

MATERIAL SAFETY DATA SHEET

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SECTION 1 – IDENTIFICATION

PRODUCT IDENTIFIER:	HYDROCHLORIC ACID
PRODUCT USE:	Acidizing of petroleum wells, boiler scale removal, pickling & metal cleaning, chemical intermediate, ore reduction, and pH control.
MANUFACTURER:	Canexus Chemicals Canada Limited Partnership 100 Amherst Avenue North Vancouver, British Columbia, Canada V7H 1S4 Emergency, call: (604) 929-3441 To Request an MSDS, call: 1-800-699-6924

This MSDS is available in French upon request.

Cette fiche signalétique est disponible en français sur demande.

SECTION 2 - HAZARDS IDENTIFICATION

WHMIS CLASSIFICATION:

E - Corrosive Material



D1A - Very Toxic Material causing immediate and serious toxic effects



EMERGENCY OVERVIEW:

Extremely corrosive. The severity of damage depends on the concentration of the acid and the duration of the exposure. In general, solutions and mists with a pH of 3 or less are a significant health concern. Contact with water will generate extreme heat. Contact with most metals will generate flammable hydrogen gas.

EFFECTS OF SHORT-TERM (ACUTE) EXPOSURE:

INHALATION: Recognition odour in air is 10 ppm. Vapour or mist at 35 ppm cause irritation of the throat, in the 50 to 100 ppm range can cause severe nasal irritation, sore throat, choking, coughing and difficulty breathing. Prolonged exposures can cause burns and ulcers to the nose and throat. Even brief exposures at 1000 to 2000 ppm can cause a life-threatening accumulation of fluid in the lungs called pulmonary edema. Symptoms of pulmonary edema such as shortness of breath may be delayed for 48 hours after exposure.

SKIN CONTACT: Contact with liquid can cause severe irritation, burns, and permanent scarring or even death. Vapour or mist may cause redness, irritation and burns if contact is prolonged.

EYE CONTACT: Low concentrations of vapour or mist (10 - 35 ppm) can be immediately irritating and result in redness. Concentrated vapour, mist or splashed liquid can cause severe irritation, burns and permanent blindness.

INGESTION: Liquid can cause severe corrosive burns to mouth, throat, esophagus and stomach. Symptoms may include difficulty in swallowing, intense thirst, nausea, vomiting, diarrhea and in severe cases, collapse and death. Small amounts of acid which enter the lungs during ingestion or vomiting (aspiration) can cause serious lung injury and death.

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EFFECTS OF LONG-TERM (CHRONIC) EXPOSURE:

Repeated and prolonged exposure to low concentrations of mist or vapour can cause discolouration and damage to tooth enamel, bleeding of the nose and gums, and chronic bronchitis and gastritis. Repeated exposure to low concentrations of liquid, mist or vapour can cause redness, swelling and pain (dermatitis). No evidence of carcinogenicity in human studies. Hydrochloric acid does not accumulate in the body.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Pre-existing eye, respiratory and skin disorders.

SECTION 3 - COMPOSITION

HAZARDOUS INGREDIENTS	% (w/w)	CAS NUMBER
Hydrochloric Acid	30-37	7647-01-0

SECTION 4 - FIRST AID MEASURES

SKIN CONTACT: Avoid direct contact. Wear impervious protective gloves if necessary. Immediately flush contaminated areas with lukewarm, gently running water for at least 20 minutes. Under running water, remove contaminated clothing, shoes, and leather goods such as watchbands and belts. **DO NOT INTERRUPT FLUSHING** - have emergency vehicle wait if necessary. Get medical attention immediately. Decontaminate clothing, shoes and leather goods before reuse or discarding.

EYE CONTACT: Immediately flush contaminated eye(s) with lukewarm, gently running water for at least 20 minutes while holding the eyelid(s) open. Take care not to rinse contaminated water into a non-affected eye. Neutral saline solution may be used for flushing if available. **DO NOT INTERRUPT FLUSHING** - have emergency vehicle wait if necessary. If irritation persists, repeat flushing. Get medical attention immediately.

