

Reviewed: 02/01/06

## Section I. Substance Identity and Company Contact Information

<b>Product name</b>	Hydrochloric acid (less than 10%)	<b>Product part number</b>	324049
<b>Trade name</b>	Reagent-HCL, 2N	<b>Unit size</b>	1 L
<b>Company</b>	OI Analytical P.O. Box 9010 College Station, TX 77842-9010 Phone: (979) 690-1711 Fax: (979) 690-0440		

**Emergency No. 1-800-424-9300 (Chemtrec).** Use only in the event of chemical emergencies involving spills, leaks, fire, exposure, or accidents involving chemicals.

## Section II. Chemical Composition and Data on Components

Ingredient	CAS No.	Percent	Hazardous
Hydrogen chloride	7647-01-0	0.7-8	Yes
Water	7732-18-5	92-99	No

## Section III. Hazards Identification

**Emergency overview** Danger! Corrosive. Liquid and mist cause severe burns to all body tissue. May be fatal if swallowed or inhaled.

**SAF-T-DATA™ ratings**

<i>Health</i>	3-Severe (poison)
<i>Flammability</i>	0-None
<i>Reactivity</i>	1-Slight
<i>Contact</i>	4-Extreme (corrosive)
<i>Lab protective equipment</i>	Goggles and shield; lab coat and apron; vent hood; proper gloves
<i>Storage color code</i>	White (corrosive)

**Potential health effects** Health hazards given on this MSDS apply to concentrated solutions of hydrochloric acid. Hazards of dilute solutions may be reduced, depending upon the concentration. Degree of hazard for these reduced concentrations is not currently addressed in the available literature.

*Inhalation* Corrosive! Inhalation of vapors can cause coughing, choking, inflammation of the nose, throat, and upper respiratory tract, and in severe cases, pulmonary edema, circulatory failure, and death.

*Ingestion* Corrosive! Swallowing hydrochloric acid can cause immediate pain and burns of the mouth, throat, esophagus, and gastrointestinal tract. May cause nausea, vomiting, and diarrhea, and in severe cases, death.

*Skin* Corrosive! Can cause redness, pain, and severe skin burns. Concentrated solutions cause deep ulcers and discolor skin.

*Eye* Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.



<i>Chronic exposure</i>	Long-term exposure to concentrated vapors may cause erosion of teeth. Long-term exposures seldom occur due to the corrosive properties of the acid.
<i>Aggravation of pre-existing conditions</i>	Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

## Section IV. First Aid Measures

The first aid procedures given apply to concentrated solutions. Exposures to dilute solutions may not require these extensive first aid procedures.

<b>Inhalation</b>	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
<b>Ingestion</b>	If swallowed, do not induce vomiting. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.
<b>Skin contact</b>	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

## Section V. Fire-fighting Measures

<b>Fire</b>	Not considered to be a fire hazard. May react with metals or heat to release flammable hydrogen gas.
<b>Explosion</b>	Not considered to be an explosion hazard.
<b>Fire extinguishing media</b>	Water or water spray. Neutralize with soda ash or slaked lime.
<b>Special information</b>	In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode. Structural firefighter's protective clothing is ineffective for fires involving hydrochloric acid. Stay away from ends of tanks. Cool tanks with water spray until well after the fire is out.

## Section VI. Accidental Release Measures

<b>Spills and leaks</b>	Ventilate the area of leaks or spills. Wear appropriate personal protective equipment as specified in Section VIII. Isolate the hazard area. Keep unnecessary and unprotective personnel from entering. Contain the recover liquid when possible. Neutralize with alkaline material (soda ash, lime), then absorb with an inert material, e.g., vermiculite, dry sand, earth, and place in a chemical waste container. Do not use combustible materials such as sawdust. Do not flush to sewer. US regulations (CERCLA) require reporting spills and releases to soil, water, and air in excess of reportable quantities. The toll-free number for the US coast Guard National Response Center is (800) 424-8802.
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Products such as J.T. Baker NEUTRASORB<sup>®</sup> or TEAM<sup>®</sup> Low Na<sup>+</sup> acid neutralizers are recommended for spills of this product.

## Section VII. Handling and Storage

Store in a cool, dry, ventilated storage area with acid-resistant floors and good drainage. Protect from physical damage. Keep out of direct sunlight and away from heat and incompatible materials. Do not wash out container and use it for other purposes. When diluting, always add the acid to water; never add water to the acid. When opening metal containers, use nonsparking tools because of the possibility of hydrogen gas being present. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

## Section VIII. Exposure Controls and Personal Protection

<b>Airborne exposure limits</b>	For hydrochloric acid: OSHA Permissible Exposure Limit (PEL): 5 ppm (ceiling) ACGIH Threshold Limit Value (TLV): 2 ppm (ceiling), A4 not classifiable as a human carcinogen
<b>Ventilation system</b>	A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, <i>Industrial Ventilation, A Manual of Recommended Practices</i> , most recent edition, for details.
<b>Personal respirators (NIOSH approved)</b>	If the exposure limit is exceeded and engineering controls are not feasible, a full face piece respirator with an acid gas cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.
<b>Skin protection</b>	Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure to prevent skin contact.
<b>Eye protection</b>	Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

