



# Carbon Dioxide (0.0001% - 2.9999%) in Hydrogen Chloride

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 02/16/2015

Version: 2.0

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Mixture  
Product name : Carbon Dioxide (0.0001% - 2.9999%) in Hydrogen Chloride  
Product code : SG-2002-03229

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Test gas/Calibration gas.

#### 1.3. Details of the supplier of the safety data sheet

Air Liquide  
2700 Post Oak Boulevard  
Houston, TX 77056 - USA  
T 1-800-819-1704  
[www.us.airliquide.com](http://www.us.airliquide.com)

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Compressed gas	H280
Acute Tox. 3 (Inhalation:gas)	H331
Skin Corr. 1A	H314
Eye Dam. 1	H318

Full text of H-phrases: see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: 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  
CGA-HG22 - Corrosive to the respiratory tract.

Precautionary statements (GHS-US)

: P202 - Do not handle until all safety precautions have been read and understood  
P260 - Do not breathe gas  
P271 - Use only outdoors or in a well-ventilated area  
P280 - Wear eye protection, face protection, protective gloves, protective clothing  
P284 - Wear respiratory protection. Consult respiratory device supplier's product information for the selection of the appropriate device.  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P308+P313 - If exposed or concerned: Get medical advice/attention  
P310 - Immediately call a POISON CENTER  
P403 - Store in a well-ventilated place  
P405 - Store locked up  
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations  
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)

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CGA-PG05 - Use a back flow preventive device in the piping  
CGA-PG06 - Close valve after each use and when empty  
CGA-PG10 - Use only with equipment rated for cylinder pressure  
CGA-PG14 - Approach suspected leak area with caution  
CGA-PG18 - When returning cylinder, install leak tight valve outlet cap or plug  
CGA-PG21 - Open valve slowly

### 2.3. Other hazards

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product identifier	%	GHS-US classification
Hydrogen chloride	(CAS No) 7647-01-0	97.0001 - 99.9999	Liquefied gas, H280 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1A, H314 Eye Dam. 1, H318
Carbon dioxide	(CAS No) 124-38-9	0.0001 - 2.9999	Liquefied gas, H280

Full text of H-phrases: see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Toxic if inhaled. Corrosive to the respiratory tract.

Symptoms/injuries after skin contact : Causes severe skin burns and eye damage.

Symptoms/injuries after eye contact : Causes serious eye damage.

Symptoms/injuries after ingestion : Ingestion is not considered a potential route of exposure.

Symptoms/injuries upon intravenous administration : Not known.

Chronic symptoms : Adverse effects not expected from this product.

### 4.3. Indication of any immediate medical attention and special treatment needed

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : Do not use water jet to extinguish.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard : The product is not flammable.

Explosion hazard : Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

Reactivity : Strong acid. Reacts violently with bases.

### 5.3. Advice for firefighters

Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.

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Protection during firefighting : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ensure adequate ventilation.

##### 6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment consistent with the site emergency plan.  
Emergency procedures : Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

##### 6.1.2. For emergency responders

Protective equipment : Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.  
Emergency procedures : Evacuate and limit access. Ventilate area.

#### 6.2. Environmental precautions

Try to stop release if safe to do so.

#### 6.3. Methods and material for containment and cleaning up

For containment : Try to stop release if safe to do so.  
Methods for cleaning up : Dispose of this material and its container in accordance with local regulations.

#### 6.4. Reference to other sections

See also Sections 8 and 13.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Additional hazards when processed : Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Close valve after each use and when empty.  
Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.  
Hygiene measures : Do not eat, drink or smoke when using this product.

#### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.  
Storage conditions : Do not expose to temperatures exceeding 52°C (125°F). Keep container closed when not in use. Protect cylinder from physical damage. Store in well ventilated area. Store locked up.  
Incompatible products : None known.  
Incompatible materials : Bases.

