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

1.1. Product identifier

Trade name	Hydrogen chloride
Chemical description	Hydrogen chloride
CAS N°	7647-01-0
CE N°	231-595-7
Index N°	017-002-00-2
Registration n°	01-2119484862-27
Chemical formula	HCl

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

Relevant identified uses	Industrial and professional. Perform risk assessment prior to use Test gas/Calibration gas Use for manufacture of electronic/photovoltaic components Laboratory use Contact supplier for more information on uses
Uses advised against	Consumer use not recommended

1.3. Details of the supplier of the safety data sheet

Company identification	MULTIGAS Route de l'Industrie 102 CH-1564 Domdidier
Phone number	+41 (0) 26 676 94 94
E-mail address	info@multigas.ch

1.4. Emergency telephone numbers


145 (Toxicology Centre Zurich) or +41 (0) 44 251 51 51
 +41 (0) 26 676 94 94 (Multigas)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Physical hazards	Gases under pressure : Liquefied gas	H280
Health hazards	Skin corrosion/irritation, Category 1A	H314

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Serious eye damage/eye irritation, Category 1 H318
 Acute toxicity (inhalation: gas) Category 3 H331
 Specific target organ toxicity — Single exposure, Category 3, H335
 Respiratory tract irritation

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

2.2. Label elements

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

Hazard pictograms



GHS04 GHS05 GHS06

Signal word

Danger

Hazard statements


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
 H335 May cause respiratory irritation
 EUH071 Corrosive to the respiratory tract

Precautionary statements

P260 Do not breathe gas, vapours
 P280 Wear protective gloves, protective clothing, eye protection, face protection
 P303+P361+P353+P315 IF ON SKIN: (or hair) Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get immediate medical advice / attention
 P304+P340+P315 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice / attention
 P305+P351+P338+P315 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice / attention
 P410+403 Protect from sunlight. Store in a well-ventilated place
 P405 Store locked up

2.3. Other hazards

None

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SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	Concentration	Classification
Hydrogen chloride	(CAS-No.) 7647-01-0 (EC-No.) 231-595-7 (EC Index-No.) 017-002-00-2 (Registration-No.) 01-2119484862-27	<= 100%	Press. Gas (Liq.), H280 Acute Tox. 3 (Inhalation: gas), H331 Skin Corr. 1A, H314 Eye Dam. 1, H318

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

Contains no other components or impurities which will influence the classification of the product

3.2. Mixtures

Not established

SECTION 4: First aid measures

4.1. Description of first aid measures

General advices	See a doctor. Show this safety data sheet to the attending physician
In case of inhalation	In case of inhalation, remove the person from the contaminated area. In case of respiratory arrest, give artificial respiration. See a doctor
In case of skin contact	Remove contaminated clothing and shoes immediately. Wash with soap and plenty of water. Take victim immediately to hospital. See a doctor
In case of eyes contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a doctor
In case of ingestion	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. See a doctor

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

May cause severe chemical burns to the skin and cornea. Provide first aid treatment immediately available. Ask for medical advice before using the product Destructive material of mucosal tissues and trachea. Cough, shortness of breath, headache, nausea

Refer to Section 11

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

Data not available

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Spray water to reduce vapours or divert the cloud of steam. Water spray or water mist. Carbon dioxide. Dry powder. Foam

Unsuitable extinguishing media

Do not use water jet to extinguish

5.2. Special hazards arising from the substance or mixture

Specific hazards

In case of fire or excessive heat, hazardous combustion products may be produced

Exposure to fire may cause containers to rupture/explode

Hazardous combustion products

No product that is more toxic than the product itself

5.3. Additional information

Cool endangered receptacles with water spray jet from a protected position

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, spray mists or gases. Provide adequate ventilation. Evacuate personnel to a safe place. Personal protective equipment, see section 8

6.2. Environmental precautions

Try to stop the leak

Decrease vapour by water spray in the form of fog or fine droplets

6.3. Methods and material for containment and cleaning up

Hose down area with water


Keep area evacuated and free from ignition sources until any spilled liquid has evaporated (ground free from frost)

