

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date

16.04.2010

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

Product Information

Catalogue No.: 100731
 Product name: Sulfuric acid 95-97% for analysis EMSURE® ISO
 Use of the Substance/Mixture: Reagent for analysis, Pharmaceutical production and analysis
 Company: Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
 Emergency telephone: Please contact the regional Merck representation in your country.
 Responsible/issuing person: EQ-EPS * e-mail: prodsafe@merck.de

2. Hazards identification

GHS Classification

Skin corrosion, Category 1A H314: Causes severe skin burns and eye damage.
 Corrosive to metals H290: May be corrosive to metals.

EC Classification

C; R35

For the full text of the R-phrases mentioned in this Section, see Section 16.

3. Composition/information on ingredients

Formula	H ₂ SO ₄	H ₂ O ₄ S (Hill)
CAS-No.	7664-93-9	
Index-No.	016-020-00-8	
EC-No.	231-639-5	
Molar mass	98,08 g/mol	

Hazardous components (GHS Classification)

Chemical Name (Concentration)

CAS-No.	EC-No. / Registration number	Index-No.	Classification
<i>Sulphuric acid (96 %)</i>			
7664-93-9	231-639-5	016-020-00-8	Skin corrosion, Category 1A, H314 Corrosive to metals, H290

Hazardous components (1999/45/EC)

Chemical Name (Concentration)

CAS-No.	EC-No. / Registration number	Index-No.	Classification
<i>Sulphuric acid (96 %)</i>			
7664-93-9	231-639-5	016-020-00-8	C; R35

For the full text of the R-phrases mentioned in this Section, see Section 16.

4. First aid measures

After inhalation: fresh air. Call in physician.

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After skin contact: wash off with plenty of water. Dab with polyethylene glycol 400. Immediately remove contaminated clothing. Call a physician immediately.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

After swallowing: make victim drink water (two glasses at the most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

5. Fire-fighting measures

Suitable extinguishing media

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

Specific hazards during fire fighting

Not combustible.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

Sulphur oxides

Special protective equipment for fire-fighters

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.

Further information

Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system. Suppress (knock down) gases/vapours/mists with a water spray jet.

6. Accidental release measures

Personal precautions

Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation.

Environmental precautions

Do not empty into drains.

Methods for cleaning up

Take up with liquid-absorbent and neutralizing material (e.g. Chemisorb® H⁺, Merck Art. No. 101595). Forward for disposal. Clean up affected area.

7. Handling and storage

Handling

Advice on safe handling

Observe label precautions.

Storage

Further information on storage conditions

Tightly closed.

Without limitations.

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8. Exposure controls/personal protection

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.

Respiratory protection

required when vapours/aerosols are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

Hand protection

full contact:

Glove material:	Viton ®
Glove thickness:	0,70 mm
Break through time:	> 480 min

splash contact:

Glove material:	butyl-rubber
Glove thickness:	0,7 mm
Break through time:	> 120 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 890 Vitoject® (full contact), KCL 898 Butoject® (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

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).

Eye protection

Tightly fitting safety goggles

Protective measures

Acid-resistant protective clothing.

Hygiene measures

Change contaminated clothing and immerse in water. Preventive skin protection Wash hands and face after working with substance.

9. Physical and chemical properties

Form	liquid
Colour	colourless
Odour	odourless
pH	0,3 at 49 g/l 25 °C

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Viscosity, dynamic	ca.24 mPa.s at 20 °C
Melting point	-20 °C
Boiling point/boiling range	ca. 335 °C
Ignition temperature	not applicable
Flash point	not applicable
Oxidizing properties	no data available
Flammability	no data available
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Vapour pressure	ca.0,0001 hPa at 20 °C
Relative vapour density	ca.3,4
Density	1,84 g/cm ³ at 20 °C
Bulk density	not applicable
Solubility/qualitative	no data available
Water solubility	at 20 °C soluble, (caution ! development of heat)
Partition coefficient: n- octanol/water	no data available
Corrosion	May be corrosive to metals.
Evaporation rate	no data available

10. Stability and reactivity

Conditions to avoid

Strong heating.