INGESTION: Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or is convulsing. Have victim rinse mouth thoroughly with water. **DO NOT INDUCE VOMITING.** Have victim drink 300 mL (10 oz.) of water. If milk is available, administer **AFTER** the water. If vomiting occurs naturally, have the victim lean forward to reduce risk of aspiration. Repeat administration of water. Get medical attention immediately.

INHALATION: Take precautions to ensure your own safety before attempting rescue. Wear appropriate personal protective equipment and use the 'buddy' system. Remove victim to fresh air. If breathing has stopped, begin artificial respiration, or if the heart has stopped, begin cardiopulmonary resuscitation (CPR) immediately. Oxygen should be administered by a trained person. Ensure victim is completely at rest - allow no physical exertion. Symptoms may be delayed for up to 48 hours. Get medical attention immediately.

GENERAL COMMENTS: Provide general supportive measures (comfort, warmth, rest). Seek medical attention for all exposures except minor instances of inhalation or skin contact. First-aid procedures should be reviewed by appropriate personnel familiar with hydrochloric acid and its conditions of use in the workplace.

SECTION 5 – FIRE FIGHTING MEASURES

FLASH POINT:	Does not burn	LOWER FLAMMABILITY LIMITS:	Not applicable	SENSITIVITY TO MECHANICAL IMPACT:	Not sensitive
AUTOIGNITION TEMPERATURE:	Not applicable	UPPER FLAMMABILITY LIMITS:	Not applicable	SENSITIVITY TO STATIC DISCHARGE:	Not sensitive

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HAZARDOUS COMBUSTION PRODUCTS: Thermally stable up to 1500 degrees C. At higher temperatures it decomposes to form hydrogen and chlorine.

EXTINGUISHING MEDIA: Does not burn. Use extinguishing agents suitable for the surrounding fire.

FIRE FIGHTING INSTRUCTIONS: Wear adequate personal protective equipment. Use water to keep fire-exposed containers cool to prevent rupture. Use water spray or fog to reduce or direct vapours. Do not direct water at source of leak. Trained personnel may neutralize a spill. Contact with common metals produces hydrogen gas which may form explosive mixtures in air.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD INDEX:

HEALTH: 3 - Corrosive or toxic. Avoid skin contact or inhalation

FLAMMABILITY: 0 - Not combustible

REACTIVITY: 1 - Not reactive when mixed with water

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTION: Evacuate unnecessary personnel from spill area and keep unprotected persons upwind. Wear appropriate personal protective equipment. Ventilate area. Vapour is heavier than air and will collect in low areas. Do not touch spilled hydrochloric acid.

ENVIRONMENTAL PRECAUTIONS: Implement spill control plan. Stop or reduce leak if safe to do so. Prevent from entering sanitary or storm sewers, waterways, or confined spaces. Use inert materials such as earth or sand to form dike.

REMEDIATION MEASURES: Restrict access to area until completion of cleanup. Ensure cleanup is conducted by trained personnel only. Use all appropriate personal protective equipment. For small spills: absorb with neutralizing materials such as soda ash or lime and collect in sealed containers. Flush area with water. For large spills, contain and collect spilled material if possible. Notify government occupational health and safety and environmental authorities as per applicable regulations. In the United States, releases over 5,000 pounds must be reported to the National Response Center at 1-800-424-8802.

SECTION 7 - HANDLING AND STORAGE

HANDLING: Prevent release of vapour or mist into workplace air. Ensure adequate ventilation. Have emergency equipment readily available. When diluting, slowly add acid to the water to avoid boiling or splattering. Keep containers closed when not in use. When opening metal containers, use non-sparking tools because of the possibility of the presence of hydrogen gas.

STORAGE: Store in a cool, dry, well ventilated area, out of direct sunlight and away from heat sources on acid resistant floor with good drainage. Drums should be vented when received and then at least weekly to relieve internal pressure. Store away from incompatible materials such as oxidizing materials, reducing materials, and strong bases. Keep storage area separate from populated work areas.

