

Material Safety Data Sheet

Date Printed: 18/FEB/2009
Date Updated: 07/AUG/2007
Version 1.16
Regulation (EC) No 1907/2006

1 - Product and Company Information

Product Name HYDROCHLORIC ACID 25%
Product Number 84410
Company Sigma-Aldrich Chemie GmbH
Riedstrasse 2
89555 Steinheim
Germany
Technical Phone # 49-89-6513(0)-1444
Fax 49-7329-97-2319
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2 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Causes burns. Irritating to respiratory system.

3 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
HYDROCHLORIC ACID >=25%	None	231-595-7	017-002-01-X

Ingredient Name	Percent	CAS #	EC no	Annex I Index Number
HYDROCHLORIC ACID	> 25	7647-01-0	231-595-7	017-002-01-X

Symbols: C

R-Phrases: 34-37

Causes burns. Irritating to respiratory system.

WATER	<= 75	7732-18-5	231-791-2	None
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Formula HCl
Molecular Weight 36.46 AMU
Synonyms Acide chlorhydrique (French) * Acido cloridrico
(Italian) * Anhydrous hydrochloric acid *
Chloorwaterstof (Dutch) * Chlorohydric acid *
Chlorowodor (Polish) * Chlorwasserstoff (German)
* Hydrochloride * Hydrogen chloride (ACGIH:OSHA)
* Muriatic acid * Spirits of salt

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If breathing becomes difficult,
call a physician.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for
at least 15 minutes. Remove contaminated clothing and shoes.

Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: For small (incipient) fires, use media such as foam, dry chemical, or carbon dioxide. For large fires, use media such as foam, dry chemical, carbon dioxide or water.

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

SPECIFIC METHOD(S) OF FIRE FIGHTING

For small (incipient) fire extinguishing, use a portable fire extinguisher rated for flammable liquid fires. For large fires, fixed fire suppression systems, such as a sprinkler system, should be capable of extinguishing a flammable liquid fire.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not get in eyes, on skin, on clothing.

STORAGE

Conditions of Storage: Keep tightly closed.

SPECIAL REQUIREMENTS: May develop pressure. Open carefully.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Discard contaminated shoes. Wash contaminated clothing before reuse.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	5 MG/M3
Poland		NDSCh	10
Poland		NDSP	-

EXPOSURE LIMITS - EUROPEAN UNION

Source	Type	Value
OEL	OEL	8 mg/m3
		5 ppm

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	7 mg/m3
		5 ppm

Remarks: L

EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	8 mg/m3

Remarks: =1=

Remarks: Y

EXPOSURE LIMITS - NORWAY

Source	Type	Value
	OEL	7 mg/m3
		5 ppm

Remarks: T

EXPOSURE LIMITS - SWEDEN

Source	Type	Value
	CLV (Ceil)	8 mg/m3
		5 ppm

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	7.5 mg/m3
		5 ppm

Remarks: C

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	OEL	2 mg/m3
		1 ppm
OEL	STEL	8 mg/m3
		5 ppm

Remarks: Indicative limit value

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). 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.
Hand Protection: Compatible chemical-resistant gloves.
Eye Protection: Chemical safety goggles.

Special Protective Measures: Faceshield (8-inch minimum).

9 - Physical and Chemical Properties

Appearance Physical State: Liquid
Color: Faintly yellow Clear
Odor: Pungent

Property	Value	At Temperature or Pressure
pH	N/A	
MP/MP Range	- 114.2 °C	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	166.991 mmHg	21.1 °C
SG/Density	1.2 g/cm ³	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	1.3 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Bases, Amines, Alkali metals, Metals, Potassium permanganate, Fluorine, concentrated sulfuric acid, Hexalithium disilicide, Metal acetylides or carbides.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Hydrogen chloride gas.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: MW4025000

ACUTE TOXICITY

LDLO

Oral

Man

2.857 mg/kg

Remarks: Vascular:BP lowering not characterized in autonomic section. Lungs, Thorax, or Respiration:Respiratory depression. Gastrointestinal:Changes in structure or function of esophagus.

LDLO
Oral
Woman
420 UL/KG
Remarks: Cardiac:Pulse rate. Kidney, Ureter, Bladder:Hematuria.
Behavioral:Excitement.

LCLO
Inhalation
Human
1,300 ppm
30M

LCLO
Inhalation
Human
3,000 ppm
5M

LC50
Inhalation
Rat
3,124 ppm
1H
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Iritis. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Olfaction:Other changes.

LC50
Inhalation
Mouse
1,108 ppm
1H
Remarks: Lungs, Thorax, or Respiration:Respiratory stimulation. Skin and Appendages:Skin: After systemic exposure: Dermatitis, other Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other.

LD50
Intraperitoneal
Mouse
40142 UG/KG

LD50
Oral
Rabbit
900 mg/kg

IRRITATION DATA

Eyes
Rabbit
5 mg
30S
Remarks: Rinsed

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing,

wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes burns.

Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion: May be harmful if swallowed.

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC CARCINOGEN LIST

Rating: Group 3

CHRONIC EXPOSURE - MUTAGEN

Hamster

30 MMOL/L

Cell Type: lung

Cytogenetic analysis

Hamster

8 MMOL/L

Cell Type: ovary

Cytogenetic analysis

CHRONIC EXPOSURE - TERATOGEN

Species: Rat

Dose: 450 MG/M3/1H

Route of Application: Inhalation

Exposure Time: (1D PRE)

Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Homeostasis

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 1789

Class: 8

PG: II

Proper Shipping Name: Hydrochloric acid

IMDG

UN#: 1789
Class: 8
PG: II
Proper Shipping Name: Hydrochloric acid
Marine Pollutant: No
Severe Marine Pollutant: No

IATA

UN#: 1789
Class: 8
PG: II
Proper Shipping Name: Hydrochloric acid
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 017-002-01-X

NOTA: B

INDICATION OF DANGER: C

Corrosive.

R-PHRASES: 34-37

Causes burns. Irritating to respiratory system.

S-PHRASES: 26-36/37/39-45

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 1

ID-Number: 238

Classification according to appendix 3.

NORWAY

Declaration Number: 67081

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2009 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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