

Safety Data Sheet

Material Name: Hydrochloric Acid 0.36% - 38%

SDS ID: HCl

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

Hydrochloric Acid 0.36% - 38%

Synonyms

HCl, HCl FCC, HCl NF, Hydrochloric acid, Chlorohydric acid, Muriatic acid, hydrogen chloride anhydrous, hydrochloric acid anhydrous

Product Use

Formulation; Industrial Uses; Uses by professional workers; Use as a pH-regulator; Use as a laboratory chemical; Consumer uses: Use as a cleaning agent; Use as reagent in experimental kits; Use in welding and soldering products; food and drug manufacturing; water purification.

Restrictions on Use

None reported.

Details of the supplier of the safety data sheet

Detrex Chemicals Division
1100 North State Road
Ashtabula, Ohio 44004
Phone: 216-749-2605, 8:00am - 4:30pm
E-mail: SDSrequests@elcocorp.com
Fax: 216-749-7462

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.

Corrosive to Metals - Category 1

Skin Corrosion/Irritation - Category 1

Serious Eye Damage/Eye Irritation - Category 1

Specific Target Organ Toxicity - Single Exposure - Category 3

GHS Label Elements

Symbol(s)



Signal Word

Danger

Hazard Statement(s)

May be corrosive to metals.

Causes severe skin burns and eye damage.

May cause respiratory irritation.

Precautionary Statement(s)

Prevention

Keep only in original container.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.



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Wash thoroughly after handling.

Do not breathe dusts or mists.

Response

Absorb spillage to prevent material damage.

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

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

IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

Wash contaminated clothing before reuse.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Immediately call a POISON CENTER or doctor.

Specific treatment (see label).

Storage

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Store in corrosive resistant container with a resistant inner liner.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Other Hazards

None.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
7732-18-5	Water	62-99.64
7647-01-0	Hydrochloric acid	0.36-38

Section 4 - FIRST AID MEASURES

Description of Necessary Measures

First aider: Pay attention to self-protection!.

Inhalation

Remove person to fresh air and keep comfortable for breathing. If breathing is irregular or stopped, administer artificial respiration. Call a POISON CENTER or doctor/physician.

Skin

Remove/take off immediately all contaminated clothing. Wash with plenty of soap and water. Call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse.

Eyes

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical advice immediately.

Ingestion

Do NOT induce vomiting. Do not give anything by mouth to unconscious or convulsive person. Rinse mouth thoroughly with water. Call a POISON CENTER or doctor/physician.

Most Important Symptoms/Effects

Acute

Causes severe skin burns and eye damage. May cause respiratory irritation.

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Delayed

No information on significant adverse effects.

Indication of any immediate medical attention and special treatment needed

IF exposed or concerned: Get medical advice/attention.

Note to Physicians

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Water mist, alcohol resistant foam, regular dry chemical, Carbon dioxide (CO₂), Co-ordinate fire-fighting measures to the fire surroundings. Use water spray/stream to protect personnel and to cool endangered containers.

Unsuitable Extinguishing Media

Strong water jet.

Special Hazards Arising from the Chemical

SECTION 9: Physical and chemical properties.

Hazardous Combustion Products

Hydrogen chloride (liquefied gas).

Fire Fighting Measures

Co-ordinate fire-fighting measures to the fire surroundings.

Special Protective Equipment and Precautions for Firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Wear fire/flame resistant/retardant clothing.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Evacuate area. Avoid release to the environment. Wear personal protection equipment (refer to section 8). Do not breathe dust/fume/gas/mist/vapors/spray. Take care that activity is executed only by specialists or authorised personnel.

Methods and Materials for Containment and Cleaning Up

Dike for later disposal. Stop leak if safe to do so. Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Collect in closed and suitable containers for disposal.

Environmental Precautions

Avoid release to the environment. Do not allow to enter into ground-water, surface water or drains. Collect spillage.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Keep only in original container. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing and eye/face protection. Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing. Do not ingest. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse.

Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Store in corrosive resistant container with a resistant inner liner.

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Keep in a cool, well-ventilated place away from highly flammable substances. Keep container tightly closed.