#### 7.3. Specific end use(s)

See Section 1.2.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

Carbon Dioxide (0.0001% - 2.9999%) in Hydrogen Chloride		
ACGIH	Not applicable	
OSHA	Not applicable	
Hydrogen chloride (7647-01-0)		
ACGIH	ACGIH Ceiling (ppm)	2 ppm
OSHA	OSHA PEL (Ceiling) (mg/m³)	7 mg/m³
OSHA	OSHA PEL (Ceiling) (ppm)	5 ppm
Carbon dioxide (124-38-9)		
ACGIH	ACGIH TWA (ppm)	5000 ppm
ACGIH	ACGIH STEL (ppm)	30000 ppm

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Carbon dioxide (124-38-9)		
OSHA	OSHA PEL (TWA) (mg/m³)	9000 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	5000 ppm

### 8.2. Exposure controls

Appropriate engineering controls	: Ensure exposure is below occupational exposure limits. Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Consider work permit system e.g. for maintenance activities. Alarm detectors should be used when toxic gases may be released.
Hand protection	: Wear working gloves when handling gas containers. 29 CFR 1910.138: Hand Protection. Wear chemically resistant protective gloves when making or breaking process connections.
Eye protection	: Wear safety glasses with side shields. Wear goggles and a face shield when transfilling or breaking transfer connections. 29 CFR 1910.133: Eye and Face Protection.
Skin and body protection	: Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.
Respiratory protection	: Wear a respirator when performing non-routine tasks not limited to line breaking or sampling. Wear a respirator during routine operations if determined to be necessary during a process-specific review. Consult respirator suppliers' product information or their representatives for the selection of the appropriate respirator.
Thermal hazard protection	: None necessary during normal and routine operations.
Environmental exposure controls	: Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.
Other information	: Wear safety shoes while handling containers. 29 CFR 1910.136: Foot Protection.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Clear, colorless gas.
Color	: Colorless
Odor	: Irritating/pungent odour
Odor threshold	: No Data Available
pH	: No data available
Melting point	: No Data Available
Freezing point	: No data available
Boiling point	: No Data Available
Flash point	: No Data Available
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: See Section 2.1 and 2.2
Explosion limits	: Not applicable - not flammable
Explosive properties	: Not applicable - not flammable.
Oxidizing properties	: None.
Vapor pressure	: No data available
Relative density	: No data available
Relative vapor density at 20 °C	: No data available
Molecular mass	: Not applicable for gas-mixtures.
Relative gas density	: Heavier than air
Solubility	: No data available
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

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### 9.2. Other information

Additional information : Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Strong acid. Reacts violently with bases.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Corrosive to metals.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Alkali metals. Amines. Bases.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Inhalation:gas: Toxic if inhaled.

Carbon Dioxide (0.0001% - 2.9999%) in Hydrogen Chloride	
ATE US (gases)	718.686 ppmV/4h
Hydrogen chloride (7647-01-0)	
LD50 oral rat	700 mg/kg
LD50 dermal rabbit	> 5010 mg/kg
LC50 inhalation rat (ppm)	1560 ppm/4h
ATE US (oral)	700.000 mg/kg body weight
ATE US (gases)	1560.000 ppmV/4h
Carbon dioxide (124-38-9)	
LC50 inhalation rat (ppm)	820000 ppm/4h
Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Causes serious eye damage.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Hydrogen chloride (7647-01-0)	
IARC group	3 - Not classifiable
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Symptoms/injuries after inhalation	: Toxic if inhaled. Corrosive to the respiratory tract.
Symptoms/injuries after skin contact	: Causes severe skin burns and eye damage.
Symptoms/injuries after eye contact	: Causes serious eye damage.
Symptoms/injuries after ingestion	: Ingestion is not considered a potential route of exposure.
Symptoms/injuries upon intravenous administration	: Not known.
Chronic symptoms	: Adverse effects not expected from this product.

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### SECTION 12: Ecological information

#### 12.1. Toxicity

No additional information available

#### 12.2. Persistence and degradability

##### Hydrogen chloride (7647-01-0)

Persistence and degradability	Not applicable for inorganic gases.
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##### Carbon dioxide (124-38-9)

Persistence and degradability	No ecological damage caused by this product.
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#### 12.3. Bioaccumulative potential

##### Hydrogen chloride (7647-01-0)

Log Pow	Not applicable for inorganic gases.
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Bioaccumulative potential	No data available.
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##### Carbon dioxide (124-38-9)

BCF fish 1	(no bioaccumulation)
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Log Pow	0.83
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Bioaccumulative potential	No ecological damage caused by this product.
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#### 12.4. Mobility in soil

##### Hydrogen chloride (7647-01-0)

Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
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##### Carbon dioxide (124-38-9)

Ecology - soil	No ecological damage caused by this product.
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#### 12.5. Other adverse effects

Effect on ozone layer : No known effects from this product.

