

**1. PRODUCT AND COMPANY IDENTIFICATION**
**1.1 Product identifiers**

Product name : **Anhydrous hydrogen chloride**

Chemical Synonyms : Hydrochloric Acid; Anhydrous hydrochloric acid; Chlorohydric acid; Hydrochloric acid gas; Hydrochloride; Muriatic acid; HCl; Hydrochloric acid, anhydrous; Hydrogen-chloride-anhydrous-; Acide chlorhydrique; Acido cloridrico; NA 1789; UN 1789; UN 2186; Anhydrous hydrogen chloride; Hydrogen chloride (acid); Marine acid; Soldering acid; Spirits of salts

Brand : Niacet

Index-No. : 017-002-00-2

CAS-No. : 7647-01-0

**1.2 Product Overview**

Anhydrous hydrogen chloride, also referred to as hydrogen chloride gas, is a clear, colorless gas with an extremely sharp odor. "Anhydrous" means dry or without water. Anhydrous hydrogen chloride is extremely attracted to water and when exposed to air, quickly reacts with the moisture in the air forming fumes, which are a mist of hydrochloric acid. NIACET® anhydrous hydrogen chloride is sold as liquefied gas. Aqueous hydrochloric acid is a highly corrosive liquid that is formed upon mixing anhydrous hydrogen chloride with water or moisture in the air. It emits a pungent odor and strong fumes in moist air. The color ranges from clear to slightly yellow.

**1.3 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

**1.4 Details of the supplier of the safety data sheet**

Company : Niacet Corporation  
400 47<sup>th</sup> Street  
Niagara Falls, NY 14304  
USA

Telephone : (716) 285-1474

Fax : (716) 285-1497

**1.5 Emergency telephone number**

Emergency Phone # : CHEMTREC®, USA (800) 424-9300  
CHEMTREC®, other countries 001 (703) 527-3887

**2. HAZARDS IDENTIFICATION**
**2.1 Classification of the substance or mixture**
**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Gases under pressure (Compressed gas),  
H280 Acute toxicity, Inhalation (Category 3),  
H331 Skin corrosion (Category 1A), H314  
Serious eye damage (Category 1), H318

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

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

Hazard statement(s)	
H280	Contains gas under pressure; may explode if heated.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
Precautionary statement(s)	
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ 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 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310	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.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P410 + P403	Protect from sunlight. Store in a well-ventilated place.
P501	Dispose of contents/ container to an approved waste disposal plant.

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none**

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1 Substances**

Formula	:	HCl
Molecular weight	:	36.46 g/mol
CAS-No.	:	7647-01-0
EC-No.	:	231-595-7
Index-No.	:	017-002-00-2
Registration number	:	01-2119484862-27-XXXX

**Hazardous components**

Component	Classification	Concentration
<b>Hydrogen chloride (press. gas)</b>		
	Press. Gas Compr. Gas; Acute Tox. 3; Skin Corr. 1A; Eye Dam. 1; H280, H314, H318, H331	90 - 100 %

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

**4. FIRST AID MEASURES**

**4.1 Description of first aid measures**

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during

transport to hospital.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**4.3 Indication of any immediate medical attention and special treatment needed**

No data available

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**5. FIREFIGHTING MEASURES**

**5.1 Extinguishing media**

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

No data available

**5.3 Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**5.4 Further information**

Use water spray to cool unopened containers.

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**6. ACCIDENTAL RELEASE MEASURES**

**6.1 Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

**6.2 Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Clean up promptly by sweeping or vacuum.

**6.4 Reference to other sections**

For disposal see section 13.

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**7. HANDLING AND STORAGE**

**7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a dry and well-ventilated place.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters**

**Components with workplace control parameters**

Component	CAS-No.	Value	Control parameters	Basis
Hydrogen chloride (press. gas)	7647-01-0	C	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	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 Limits (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.		
		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)

**8.2 Exposure controls**

**Appropriate engineering controls**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

**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.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: 30 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**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 AXBEK (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**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form: Compressed gas
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	Melting point/range: -114 °C (-173 °F) - lit.
f) Initial boiling point and boiling range	-85 °C (-121 °F) - lit.
g) Flash point.	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	1.2 g/mL at 25 °C (77 °F)
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available.
s) Explosive properties	No data available
t) Oxidizing properties	No data available

### 9.2 Other safety information

No data available

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

No data available

### 10.5 Incompatible materials

No data available

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas

Other decomposition products - No data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rabbit - 900 mg/kg

LC50 Inhalation - Rat - 4 h - 1562 ppm

Dermal: No data available

No data available

#### Skin corrosion/irritation

Extremely corrosive and destructive to tissue.

#### Serious eye damage/eye irritation

No data available

#### Respiratory or skin sensitization

No data available

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

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 a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

#### Reproductive toxicity

No data available

No data available

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available

#### Additional Information

RTECS: Not available

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

No data available

**13. DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

**Product**

Contact a licensed professional waste disposal service to dispose of this material. Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product.

**14. TRANSPORT INFORMATION**

**DOT (US)**

UN number: 1050      Class: 2.3 (8)  
 Proper shipping name: Hydrogen chloride, anhydrous  
 Reportable Quantity (RQ): 5000 lbs  
 Poison Inhalation Hazard: Hazard zone C

**IMDG**

UN number: 1050      Class: 2.3 (8)      EMS-No: F-C, S-U  
 Proper shipping name: HYDROGEN CHLORIDE, ANHYDROUS

**IATA**

UN number: 1050      Class: 2.3 (8)  
 Proper shipping name: Hydrogen chloride, anhydrous  
 IATA Passenger: Not permitted for transport  
 IATA Cargo: Not permitted for transport

**15. REGULATORY INFORMATION**

**SARA 302 Components**

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Hydrogen chloride (press. gas)	7647-01-0	2013-02-08

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Hydrogen chloride (press. gas)	7647-01-0	2013-02-08

**SARA 311/312 Hazards**

Sudden Release of Pressure Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Hydrogen chloride (press. gas)	7647-01-0	2013-02-08

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Hydrogen chloride (press. gas)	7647-01-0	2013-02-08

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Hydrogen chloride (press. gas)	7647-01-0	2013-02-08

**California Prop. 65 Components**

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

**16. OTHER INFORMATION****Full text of H-Statements referred to under sections 2 and 3.**

Acute Tox.	Acute toxicity
Eye Dam.	Serious eye damage
H280	Contains gas under pressure; may explode if heated.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
Press. Gas	Gases under pressure
Skin Corr.	Skin corrosion

**HMIS Rating**

Health hazard:	3
Chronic Health Hazard:	
Flammability:	1
Physical Hazard	1

**NFPA Rating**

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

**Further Information**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**Sources of key data used to compile the Safety Data Sheet**

Regulations, databases, literature, own tests.

**Additions, Deletions, Revisions**

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