Material Safety Data Sheet

Date Printed: 09/AUG/2005
Date Updated: 01/JUL/2005
Version 1.10
According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	HYDROCHLORIC ACID 25 %, EXTRA PURE
Product Number	07104
Company	Sigma-Aldrich Pty. Ltd. 12 Anella Avenue Castle Hill NSW 2154
Technical Phone #	+61 2 9841 0555 (1800 800 097)
Fax	+61 2 9841 0500 (1800 800 096)
Emergency Phone #	+44 8701906777 (1800 448 465)

2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
HYDROCHLORIC ACID >=25%	7647-01-0	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
WATER	<= 75	7732-18-5	231-791-2	None

Symbols: C
R-Phrases: 34 37
Causes burns. Irritating to respiratory system.

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

3 - Hazards Identification

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

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.

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

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 (Ceili	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: Government approved respirator in nonventilated areas and/or for exposure above the TLV or PEL.
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/cm3	
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.
Conditions to Avoid: Do not allow water to enter container.
Materials to Avoid: Bases, Amines, Alkali metals Copper, Copper alloys, Aluminum.

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: Behavioral:Excitement. Cardiac:Pulse rate. Kidney, Ureter, Bladder:Hematuria.

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):Olfaction:Other changes. Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Iritis.

LC50
Inhalation
Mouse
1,108 ppm
1H
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other. Lungs, Thorax, or Respiration:Respiratory stimulation. Skin and Appendages:Skin: After systemic exposure: Dermatitis, 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 larynxand 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: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: May be harmful if swallowed.

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

SWITZERLAND
SWISS POISON CLASS: 2

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.

DISCLAIMER
For R&D use only. Not for drug, household or other uses.