Materials to avoid

A risk of explosion and/or of toxic gas formation exists with the following substances:

Violent reactions possible with:

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Water, Alkali metals, alkali compounds, Ammonia, Aldehydes, acetonitrile, Alkaline earth metals, alkalines, acids, alkaline earth compounds, Metals, metal alloys, Oxides of phosphorus, phosphorus, hydrides, halogen-halogen compounds, oxyhalogenic compounds, permanganates, nitrates, carbides, combustible substances, organic solvent, acetylidene, Nitriles, organic nitro compounds, anilines, Peroxides, picrates, nitrides, lithium silicide, iron(III) compounds, bromates, chlorates, Amines, perchlorates, hydrogen peroxide

Hazardous decomposition products
in the event of fire: See chapter 5.

Thermal decomposition
ca.338 °C

Further information
hygroscopic, has a corrosive effect
incompatible with:
animal/vegetable tissues, metals
Contact with metals liberates hydrogen gas.

11. Toxicological information

Acute inhalation toxicity
LC50 rat
Dose: 510 mg/m³, 2 h
(calculated on the pure substance) (IUCLID)

Skin irritation
rabbit
Result: Causes burns.
(IUCLID)

Eye irritation
rabbit
Result: Causes burns.
(IUCLID)

Genotoxicity in vitro
Ames test
Result: negative
(IUCLID)

Teratogenicity
Did not show teratogenic effects in animal experiments. (IUCLID)

Further information
After inhalation of aerosols: damage to the affected mucous membranes. After skin contact: severe burns with formation of scabs. After eye contact: burns, corneal lesions. After swallowing: severe pain (risk of perforation!), nausea, vomiting and diarrhoea. After a latency period of several weeks possibly pyloric stenosis.

Further data:

Handle in accordance with good industrial hygiene and safety practice.

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12. Ecological information

Ecotoxicity

Toxicity to fish

LC50

Species: *Lepomis macrochirus* (Bluegill sunfish)

Dose: 16 - 29 mg/l

Exposure time: 96 h

(External MSDS)

Toxicity to daphnia and other aquatic invertebrates.

EC50

Species: *Daphnia magna* (Water flea)

Dose: 29 mg/l

Exposure time: 24 h

(External MSDS)

Persistence and degradability

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

Additional ecological information

Biological effects:

Forms corrosive mixtures with water even if diluted.

Harmful effect due to pH shift.

Endangers drinking-water supplies if allowed to enter soil or water.

Further information on ecology

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.

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

ADR/RID

UN 1830 SULPHURIC ACID, 8, II

IATA

UN 1830 SULPHURIC ACID, 8, II

IMDG

UN 1830 SULPHURIC ACID, 8, II

EmS F-A S-B

The transport regulations re cited according to international regulations and in the form applicable

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in Germany. Possible national deviations in other countries are not considered.

15. Regulatory information

GHS-Labeling

Hazard pictograms



Signal word

Danger

Hazard statements

H314: Causes severe skin burns and eye damage.

H290: May be corrosive to metals.

Precautionary statements

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P301 + P330 + P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P309: IF exposed or if you feel unwell:

P310: Immediately call a POISON CENTER or doctor/physician.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Reduced labelling (≤125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H314: Causes severe skin burns and eye damage.

Precautionary statements

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P301 + P330 + P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

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Index-No. 016-020-00-8

Labelling according to EC Directives

Symbol(s):	C	Corrosive
R-phrase(s):	35	Causes severe burns.
S-phrase(s):	26-30-45	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Never add water to this product. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

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EC-No.	231-639-5	EC Label
Reduced labelling (≤125 ml)		
Symbol(s):	C	Corrosive
R-phrase(s):	35	Causes severe burns.
S-phrase(s):	26-45	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

National legislation

Storage class VCI: 8 B Non combustible, corrosive substances

Major Accident Hazard Legislation: 96/82/EC Update: 2003
Directive 96/82/EC does not apply

Water contaminating class (Germany): WGK 1 slightly water endangering

Other regulations: Take note of Dir 94/33/EC on the protection of young people at work.

16. Other information

Full text of R-phrases referred to under sections 2 and 3

R35 Causes severe burns.

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.