

# **Chlorine (1.0000 % - 2.9999 %) in Helium**

## **Safety Data Sheet**

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

Date of issue: 11/19/2014

Version: 1.0

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

### **1.1. Product identifier**

Product form : Mixture  
Product name : Chlorine (1.0000 % - 2.9999 %) in Helium  
Product code : SG-2002-01143

### **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 America Specialty Gases  
6141 Easton Rd  
Plumsteadville, PA 18949 - USA  
T 1.800.217.2688  
[www.airliquide.com](http://www.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**

#### **Classification (GHS-US)**

Compressed gas	H280
Acute Tox. 4 (Inhalation)	H332
Skin Irrit. 2	H315
Eye Irrit. 2A	H319
STOT SE 3	H335

Full text of H-phrases: see section 16

### **2.2. Label elements**

#### **GHS-US labeling**

Hazard pictograms (GHS-US) :



Signal word (GHS-US)

: Warning

Hazard statements (GHS-US)

: H280 - Contains gas under pressure; may explode if heated

H332 - Harmful if inhaled

H335 - May cause respiratory irritation

H319 - Causes serious eye irritation

H315 - Causes skin irritation

Precautionary statements (GHS-US)

: P202 - Do not handle until all safety precautions have been read and understood

P280 - Wear eye protection, face protection, protective clothing, protective gloves

P264 - Wash hands thoroughly after handling

P271 - Use only outdoors or in a well-ventilated area

P260 - Do not breathe gas, vapors

P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing

P321 - Specific treatment (see Sect. 4.1 and 4.3 on this label)

P313 - Get medical advice/attention

P302+P352 - If on skin: Wash with plenty of water

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P332+P313 - If skin irritation occurs: Get medical advice/attention

P337+P313 - If eye irritation persists: Get medical advice/attention

CGA-PG20 - Use only with equipment of compatible materials of construction

CGA-PG22 - Use only with equipment cleaned for oxygen service

CGA-PG10 - Use only with equipment rated for cylinder pressure

CGA-PG05 - Use a back flow preventive device in the piping

CGA-PG21 - Open valve slowly

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CGA-PG06 - Close valve after each use and when empty  
CGA-PG14 - Approach suspected leak area with caution  
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)  
P403 - Store in a well-ventilated place  
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

### 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	%	Classification (GHS-US)
Helium	(CAS No) 7440-59-7	97.0001 - 99	Compressed gas, H280
Chlorine	(CAS No) 7782-50-5	1 - 2.9999	Ox. Gas 1, H270 Liquefied gas, H280 Acute Tox. 2 (Inhalation:gas), H330 Skin Corr. 1A, H314 Eye Dam. 1, H318 STOT SE 3, H335

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. Apply artificial respiration if breathing stopped. DO NOT apply mouth-to-mouth resuscitation to avoid exposing responder to toxic gas from victim. Apply artificial respiration with bag or mask if breathing stopped. Get immediate medical advice/attention.

First-aid measures after skin contact

: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Get immediate medical advice/attention.

First-aid measures after eye contact

: Immediately flush eyes thoroughly with water for at least 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

: Harmful if inhaled. May cause respiratory irritation.

Symptoms/injuries after skin contact

: Causes skin irritation.

Symptoms/injuries after eye contact

: Causes serious eye irritation.

Symptoms/injuries after ingestion

: Ingestion is not considered a potential route of exposure.

Symptoms/injuries upon intravenous administration

: Not known.

Chronic symptoms

: Progressive lung dysfunction, pulmonary edema and pneumonitis.

### 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. Get immediate medical attention if breathing difficulty continues or other symptoms such as irritation or inflammation persist!.

## 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.

### 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

: None known.

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### **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.

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.

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.

Incompatible products : None known.

Incompatible materials : Reducing agents. Bases or caustic materials.

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

Test gas/Calibration gas.

## **SECTION 8: Exposure controls/personal protection**

### **8.1. Control parameters**

<b>Chlorine (1.0000 % - 2.9999 %) in Helium</b>	
ACGIH	Not applicable
OSHA	Not applicable

<b>Chlorine (7782-50-5)</b>		
ACGIH	ACGIH TWA (ppm)	0.5 ppm
ACGIH	ACGIH STEL (ppm)	1 ppm
OSHA	OSHA PEL (Ceiling) (mg/m³)	3 mg/m³
OSHA	OSHA PEL (Ceiling) (ppm)	1 ppm

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Helium (7440-59-7)	
ACGIH	Not applicable
OSHA	Not applicable

### 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. Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit system e.g. for maintenance activities.

Hand protection

: Wear working gloves when handling gas containers. 29CFR 1910.138: Hand Protection.

Eye protection

: Wear safety glasses with side shields. 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

: None necessary during normal and routine operations. See sections 5 & 6.

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	: colorless to slightly yellow. Gas.
Molecular mass	: Not applicable for gas-mixtures.
Color	: colorless to slightly yellow
Odor	: Pungent.
Odor threshold	: No data available
pH	: Not applicable.
Relative evaporation rate (butyl acetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable for gas-mixtures.
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: See sections 2.1 & 2.2
Vapor pressure	: Not applicable.
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Relative gas density	: Lighter than air
Solubility	: Water: Solubility in water of component(s) of the mixture : • : 1.5 mg/l • : 8620 mg/l
Log Pow	: Not applicable for gas-mixtures.
Log Kow	: Not applicable for gas-mixtures.
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.
Explosive properties	: Not applicable - not flammable.
Oxidizing properties	: None.
Explosive limits	: Not applicable - not flammable

### 9.2. Other information

Additional information : None.