Effect on the global warming : Contains greenhouse gas(es) not covered by 842/2006/EC.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste treatment methods : Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded.

Waste disposal recommendations : Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at [www.cganet.com](http://www.cganet.com) for more guidance on suitable disposal methods.

### SECTION 14: Transport information

#### Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1955 Compressed gas, toxic, n.o.s. (Carbon Dioxide, Hydrogen Chloride) Inhalation Hazard Zone C/D

UN-No.(DOT) : UN1955

Proper Shipping Name (DOT) : Compressed gas, toxic, n.o.s.  
Inhalation Hazard Zone C/D

Hazard labels (DOT) : 2.3 - Poison gas



DOT Packaging Non Bulk (49 CFR 173.xxx) : 302;305

DOT Packaging Bulk (49 CFR 173.xxx) : 314;315

DOT Symbols : G - Identifies PSN requiring a technical name

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DOT Special Provisions (49 CFR 172.102)	: 3 - This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone C (see 173.116(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter. B14 - Each bulk packaging, except a tank car or a multi-unit-tank car tank, must be insulated with an insulating material so that the overall thermal conductance at 15.5 C (60 F) is no more than 1.5333 kilojoules per hour per square meter per degree Celsius (0.075 Btu per hour per square foot per degree Fahrenheit) temperature differential. Insulating materials must not promote corrosion to steel when wet.
DOT Packaging Exceptions (49 CFR 173.xxx)	: None
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: Forbidden
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: Forbidden
DOT Vessel Stowage Location	: D - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters"

### Additional information

Other information	: No supplementary information available.
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### ADR

Transport document description	: UN 3304 COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S., 2.3 (8), (C/D)
Class (ADR)	: 2 - Gases
Hazard identification number (Kemler No.)	: 268
Classification code (ADR)	: 1TC
Hazard labels (ADR)	: 2.3 - Toxic gases 8 - Corrosive substances



Orange plates	:
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Tunnel restriction code (ADR)	: C/D
Limited quantities (ADR)	: 0
Excepted quantities (ADR)	: E0

### Transport by sea

UN-No. (IMDG)	: 3304
Proper Shipping Name (IMDG)	: COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.
Class (IMDG)	: 2 - Gases

### Air transport

UN-No. (IATA)	: 3304
Proper Shipping Name (IATA)	: COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.
Class (IATA)	: 2

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### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### Hydrogen chloride (7647-01-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Listed on the United States SARA Section 302

Subject to reporting requirements of United States SARA Section 313

SARA Section 302 Threshold Planning  
Quantity (TPQ)

500 (gas only)

SARA Section 313 - Emission Reporting

1.0 % (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

##### Carbon dioxide (124-38-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

##### CANADA

##### Hydrogen chloride (7647-01-0)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class A - Compressed Gas

Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects

Class E - Corrosive Material

##### Carbon dioxide (124-38-9)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class A - Compressed Gas

#### EU-Regulations

##### Hydrogen chloride (7647-01-0)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

##### Carbon dioxide (124-38-9)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

#### Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

No additional information available

#### National regulations

##### Hydrogen chloride (7647-01-0)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Japanese Poisonous and Deleterious Substances Control Law

Listed on the Canadian IDL (Ingredient Disclosure List)

##### Carbon dioxide (124-38-9)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Listed on the Canadian IDL (Ingredient Disclosure List)

#### 15.3. US State regulations

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### Hydrogen chloride (7647-01-0)

U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List  
U.S. - Pennsylvania - RTK (Right to Know) List

### Carbon dioxide (124-38-9)

U.S. - Massachusetts - Right To Know List  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - Pennsylvania - RTK (Right to Know) List

## SECTION 16: Other information

- Indication of changes : Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.
- Other information : This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product.

Full text of H-phrases:

Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Compressed gas	Gases under pressure Compressed gas
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Liquefied gas	Gases under pressure Liquefied gas
Skin Corr. 1A	Skin corrosion/irritation Category 1A
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

SDS US (GHS HazCom 2012)

*This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide America Corporation's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this product is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.*