## Section IX. Physical and Chemical Properties

<b>Appearance and color</b>	Clear, colorless solution
<b>Form</b>	Solution
<b>Odor</b>	Pungent, hydrochloric acid
<b>Solubility</b>	Infinitely soluble
<b>Property</b>	<b>Value at Temperature or Pressure</b>
<b>Specific gravity</b>	ca. 1
<b>pH</b>	For HCL solutions: 0.1 (1.0 N), 1.1 (0.1 N), 2.02 (0.01 N)
<b>% Volatiles by volume</b>	100 (as water and acid) @ 21 °C (70 °F)
<b>Boiling point</b>	ca. 100 °C (ca. 212 °F)
<b>Melting point</b>	ca. 0 °C (ca. 32 °F)
<b>Vapor density (Air=1)</b>	Essentially the same as water
<b>Vapor pressure (mm Hg)</b>	Essentially the same as water
<b>Evaporation rate (BuAc=1)</b>	Essentially the same as water

## Section X. Stability and Reactivity

<b>Stability</b>	Stable under ordinary conditions of use and storage.
<b>Hazardous decomposition products</b>	When heated to decomposition, emits toxic hydrogen chloride fumes and will react with water or steam to produce heat and toxic and corrosive fumes. Thermal oxidative decomposition produces toxic chlorine fumes and explosive hydrogen gas.
<b>Hazardous polymerization</b>	Will not occur.
<b>Incompatibilities</b>	A strong mineral acid, concentrated hydrochloric acid is highly reactive with strong bases, metals, metal oxides, hydroxides, amines, carbonates and other alkaline materials. Incompatible with materials such as cyanides, sulfides, sulfites, and formaldehyde.
<b>Conditions to avoid</b>	Heat, direct sunlight, incompatibles.

## Section XI. Toxicological Information

<b>Hydrochloric acid</b>	<i>Inhalation rat</i>	3124 ppm/1H LC50
	<i>Oral rabbit</i>	900 mg/kg LD50

Investigated as a tumorigen, mutagen, reproductive effector.

### Cancer List

Ingredient	NTP Carcinogen		IARC category
	Known	Anticipated	
Hydrogen chloride (7647-01-0)	No	No	3
Water (7732-18-5)	No	No	None

## Section XII. Ecological Information

<b>Environmental Fate</b>	For hydrochloric acid (concentrated solutions): When released into the soil, this material is not expected to biodegrade. When released into the soil, this material may leach into groundwater.
<b>Environmental Toxicity</b>	For hydrochloric acid (concentrated solutions): This material may be toxic to aquatic life. LC50 shrimp: 100–300 ppm/48-hr/salt water; LC100 trout: 10 mg/l/24-hr; TLm mosquito fish: 282 ppm/96-hr.

## Section XIII. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## Section XIV. Transport Information

	D.O.T. (Land)	I.M.O. (Water)	I.C.A.O. (Air)
<b>Proper shipping name</b>	Hydrochloric acid solution	Hydrochloric acid solution	Hydrochloric acid solution
<b>Hazard class</b>	8	8	8
<b>UN/NA</b>	UN1789	UN1789	UN1789
<b>Packing group</b>	II	II	II
<b>Information reported for product/size</b>	200 L	200 L	200 L

## Section XV. Regulations

### Chemical Inventory Status--Part 1

Ingredient	TSCA	EC	Japan	Australia
Hydrogen chloride (7647-01-0)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

### Chemical Inventory Status--Part 2

Ingredient	Korea	Canada		
		DSL	NDSL	Phil.
Hydrogen chloride (7647-01-0)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

### Federal, State, International Regulations--Part 1

Ingredient	SARA 302		SARA 313	
	RQ	TPQ	List	Chem. Catg.
Hydrogen chloride (7647-01-0)	5,000	500	Yes	No
Water (7732-18-5)	No	No	No	No

### Federal, State, International Regulations--Part 2

Ingredient	CERCLA	RCRA 261.33	TSCA 8 (d)
Hydrogen chloride (7647-01-0)	5,000	No	No
Water (7732-18-5)	No	No	No

### Chemical Weapons Convention

No

### TSCA 12 (b)

No

### CDTA

Yes

### SARA 311/312

*Acute*

Yes

*Chronic*

Yes

*Fire*

No

*Pressure*

No

*Reactivity*

No (Mixture/liquid)

### Australian Hazchem code

None allocated

### Poison schedule

None allocated

### WHMIS

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## Section XVI. Other Information

### NFPA ratings

*Health* 3

*Flammability* 0

*Reactivity* 0

### Label hazard warning

DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR INHALED.

<b>Label precautions</b>	Do not get in eyes, on skin, or on clothing. Do not breathe vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.
<b>Label first aid</b>	In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In all cases get medical attention immediately.
<b>Product use</b>	Laboratory reagent

For R&D use only. Not for drug, household, or other uses.

Judgements as to the suitability of information herein for the purchaser's purpose are necessarily the purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of such information, OI Analytical extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser's intended purpose for consequences of its use.

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