Material Safety Data Sheet

Version 5.0
Revision Date 04/24/2012
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Hydrochloric acid, 36.5-38.0%
Product Number	:	H1758
Brand	:	Sigma
Supplier	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone # (For both supplier and manufacturer)	:	(314) 776-6555
Preparation Information	:	Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Corrosive

GHS Classification
Skin corrosion (Category 1B)
Serious eye damage (Category 1)
Specific target organ toxicity - single exposure (Category 3)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.

Precautionary statement(s)

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard:	3
Flammability:	0
Physical hazards:	0

NFPA Rating

Health hazard:	3
Fire:	0
Reactivity Hazard:	0

Potential Health Effects

Inhalation	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin	May be harmful if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns.
Ingestion	May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : HCl
Molecular Weight : 36.46 g/mol

Component		Classification	Concentration
Hydrochloric acid			
CAS-No. EC-No. Index-No.	7647-01-0 231-595-7 017-002-01-X	Skin Corr. 1B; STOT SE 3; H314, H335	30 - 50 %

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas
Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas

Further information
The product itself does not burn.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions
Do not let product enter drains.

Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Hydrochloric acid	7647-01-0	C	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Upper Respiratory Tract irritation Not classifiable as a human carcinogen			
		C	5 ppm 7 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	The value in mg/m3 is approximate. Ceiling limit is to be determined from breathing-zone air samples.			
		C	5 ppm 7 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		C	5 ppm 7 mg/m3	USA. NIOSH Recommended Exposure Limits
	Often used in an aqueous solution.			

Personal protective equipment

Respiratory protection
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. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Colour	light yellow

Safety data

pH	no data available
Melting point/freezing point	-30 °C (-22 °F)
Boiling point	> 100 °C (> 212 °F) - lit.
Flash point	not applicable
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	227 hPa (170 mmHg) at 21.1 °C (70.0 °F) 547 hPa (410 mmHg) at 37.7 °C (99.9 °F)
Density	1.2 g/cm3 at 25 °C (77 °F)
Water solubility	soluble
Partition coefficient: n-octanol/water	no data available
Viscosity, dynamic	2.3 mPa.s at 15 °C (59 °F)
Relative vapour density	no data available
Odour	pungent
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Bases, Amines, Alkali metals, Metals, permanganates, e.g. potassium permanganate, Fluorine, metal acetylides, hexalithium disilicide

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas
Other decomposition products - no data available
Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
no data available (Hydrochloric acid)

Inhalation LC50
no data available (Hydrochloric acid)

Dermal LD50
no data available (Hydrochloric acid)

Other information on acute toxicity
no data available (Hydrochloric acid)

Skin corrosion/irritation
Skin - rabbit - Causes burns. (Hydrochloric acid)

Serious eye damage/eye irritation
Eyes - rabbit - Corrosive to eyes (Hydrochloric acid)

Respiratory or skin sensitization
no data available (Hydrochloric acid)

Germ cell mutagenicity
(Hydrochloric acid)
no data available (Hydrochloric acid)
(Hydrochloric acid)

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification. (Hydrochloric acid)

(Hydrochloric acid)

(Hydrochloric acid)

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (Hydrochloric acid)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

(Hydrochloric acid)

no data available (Hydrochloric acid)

(Hydrochloric acid)

Teratogenicity

(Hydrochloric acid)

(Hydrochloric acid)

no data available (Hydrochloric acid)

Specific target organ toxicity - single exposure (Globally Harmonized System)
The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation. (Hydrochloric acid)

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available (Hydrochloric acid)

Potential health effects

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.
Skin	May be harmful if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns.

Signs and Symptoms of Exposure
burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. (Hydrochloric acid)

Synergistic effects
no data available

Additional Information
RTECS: MW4025000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - Gambusia affinis (Mosquito fish) - 282 mg/l - 96 h (Hydrochloric acid)

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available (Hydrochloric acid)

PBT and vPvB assessment
no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1789 Class: 8 Packing group: II
Proper shipping name: Hydrochloric acid
Reportable Quantity (RQ): 13514 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 1789 Class: 8 Packing group: II EMS-No: F-A, S-B
Proper shipping name: HYDROCHLORIC ACID
Marine pollutant: No

IATA
UN number: 1789 Class: 8 Packing group: II
Proper shipping name: Hydrochloric acid

15. REGULATORY INFORMATION

OSHA Hazards
Corrosive

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Hydrochloric acid	7647-01-0	1993-04-24

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Hydrochloric acid	7647-01-0	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Hydrochloric acid	7647-01-0	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Water	7732-18-5	
Hydrochloric acid	7647-01-0	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Text of H-code(s) and R-phrase(s) mentioned in Section 3

H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
Skin Corr.	Skin corrosion
STOT SE	Specific target organ toxicity - single exposure

Further information

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 Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.