Wash contaminated equipment or sites of leaks with copious quantities of water

6.4. Reference to other sections

See also sections 8 and 13

SECTION 7: Handling and storage

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7.1. Precautions for safe handling

Avoid contact with skin and eyes
 Avoid breathing vapour or mist
 Keep away from sources of ignition - No smoking
 For precautions, see section 2.2

7.2. Conditions for safe storage, including any incompatibilities

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

7.3. Specific end use(s)

None

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Components with occupational exposure limits

Component	CAS N°	Exposure value type	Value	Source
Hydrogen chloride	7647-01-0	TWA	2 ppm	SUVA: Limit values of exposure to workstations
			3 mg/m ³	
		OEL	4 ppm	SUVA: Limit values of exposure to workstations
			6 mg/m ³	

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation
 Product to be handled in a closed system
 Systems under pressure should be regularly checked for leakages
 Ensure exposure is below occupational exposure limits (where available)
 Gas detectors should be used when toxic gases may be released


8.2.2. Individual protection measures, e.g. personal protective equipment

Eye/face protection

Wear goggles and a face shield when transfilling or breaking transfer connections
 Standard EN 166 - Personal eye-protection - specifications
 Provide readily accessible eye wash stations and safety showers

Skin / hand protection

Wear protective gloves when handling gas cylinders. Standard EN 388- Protective gloves against mechanical hazards
 Wear cold insulating gloves when transferring or disconnecting transfer lines Standard EN 511 -

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Insulating gloves against cold Wearing chemical resistant gloves Standard EN 374-Protective gloves against chemicals

For short-term use

Material: Chloroprene rubber

Penetration time:> 30 min

Glove thickness: 0.4 mm

For long-term use

Material: Fluoroélastomère.

Penetration time:> 480 min

Glove thickness: 0.7 mm

Consult product information of the supplier of the gloves on the compatibility of the material and its thickness

The breakthrough time of the selected gloves must be longer than the intended period of use

Have appropriate, chemical-resistant protective clothing ready for use in emergencies

Standard EN943-1 - total protective clothing against liquid, solid or gaseous chemicals

Wear safety shoes when handling bottles

Standard EN ISO 20345: Personal Protective Equipment - safety shoes

Respiratory protection

When the risk assessment shows that the use of respirable respirators is appropriate, use a full face mask with EN 14387 multipurpose cartridge. If the mask is the only means of protection, use a full face respirator. Use NIOSH (US) or CEN (EU) tested and approved equipment

8.2.3. Environmental exposure controls

Avoid any spill or leak if it is safe

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

- **Physical state at 20°C / 101.3kPa** Gas

- **Colour** Colourless

Odour Data not available

Odour threshold Data not available

pH Data not available


Melting point / Freezing point -114°C

Boiling point -85°C

Flash point Data not available

Evaporation rate Data not available

Flammability (solid, gas) Data not available

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Explosive limits	Data not available
Vapour pressure [20°C]	42.6 bar
Vapour pressure [50°C]	80.6 bar
Relative density, liquid (water=1)	1.2
Relative density, gas (air=1)	1.3
Water solubility	720 g/l
Partition coefficient n-octanol/water (Log Kow)	Data not available
Auto-ignition temperature	Data not available
Decomposition temperature	Data not available
Viscosity	Data not available
Explosive properties	Data not available
Oxidising properties	Data not available

9.2. Other information

Molar mass	36.5 g/mol
Critical temperature [°C]	51.4°C
Relative vapour density	1.3
	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level

SECTION 10: Stability and reactivity

10.1. Reactivity

Data not available

10.2. Chemical stability

Stable under the recommended storage conditions

10.3. Possibility of hazardous reactions


No reactivity hazard other than the effects described in sub-sections below

10.4. Conditions to avoid

Air, light, emits intense smoke in the moist air

10.5. Incompatible materials

Strong oxidizers, strong bases, ammoniac, ozone, halogens, amines.
Releases hydrogen in the presence of metals.
For more information on compatibility, refer to ISO 11114

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10.6. Hazardous decomposition products

Hazardous decomposition products formed under fire conditions: hydrogen gas, bromides