Incompatible Materials

bases, Amines, Alkali metals, metals, Fluorine, Mixtures of sodium hypochlorite, Ammonia. Never add water to this product.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Hydrochloric acid	7647-01-0
ACGIH:	2 ppm Ceiling
NIOSH:	5 ppm Ceiling ; 7 mg/m3 Ceiling
	50 ppm IDLH
Europe:	5 ppm TWA ; 8 mg/m3 TWA
	10 ppm STEL ; 15 mg/m3 STEL
OSHA (US):	5 ppm Ceiling ; 7 mg/m3 Ceiling
Mexico:	5 ppm Ceiling ; 7 mg/m3 Ceiling

EU - Occupational Exposure (98/24/EC) - Binding Biological Limit Values and Health Surveillance Measures

There are no biological limit values for any of this product's components.

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

There are no biological limit values for any of this product's components.

Engineering Controls

Keep good industrial hygiene. Provide eye shower and label its location conspicuously. Provide adequate ventilation. Wash thoroughly after handling.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection

Wear splash resistant safety goggles with a faceshield. Use eye protection according to EN 166, designed to protect against liquid splashes.

Skin Protection

Wear full chemical protective clothing. Wear protective gloves and protective clothing.

Respiratory Protection

Low concentrations and short-term activity (max 15 min): filter masks with filter type E. Be aware of the filter capacity and the use-time limitation. High concentrations or unknown exposure or prolonged activity: self-contained breathing apparatus.

Glove Recommendations

Wear protective gloves. DIN EN 374. Suitable glove material: FKM (fluoro rubber), NBR (Nitrile rubber), CR (polychloroprene, chloroprene rubber), PVC (Polyvinyl chloride), latex. The suitability of a specific glove of a supplier must be determined depending on the use conditions (chemical, mechanical, thermal stress, and use/contact time).

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

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Appearance	light yellow liquid.	Physical State	liquid
Odor	Sharp, irritating odor.	Color	light yellow.
Odor Threshold	Not available	pH	2 , conc: 0.2% solution
Melting Point	Not applicable	Boiling Point	Not available
Boiling Point Range	100 - 221°F (60 - 105 °C)	Freezing point	Not available
Evaporation Rate	Not available	Flammability (solid, gas)	Not available
Autoignition Temperature	Not available	Flash Point	Not available
Lower Explosive Limit	Not available	Decomposition temperature	Not available
Upper Explosive Limit	Not available	Vapor Pressure	10.0 - 212 mmHg @ 20 °C
Vapor Density (air=1)	1.3 (@ 20 C)	Specific Gravity (water=1)	Not available
Water Solubility	Not available	Partition coefficient: n-octanol/water	Not available
Viscosity	Not available	Solubility (Other)	Not available
Density	8.35 - 9.91 lbs/gal	Molecular Weight	Not available

Section 10 - STABILITY AND REACTIVITY

Reactivity

No known hazardous reactions. Do not mix with incompatible materials.

Chemical Stability

The product is chemically stable under recommended conditions of storage, use and temperature.

Possibility of Hazardous Reactions

No hazardous reaction when handled and stored according to provisions.

Conditions to Avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Incompatible Materials

Common construction metals with evolution of highly flammable hydrogen gas; alkali and organic bases with violent evolution of heat; lime stone, marble, dolomite and other carbonic minerals with evolution of suffocating CO₂ gas; strong oxidants (bleaching agents, concentrated H₂O₂, HNO₃, etc. and their salts, chromates, permanganates, etc.) with evolution of toxic chlorine gas; sulfides with evolution of toxic H₂S gas; sulfites, hydrogen sulfites, and pyro sulfites with evolution of toxic SO₂ gas; with sodium azide to highly toxic and explosive hydrazoic acid; any other chemical, that is prone to (dangerous) reaction/decomposition with acids

Hazardous decomposition products

By heating evolution of corrosive and toxic hydrogen chloride gas.

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Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation

May cause respiratory irritation.

Skin Contact

Severely irritating to skin. Can cause burns.

Eye Contact

Serious eye damage/irritation.

Ingestion

Oral exposure is considered to be not relevant.

Acute and Chronic Toxicity

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Water (7732-18-5)

Oral LD50 Rat >90 mL/kg

Hydrochloric acid (7647-01-0)

Oral LD50 Rat 238 - 277 mg/kg

Dermal LD50 Rabbit >5010 mg/kg

Inhalation LC50 Rat 1.68 mg/L 1 h

Product Toxicity Data

Acute Toxicity Estimate

Dermal	> 2000 mg/kg
Inhalation - Vapor	2.2105 mg/L
Oral	626.3157 mg/kg

Immediate Effects

Causes severe skin burns and eye damage. Inhalation of dust may cause irritation of the respiratory system.