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SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

EXPOSURE LIMITS:

ACGIH TLV-C: 2 ppm A4, Not classifiable as a human carcinogen

OSHA PEL-C: 5 ppm

ENGINEERING CONTROLS: Use general or local exhaust ventilation to maintain exposure below the exposure limits. These controls may need to be augmented by the use of process or personnel enclosures, control of process conditions, or by process modification.

RESPIRATORY PROTECTION: If respiratory protection is required, NIOSH recommends for hydrogen chloride in air: Up to 50 ppm: Chemical cartridge respirator with hydrogen chloride cartridge(s), powered air-purifying respirator with appropriate cartridge(s), Supplied Air Respirator (SAR), or a full face-piece SCBA.

IDLH Conditions (50 ppm) or Planned Entry in Unknown Concentrations: Positive pressure, full face-piece SCBA, or positive pressure full face-piece SAR with an auxiliary positive pressure SCBA.

Escape: Gas mask with canister, or escape type SCBA.

NOTE: Air purifying respirators do not protect against oxygen deficient atmospheres.

In Brazil, use equipment with certificate of approval emitted by the Ministry of Labour.

SKIN PROTECTION: Wear impervious rubber or neoprene gloves and boots and/or other protective clothing according to circumstances. Some operations may require the use of an impervious full-body encapsulating suit.

EYE AND FACE PROTECTION: Eye protection is required. Chemical safety goggles are recommended. The wearing of contact lenses is not recommended.

OTHER: Have a safety shower and eye wash station readily available in the immediate work area.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Colourless or slightly yellow fuming liquid.	MELTING POINT:	-35 °C, 31.5% HCl
ODOUR:	Pungent. Detection at 1-5 ppm.	BOILING POINT:	108.6 °C @ 20.2% HCl
pH:	Zero (0); strongly acidic	CRITICAL TEMPERATURE:	Not applicable
VAPOUR PRESSURE:	13.3 kPa (100 mm Hg) at 20 °C, 36% HCl	RELATIVE DENSITY:	1.18 @ 20 °C, 36% HCl
SOLUBILITY:	Soluble in water in all proportions. Very soluble in alcohols.	PARTITION COEFFICIENT: n-OCTANOL/WATER	Not available.
VAPOUR DENSITY:	1.268 @ 20 °C (air = 1)	EVAPORATION RATE:	Not available.

SECTION 10 - STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable.

INCOMPATIBILITY: Large amounts of heat can be generated when concentrated acid is mixed with water or organic solvents. Very corrosive to most metals, producing flammable hydrogen gas. Reacts violently with bases to produce heat. Reacts with reducing agents to produce heat, fire and flammable hydrogen gas. Reacts with oxidizing agents to produce heat and toxic or corrosive chloride gases. Contact with explosives may cause detonation. Reacts with cyanides to produce toxic cyanide gas, and sulphides to produce toxic hydrogen sulphide gas.

HAZARDOUS DECOMPOSITION PRODUCTS: Toxic chlorine fumes and explosive hydrogen gas produced by thermal oxidative decomposition.

HAZARDOUS POLYMERIZATION: HCl does not polymerize. Reaction with some incompatible materials (such as aldehydes, epoxides) can cause polymerization.

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SECTION 11 - TOXICOLOGICAL INFORMATION

ACUTE EFFECTS:

LC50 Rat Inhalation: 3124 ppm/1hr

LC50 Mouse Inhalation: 1108 ppm/1hr

LC50 Rabbit Oral: 900 mg/kg

CARCINOGENICITY, ACGIH: A4, Not classifiable as a human carcinogen

SENSITIZATION: Not a sensitizer

TERATOGENICITY: Not expected

REPRODUCTIVE EFFECTS: Not expected

MUTAGENICITY: Inconclusive

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

LC50 Trout: 10 mg/L/24 hr

LC50 Shrimp: 100 to 330 mg/L/48 hr

Hydrochloric acid can be acutely toxic to aquatic life through reduction of aqueous pH to toxic levels. Typically, most aquatic species are intolerant of pH levels of less than 5.5 for any extended length of time. Lowered pH may also cause liberation of toxic metals.

