

**1. PRODUCT AND COMPANY IDENTIFICATION**

Product Name **Chlorine-35 (Cl-35, <sup>35</sup>Cl) as Hydrochloric Acid (HCl)**  
 Chemical Formula HCl  
 Molecular Weight 36.46 g/mol  
 CAS No. 7647-01-0  
 EC No. 231-595-7  
 Supplier Address\* ISOFLEX USA  
 PO Box 472615  
 San Francisco CA 94147  
 United States  
 Telephone +1 415-440-4433  
 Fax +1 415-563-4433  
 Emergency Phone Number (both supplier and manufacturer) Infotrac/ +1 800-535-5053  
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 Product Safety  
 +1 415-440-4433

**2. HAZARDS IDENTIFICATION**

**Emergency Overview:**

WARNING! CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.  
 HARMFUL IF SWALLOWED OR INHALED.

**NFPA Ratings:** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

**Health Hazard = 3      Flammability = 0      Reactivity = 0**



**HMIS Ratings:** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

**Health Hazard = 3      Flammability = 0      Physical Hazard = 0**

<b>HEALTH HAZARD</b>	<b>3</b>
<b>FLAMMABILITY</b>	<b>0</b>
<b>PHYSICAL HAZARD</b>	<b>0</b>

## Classification of the substance or mixture

### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Corrosive to metals (Category 1), H290  
Skin corrosion (Category 1B), H314  
Serious eye damage (Category 1), H318  
Specific target organ toxicity – single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this section, see Section 16.

### GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H290 May be corrosive to metals.  
H314 Causes severe burns and eye damage.  
H335 May cause respiratory irritation.

Precautionary statement(s)

P234 Keep only in original container.  
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.  
P264 Wash skin thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P301+330+331 If swallowed: Rinse mouth. Do NOT induce vomiting.  
P303+361+353 If on skin (or hair): take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304+340+310 If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.  
P305+351+338+310 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/doctor.  
P363 Wash contaminated clothing before reuse.  
P390 Absorb spillage to prevent material damage.  
P403+233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P406 Store in corrosive-resistant container with a resistant inner liner.  
P501 Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS: None

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name: Hydrochloric Acid  
CAS No.: 7647-01-1  
Molecular Weight: 36.46 g/mol  
Chemical Formula: HCl

## Hazardous Components

Component	Classification	Concentration
Hydrochloric Acid		
CAS No. 7647-01-0 EC No. 231-595-7 Index No. 017-002-01-X Registration No. 01-2119484862-27-XXXX	Met. Corr. 1; Skin Corr. 1B; Eye Dam. 1; STOT SE 3; H290, H314, H335	≥30-<50 %

### 4. FIRST AID MEASURES

<i>General</i>	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
<i>Inhalation</i>	Remove person to fresh air. If not breathing, give artificial respiration. Get medical attention.
<i>Ingestion</i>	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Get medical attention.
<i>Skin Contact</i>	Remove contaminated clothing and shoes immediately. Wash off skin with soap and plenty of water. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
<i>Eye Contact</i>	Immediately flush eyes with plenty of water for at least 15 minutes. Continue rinsing eyes during transport to hospital.
<i>Most Important Symptoms/Effects</i>	See Sections 2 and 11.

### 5. FIREFIGHTING MEASURES

<i>Suitable Extinguishing Media</i>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<i>Advice for Firefighters</i>	Wear self-contained breathing apparatus for firefighting if necessary.
<i>Special Hazards</i>	No data available

### 6. ACCIDENTAL RELEASE MEASURES

<i>Personal Precautions</i>	Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection, see Section 8.
<i>Environmental Precautions</i>	Do not let product enter drains.
<i>Methods for Cleanup/Containment</i>	Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

### 7. HANDLING AND STORAGE

<i>Handling</i>	Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see Section 2.
<i>Storage</i>	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be resealed and kept upright to prevent leakage. Metal containers must be lined. Corrodes metal. Handle and open container with care.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters / Components with Workplace Control Parameters

Component	CAS No.	Value	Control parameters	Basis
Hydrochloric acid	7647-01-0	C	2.000000 ppm	USA. ACGIH Threshold Limit Value (TLV)
	Remarks	Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		C	5.000000 ppm 7.000000 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		Often used in an aqueous solution		
		C	5.000000 ppm 7.000000 mg/m <sup>3</sup>	USA. Occupational Exposure Limit (OSHA) – Table Z-1 Limits for Air Contaminants
		The value in mg/m <sup>3</sup> is approximate. Ceiling limit is to be determined from breathing-zone air samples.		
		C	2 ppm	USA. ACGIH Threshold Limit Value (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		C	5 ppm 7 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		Often used in an aqueous solution		
		C	5 ppm 7 mg/m <sup>3</sup>	USA. Occupational Exposure Limit (OSHA) – Table Z-1 Limits for Air Contaminants
		The value in mg/m <sup>3</sup> is approximate. Ceiling limit is to be determined from breathing-zone air samples.		
		C	5 ppm 7 mg/m <sup>3</sup>	USA. OSHA – Table Z-1 Limits for Air Contaminants – 1910.1000
		PEL	0.3 ppm 0.45 mg/m <sup>3</sup>	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		C	2 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

### Exposure Controls

*Appropriate Engineering Controls* Handle in accordance with good industrial hygiene and safety practice.  
Wash hands before breaks and at the end of the workday.