Delayed Effects

No information on significant adverse effects.

Irritation/Corrosivity Data

Causes severe skin burns and eye damage. May cause respiratory irritation.

Respiratory Sensitization

No information on significant adverse effects.

Dermal Sensitization

No information on significant adverse effects.

Component Carcinogenicity

Hydrochloric acid	7647-01-0
ACGIH:	A4 - Not Classifiable as a Human Carcinogen
IARC:	Monograph 54 [1992] (Group 3 (not classifiable))

Germ Cell Mutagenicity

No information on significant adverse effects.

Tumorigenic Data

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No information on significant adverse effects.

Reproductive Toxicity

No information on significant adverse effects.

Specific Target Organ Toxicity - Single Exposure

Inhalation of dust may cause irritation of the respiratory system.

Specific Target Organ Toxicity - Repeated Exposure

No information on significant adverse effects.

Aspiration hazard

No information on significant adverse effects.

Medical Conditions Aggravated by Exposure

No data available.

Additional Data

No information available.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

No LOEI ecotoxicity data are available for this product's components.

Persistence and Degradability

No data available.

Bioaccumulative Potential

No data available.

Mobility

No data available.

Bioconcentration

No data available.

Other Toxicity

May be harmful to aquatic organisms due to the shift of the pH. Do not empty into drains.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose contents/container as disposal of hazardous materials. Dispose of contents/container in accordance with local/regional/national/international regulations.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components

Section 14 - TRANSPORT INFORMATION

ADR Information:

Shipping Name: Hydrochloric acid

Hazard Class: 8

UN#: 1789

Packing Group: II

Required Label(s): Corrosive

Additional information: Hazard identification No.: 80; TREM-Card of ERG number: CEFIC TEC(R)-80GC1-II=III. May be corrosive to metals.



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US DOT Information:

Shipping Name: Hydrochloric acid

Hazard Class: 8

UN/NA #: 1789

Packing Group: II

Required Label(s): Corrosive

Additional information: No data available.

IATA Information:

Shipping Name: Hydrochloric acid

Hazard Class: 8

UN#: 1789

Packing Group: II

Required Label(s): Corrosive

Additional information: No data available.

ICAO Information:

Shipping Name: Hydrochloric acid

Hazard Class: 8

UN#: 1789

Packing Group: II

Required Label(s): Corrosive

Additional information: No data available.

IMDG Information:

Shipping Name: Hydrochloric acid

Hazard Class: 8

UN#: 1789

Packing Group: II

Required Label(s): 8

Additional information: EmS Number: F-A, S-B

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Hydrochloric acid	7647-01-0
SARA 302:	500 lb TPQ gas only)
SARA 313:	1 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)
CERCLA:	5000 lb final RQ ; 2270 kg final RQ

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OSHA (safety):	5000 lb TQ ; 5000 lb TQ (anhydrous)
SARA 304:	5000 lb EPCRA RQ gas only)

SARA Section 311/312 (40 CFR 370 Subparts B and C)

Acute Health: Yes **Chronic Health:** No **Fire:** No **Pressure:** No **Reactivity:** No

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Hydrochloric acid	7647-01-0	Yes	Yes	Yes	Yes	Yes

Not listed under California Proposition 65

Canada Regulations

Canadian WHMIS Ingredient Disclosure List (IDL)

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Hydrochloric acid	7647-01-0
	1 %

Component Analysis - Inventory

Water (7732-18-5)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW
Yes	DSL	EIN	Yes	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes

Hydrochloric acid (7647-01-0)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

Summary of Changes

Revised: 19 September 2017

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CFR - Code of Federal Regulations (US); CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act;

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CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC - European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL), KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; NDSL - Non-Domestic Substance List (Canada); NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL - Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH - Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA - Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); WHMIS - Workplace Hazardous Materials Information System (Canada).

Other Information

Disclaimer:

Reasonable care has been taken in the preparation of this information; however, the manufacturer makes no warranty whatsoever including the warranty of merchantability, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental, consequential, or other such damages resulting from its use or misuse.