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### **SECTION 10: Stability and reactivity**

#### **10.1. Reactivity**

None known.

#### **10.2. Chemical stability**

Stable under normal conditions.

#### **10.3. Possibility of hazardous reactions**

None known.

#### **10.4. Conditions to avoid**

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

#### **10.5. Incompatible materials**

Reducing agents. Bases or caustic materials.

#### **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: Harmful if inhaled.

<b>Chlorine (1.0000 % - 2.9999 %) in Helium</b>	
ATE US (gases)	4500.000 ppmV/4h
ATE US (vapors)	11.000 mg/l/4h
ATE US (dust, mist)	1.500 mg/l/4h

<b>Chlorine (7782-50-5)</b>	
LC50 inhalation rat (mg/l)	0.86 mg/l (Exposure time: 1 h)
LC50 inhalation rat (ppm)	146.5 ppm/4h
ATE US (gases)	100.000 ppmV/4h

<b>Helium (7440-59-7)</b>	
LC50 inhalation rat (ppm)	820000 ppm/4h
ATE US (gases)	410000.000 ppmV/4h

Skin corrosion/irritation : Causes skin irritation.

pH: Not applicable.

Serious eye damage/irritation : Causes serious eye irritation.

pH: Not applicable.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Symptoms/injuries after inhalation : Harmful if inhaled. May cause respiratory irritation.

Symptoms/injuries after skin contact : Causes skin irritation.

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

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

Symptoms/injuries upon intravenous administration : Not known.

Chronic symptoms : Progressive lung dysfunction, pulmonary edema and pneumonitis.

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### **SECTION 12: Ecological information**

#### **12.1. Toxicity**

Ecology - general : Classification criteria are not met.

#### **Chlorine (7782-50-5)**

LC50 fish 1	0.44 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
EC50 Daphnia 1	0.017 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	0.014 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])

#### **12.2. Persistence and degradability**

##### **Chlorine (1.0000 % - 2.9999 %) in Helium**

Persistence and degradability	No data available.
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##### **Chlorine (7782-50-5)**

Persistence and degradability	Not applicable for inorganic gases.
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##### **Helium (7440-59-7)**

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

##### **Chlorine (1.0000 % - 2.9999 %) in Helium**

Log Pow	Not applicable for gas-mixtures.
Log Kow	Not applicable for gas-mixtures.
Bioaccumulative potential	No data available.

##### **Chlorine (7782-50-5)**

BCF fish 1	(no bioaccumulation expected)
Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No data available.

##### **Helium (7440-59-7)**

Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No ecological damage caused by this product.

#### **12.4. Mobility in soil**

##### **Chlorine (1.0000 % - 2.9999 %) in Helium**

Mobility in soil	No data available.
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##### **Chlorine (7782-50-5)**

Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.
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##### **Helium (7440-59-7)**

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

Effect on ozone layer : None.

Effect on the global warming : No known ecological damage caused by this product.

### **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**

In accordance with DOT

Transport document description : UN1956 Compressed gas, n.o.s.

UN-No.(DOT) : UN1956

Proper Shipping Name (DOT) : Compressed gas, n.o.s.

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Hazard labels (DOT)

: 2.2 - Non-flammable gas



DOT Symbols

: G - Identifies PSN requiring a technical name

DOT Packaging Exceptions (49 CFR 173.xxx)

: 306;307

DOT Packaging Non Bulk (49 CFR 173.xxx)

: 302;305

DOT Packaging Bulk (49 CFR 173.xxx)

: 314;315

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)

: 75 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)

: 150 kg

DOT Vessel Stowage Location

: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

### **Additional information**

Other information

: No supplementary information available.

Special transport precautions

: Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers:  
- Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

### **ADR**

No additional information available

### **Transport by sea**

UN-No. (IMDG)

: 1956

Proper Shipping Name (IMDG)

: COMPRESSED GAS, N.O.S.

Class (IMDG)

: 2.2 - Non-flammable, non-toxic gases

### **Air transport**

UN-No.(IATA)

: 1956

Proper Shipping Name (IATA)

: COMPRESSED GAS, N.O.S.

Class (IATA)

: 2

## **SECTION 15: Regulatory information**

### **15.1. US Federal regulations**

#### **Chlorine (7782-50-5)**

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

Listed on the United States SARA Section 302

Listed on United States SARA Section 313

SARA Section 302 Threshold Planning Quantity (TPQ)	100
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SARA Section 313 - Emission Reporting	1.0 %
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#### **Helium (7440-59-7)**

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

### **15.2. International regulations**

#### **CANADA**

#### **Chlorine (7782-50-5)**

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class A - Compressed Gas
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WHMIS Classification	Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class E - Corrosive Material
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### **Helium (7440-59-7)**

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class A - Compressed Gas
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### **EU-Regulations**

#### **Chlorine (7782-50-5)**

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

#### **Helium (7440-59-7)**

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]**

#### **15.2.2. National regulations**

##### **Chlorine (7782-50-5)**

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 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)

##### **Helium (7440-59-7)**

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 Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

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

#### **15.3. US State regulations**

##### **Chlorine (7782-50-5)**

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

##### **Helium (7440-59-7)**

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.

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Full text of H-phrases:

Acute Tox. 2 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 2
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Compressed gas	Gases under pressure Compressed gas
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Liquefied gas	Gases under pressure Liquefied gas
Ox. Gas 1	Oxidizing gases Category 1
Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation
H330	Fatal if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation

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.*