## Personal Protective Equipment

### *Eye/Face Protection*

Tightly-fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

### *Skin Protection*

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Protective gloves must satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

### *Body Protection*

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### *Respiratory Protection*

Where risk assessment shows air-purifying respirators are appropriate, use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of Environmental Exposure** Do not let product enter drains.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Physical State: Liquid  
Odor: Pungent

### Safety Data

pH <1 at 20 °C (68 °F)  
Melting/Freezing Point No data available  
Boiling Point 110 °C (230 °F) at 1013 hPa (760 mmHg)  
Flash Point Not applicable  
Evaporation Rate No data available  
Flammability (Solid, Gas) No data available  
Upper/Lower Flammability Limits No data available  
Upper/Lower Explosive Limits No data available  
Vapor Pressure No data available  
Vapor Density No data available  
Relative Density 1.16 g/cm<sup>3</sup> at 20 °C (68 °F)  
Water Solubility No data available  
Partition Coefficient No data available  
Auto-ignition Temperature No data available  
Decomposition Temperature No data available  
Viscosity No data available  
Explosive Properties No data available  
Oxidizing Properties No data available

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## 10. STABILITY AND REACTIVITY

*Reactivity* No data available  
*Chemical Stability* Stable under recommended storage conditions  
*Possibility of Hazardous Reactions* No data available

Conditions to Avoid

No data available

Incompatible Materials

No data available

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## 11. TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

#### Acute toxicity

No data available (Hydrochloric acid).

*Inhalation:* Inhalation may provoke the following symptoms: Respiratory irritation, cough, difficulty breathing, pneumonia (Hydrochloric acid).

*Dermal:* No data available (Hydrochloric acid).

#### Skin corrosion/irritation

Skin – Rabbit

*Result:* Causes burns.

*Remarks:* Aqueous solution causes burns of eyes, skin and mucous membranes.

#### Serious eye damage/eye irritation

Eyes – Rabbit

*Result:* Corrosive to eyes.

#### Respiratory or skin sensitization

No human information is available. Did not cause sensitization on laboratory animals.

#### Germ cell mutagenicity

No data available (Hydrochloric acid).

#### Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP or EPA classification (Hydrochloric acid).

**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

#### Reproductive toxicity

No data available (Hydrochloric acid).

#### Specific target organ toxicity – single exposure

The substance or mixture is classified as specific target organ toxicant, single exposure, Category 3 with respiratory tract irritation (Hydrochloric acid).

#### Specific target organ toxicity – repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

#### Aspiration hazard

No aspiration toxicity classification (Hydrochloric acid).

#### Additional information

**RTECS:** Not available

Inhalation of vapors may cause: burning sensation, cough, wheezing, shortness of breath, spasm, inflammation and edema of the larynx, inflammation and edema of the bronchi, pneumonitis, pulmonary edema (Hydrochloric acid).

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## 12. ECOLOGICAL INFORMATION

### Toxicity

Toxicity to fish LC50 – *Lepomis macrochirus* (Bluegill) – 24.6 mg/l – 96 h

Toxicity to daphnia and other Aquatic invertebrates EC50 – *Daphnia magna* (Water flea) – 4.91 mg/l – 48 h

**Persistence and Degradability** The methods for determining biodegradability are not applicable to inorganic substances.

**Bioaccumulative Potential** No data available

**Mobility in Soil** No data available

**Results of PBT and vPvB Assessment** PBT/vPvB assessment not available, as chemical safety assessment not required/not conducted

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

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## 13. DISPOSAL CONSIDERATIONS

### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

### Contaminated Packaging

Dispose of as unused product.

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## 14. TRANSPORT INFORMATION

### DOT (US)

UN Number: 1789 Class: 8 Packing Group: II  
Proper Shipping Name: Hydrochloric acid  
Poison Inhalation Hazard: No  
Reportable Quantity (RQ):

### IMDG

UN Number: 1789 Class: 8 Packing Group: II  
EMS Number: F-A, S-B  
Proper Shipping Name: HYDROCHLORIC ACID

### IATA

UN Number: 1789 Class: 8 Packing Group: II  
Proper Shipping Name: Hydrochloric acid

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## 15. REGULATORY INFORMATION

### SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313: Hydrochloric acid, CAS No. 7647-01-0, Revision Date 1993-04-24.

### SARA 311/312 Hazards

Acute Health Hazard

### Massachusetts Right to Know Components

Hydrochloric acid, CAS No. 7647-01-0, Revision Date 1993-04-24

**Pennsylvania Right to Know Components**

Water, CAS No. 7732-18-5  
Hydrochloric acid, CAS No. 7647-01-0, Revision Date 1993-04-24

**New Jersey Right to Know Components**

Water, CAS No. 7732-18-5  
Hydrochloric acid, CAS No. 7647-01-0, Revision Date 1993-04-24

**California Prop. 65 Components**

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION**

**Full text of H-Statements referred to under Sections 2 and 3:**

Eye Dam.	Serious eye damage
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
Met. Corr.	Corrosive to metals
Skin Corr.	Skin corrosion
STOT SE	Specific target organ toxicity – single exposure

**HMIS Rating**

Health Hazard:	3
Chronic Health Hazard:	
Flammability:	0
Physical Hazard:	0

**NFPA Rating**

Health Hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

*Prepared By*

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*Issuing Date*

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*Revision Number*

3

*Revision Note*

Update Supplier Address

**ISOFLEX USA's Commonly Used Abbreviations and Acronyms\***

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)

CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)
EC50	Half Maximal Effective Concentration
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)
EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PIH	Poisonous by Inhalation Hazard
RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RTECS	Registry of Toxic Effects of Chemical Substances
SARA	Superfund Amendments and Reauthorization Act (USA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

\*One or more of the above-listed items may not appear in this document.

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