

Safety Data Sheet

According to EC Directive 91/155/EEC

Date of issue:

14.07.2006

1. Identification of the substance/preparation and of the company/undertaking

Identification of the product

Catalogue No.: 480791
Product name: Hydrochloric acid solution 5 mol/l (5N)

Use of the substance/preparation

Customized use

Company/undertaking identification

Company: Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0
Emergency telephone No.: Please contact the regional Merck representation in your country.

2. Composition/information on ingredients

Aqueous solution.

Hazardous ingredients:

Name according to EC Directives:

CAS-No.	EC No.	EC-Index-No.	Classification	Content:
Hydrochloric acid				
7647-01-0	231-595-7	017-002-01-X	C; R34 Xi; R37	≥ 10 - < 20 %

(Full text of R-Phrases in heading 16)

3. Hazards identification

Irritating to eyes, respiratory system and skin.

4. First aid measures

After inhalation: fresh air.
After skin contact: wash off with plenty of water. Remove contaminated clothing.
After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist.
After swallowing: make victim drink plenty of water, call in physician.

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

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5. Fire-fighting measures

Suitable extinguishing media:
In adaption to materials stored in the immediate neighbourhood.

Special risks:
Non-combustible. Ambient fire may liberate hazardous vapours. The following may develop in event of fire: hydrochloric acid.

Special protective equipment for fire fighting:
Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

Other information:
Contain escaping vapours with water. Prevent fire-fighting water from entering surface water or groundwater.

6. Accidental release measures

Person-related precautionary measures:
Do not inhale vapours/aerosols. Avoid substance contact. Ensure supply of fresh air in enclosed rooms.

Environmental-protection measures:
Do not allow to enter sewerage system.

Procedures for cleaning / absorption:
Take up with liquid-absorbent and neutralizing material (e.g. Chemizorb® H⁺, Art. No. 101595). Forward for disposal. Clean up affected area.

7. Handling and storage

Handling:

No further requirements.

Storage:

Tightly closed. At +15°C to +25°C.

Requirements for storage rooms and containers:
No metal containers.

8. Exposure controls/personal protection

Specific control parameter

EC

Name	Hydrogen chloride
Value	5 ml/m ³
	8 mg/m ³
Short term (<15 min.)	10 ml/m ³
	15 mg/m ³

Personal protective equipment:

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Merck Safety Data Sheet

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Respiratory protection: required when vapours/aerosols are generated.

Eye protection: required

Hand protection: In full contact:
Glove material: nitrile rubber
Layer thickness: 0.11 mm
Breakthrough time: > 480 Min.

In splash contact:
Glove material: nitrile rubber
Layer thickness: 0.11 mm
Breakthrough time: > 480 Min.

The protective gloves to be used must comply with the specifications of EC directive 89/686/EEC and the resultant standard EN374, for example KCL 741 Dermatril® L (full contact), 741 Dermatril® L (splash contact).

This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment: Acid-resistant protective clothing.

Industrial hygiene:
Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

9. Physical and chemical properties

Form:	liquid
Colour:	colourless
Odour:	pungent
pH value	acid
Melting point	not available
Boiling point	not available
Ignition temperature	not available
Flash point	not available
Explosion limits	lower not available upper not available
Density	(20 °C) 1.082 g/cm ³
Solubility in water	(20 °C) soluble

Merck Safety Data Sheet

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10. Stability and reactivity

Conditions to be avoided

Strong heating.

Substances to be avoided

aluminium, amines, carbides, hydrides, fluorine, alkali metals, metals, potassium permanganate, strong alkalis, salts of oxyhalogenic acids, conc. sulfuric acid, semimetallic hydrogen compounds, semimetallic oxides, aldehydes, sulfides, lithium silicide, vinylmethyl ether.
The generally known reaction partners of water.

Hazardous decomposition products

in the event of fire: See chapter 5.

Further information

unsuitable working materials: metal alloys, metals. Hydrogen may form upon contact with metals (danger of explosion!).

11. Toxicological information

Acute toxicity

LC₅₀ (inhalation, rat): 3124 ppm(V) /1 h (calculated on the pure substance) (RTECS).

Further toxicological information

Property that must be anticipated on the basis from the components of the preparation:

After inhalation: Irritations of the mucous membranes, coughing, and dyspnoea.

After skin contact: Irritations.

After eye contact: Irritations.

After swallowing: irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Further data

The product should be handled with the care usual when dealing with chemicals.

12. Ecological information

Ecotoxic effects:

Quantitative data on the ecological effect of this product are not available.

Further ecologic data:

The following applies to HCl in general: Harmful effect on aquatic organisms. Harmful effect due to pH shift. Biological effects: hydrochloric acid (including such due to reaction): lethal for fish as from 25 mg/l; *Leuciscus idus* LC₅₀: 862 mg/l (1N-solution). Harmful effects begin at: plants 6 mg/l. Does not cause biological oxygen deficit.

Do not allow to enter waters, waste water, or soil!

13. Disposal considerations

Product:

Chemicals must be disposed of in compliance with the respective national regulations. Under www.retrologistik.de you will find country- and substance-specific information as well as contact partners.

Merck Safety Data Sheet

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Packaging:

Merck product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system. Under www.retrologistik.de you will find special information on the respective national conditions as well as contact partners.

14. Transport information

Road & Rail ADR, RID
UN 1789 CHLORWASSERSTOFFSAEURE, 8, II

Inland waterway ADN, ADNR not tested

Sea IMDG-Code
UN 1789 HYDROCHLORIC ACID, 8, II
Ems F-A S-B

Air CAO, PAX
UN 1789 HYDROCHLORIC ACID, 8, II

The transport regulations are cited according to international regulations and in the form applicable in Germany. Possible national deviations in other countries are not considered.

15. Regulatory information

Labelling according to EC Directives

Symbol:	Xi	Irritant
R-phrases:	36/37/38	Irritating to eyes, respiratory system and skin.
S-phrases:	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

16. Other information

Text of any R phrases referred to under heading 2:

34 Causes burns.
37 Irritating to respiratory system.

Regional representation:

This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.