SECTION 11: Toxicological information

11.1. Chemical safety assessment

Acute toxicity	Toxic if inhaled Delayed fatal pulmonary oedema possible
Skin corrosion/irritation	Causes severe skin burns and eye damage
Serious eye damage/irritation	Causes serious eye damage
Respiratory or skin sensitisation	Data not available
Germ cell mutagenicity	Data not available
Carcinogenicity	Data not available
Reproductive toxicity	Data not available
STOT-single exposure – Target organ(s)	Severe corrosion to the respiratory tract at high concentrations. Corrosive to the respiratory tract
STOT-repeated exposure	Data not available
Aspiration hazard	Data not available

SECTION 12: Ecological information

12.1. Toxicity

Assessment	Classification criteria are not met
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12.2. Persistence and degradability


Data not available

12.3. Bioaccumulative potential

Data not available

12.4. Mobility in soil

Data not available

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12.5. Results of PBT and vPvB assessment

PBT / vPvB assessment is not available because the chemical safety assessment is not required / is not conducted

12.6. Other adverse effects

May cause pH changes to aqueous ecological systems

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	Burn in a chemical incinerator equipped with an afterburner and scrubber but be very careful when lighting as this product is highly flammable. Return surplus and non-recyclable solutions to a licensed waste disposal company
Contaminated container	Eliminate as unused product Contact the supplier if instructions are needed
OMoD Code	16 05 04 Gases in pressure containers containing dangerous substances

SECTION 14: Transport information



14.1. UN number

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
1050	1050	1050

14.2. UN proper shipping name


Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
Hydrogen chloride, anhydrous	Hydrogen chloride, anhydrous	Hydrogen chloride, anhydrous

14.3. Transport hazard class(es)

Labelling	 
ADR/RID IMDG IATA	2.3 : Toxic gases 8 : Corrosive substances

14.4. Packing group

ADR/RID IMDG	Not established
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IATA

14.5. Environmental hazards

ADR/RID	None
IMDG	None
ICAO-TI / IATA-DGR	None

14.6. Special precautions for user

Data not available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture


This safety data sheet complies with the requirements of Regulation (CE) No. 1907/2006

15.2. Chemical safety assessment

A CSA has been carried out

SECTION 16: Other information

Indication of changes	Revised safety data sheet in accordance with commission regulation (EU) No 2015/830
Abbreviations and acronyms	<p>ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road</p> <p>CAS : Chemical Abstract Service number (USA)</p> <p>CLP : Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008</p> <p>CSA : Chemical Safety Assessment</p> <p>EIGA : European Industrial Gases Association</p> <p>EINECS : European Inventory of Existing Commercial Chemical Substances</p> <p>EN : European Standard</p> <p>ATE : Acute Toxicity Estimate</p> <p>IATA : International Air Transport Association</p> <p>IMDG Code : International Maritime Dangerous Goods Code</p> <p>LC50 : Lethal Concentration to 50 % of a test population</p> <p>OMoD : Swiss Ordinance on the movement of waste</p>

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PBT :	Persistent, Bioaccumulative and Toxic
PPE:	Personal Protection Equipment
REACH :	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID :	Regulations concerning the international carriage of dangerous goods by rail
RMM :	Risk Management Measures
STOT-SE :	Specific Target Organ Toxicity - Single Exposure
UN :	United Nations
vPvB :	Very Persistent and Very Bioaccumulative
WGK:	Water Hazards Class

Full text of H, EUH and P statements used in sections 2 and 3

Hazard statements

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
H335	May cause respiratory irritation
EUH071	Corrosive to the respiratory tract

Precautionary statements

P260	Do not breathe gas, vapours
P280	Wear protective gloves, protective clothing, eye protection, face protection
P303+P361+P353+P315	IF ON SKIN: (or hair) Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get immediate medical advice / attention
P304+P340+P315	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice / attention
P305+P351+P338+P315	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice / attention
P410+403	Protect from sunlight. Store in a well-ventilated place
P405	Store locked up

Disclaimer of liability

Details given in this document have been prepared based on the most available reliable documents and are believed to be correct at the time of going to press

They do not claim to be exhaustive and should be considered as a guide