ECOLOGICAL FATE INFORMATION:

Does not accumulate in the body. Dissociates in water. May be neutralized by naturally occurring buffering agents such as carbonate if present.

SECTION 13 - DISPOSAL CONSIDERATIONS

Neutralize with limestone, soda ash or slaked lime. Flushing to sewer with high dilution depends on allowable neutral salt concentration in effluent water. Consult with environmental regulatory agencies for guidance on acceptable disposal practices.

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SECTION 14 - TRANSPORT INFORMATION

CANADIAN TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:

Hydrochloric acid, Class 8, UN1789, PG II

ERAP Index QUANTITY RESTRICTION: 3,000 L, >20% concentration

US DOT HAZARDOUS MATERIALS REGULATIONS:

Hydrochloric acid, solution, Class 8, UN1789, PG II

Reportable Quantity, RQ = 5,000 lbs.

BRAZILIAN TRANSPORTATION REQUIREMENTS:

Decreto Lei N 96.044 de 18.05.88: Regulamentação do Transporte Rodoviário de Produtos Perigosos

Portaria MT 204 de 20.05.1997: Instrução Complementar aos Regulamentos dos Transportes Rodoviários e Ferroviários de Produtos Perigosos

NBR 7500: Símbolos de Risco e Manuseio para o Transporte e Armazenagem de Materiais

NBR 7501: Terminologia - Transporte de Produtos Perigosos

NBR 7502: Transporte de Cargas Perigosas - Classificação

NBR 7503: Ficha de Emergência para o Transporte de Produto Perigoso - Características e Dimensões

NBR 7504: Envelope para o Transporte de Produtos Perigosos - Dimensões e Utilização

NBR 8285: Preenchimento da Ficha de Emergência para o Transporte de Produtos Perigosos - Procedimento

NBR 8286: Emprego de Simbologia para o Transporte de Produtos Perigosos - Procedimentos

NBR 9734: Conjunto de Equipamentos de Proteção Individual para Avaliação de Emergência e Fuga no Transporte Rodoviário de Produtos Perigosos – Procedimentos

NBR 9735: Conjunto de Equipamentos para Emergência no Transporte Rodoviário de Produtos Perigosos - Procedimentos

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SECTION 15 – REGULATORY INFORMATION

CANADIAN FEDERAL REGULATIONS: (not a comprehensive list)

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): All ingredients are on the Domestic Substances List (DSL).

WHMIS CLASSIFICATION:

E - Corrosive material

D1A - Very Toxic Material causing immediate and serious toxic effects

WHMIS INGREDIENT DISCLOSURE LIST: Yes, 1%

CPR COMPLIANCE

This product has been classified with the hazard criteria of the CPR, and the MSDS contains all the information required by CPR.

UNITED STATES FEDERAL REGULATIONS: (not a comprehensive list)

TOXIC SUBSTANCES CONTROL ACT (TSCA) INVENTORY: All required components are listed on the inventory.

OSHA: Hazardous Substance under 29 CFR Section 1910, Subpart Z.

CERCLA: Hazardous Substance under 40 CFR Part 302, RQ = 5,000 lbs.

SARA 313: Toxic Chemical, subject to the reporting requirements of 40 CFR Part 372

SARA 311/312 EPA HAZARD CATEGORIES: Immediate (Acute) Health, Reactive Hazard

SARA 302: No ingredients subject to 40 CFR Part 355

SECTION 16 – OTHER INFORMATION

VERSION:	3.0
PREPARED BY:	Canexus Chemicals Responsible Care Department. If you have any questions, contact Canexus at: 1-800-699-6924
REVISIONS:	Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.