

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier
SULPHURIC ACID

CAS number 7664-93-9
EU number 231-639-5
Index number: 016-020-00-8
REACH registration number: 01-2119458838-20-0045

1.2. Relevant identified uses of the substance or mixture and uses advised against:

Production of sulphuric acid: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9
Use of sulphuric acid as an intermediate in manufacture of inorganic and organic chemicals incl. fertilizers. PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9
Use of sulphuric acid as a processing aid, catalyst, dehydrating agent, pH regulator: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC13
Use of sulphuric acid for extractions and processing of minerals, ores: PROC2, PROC3, PROC4
Use of sulphuric acid in the process of surface treatments, purification and etching: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC13
Use of sulphuric acid in electrolytic processes: PROC1, PROC2, PROC8b, PROC9, PROC13
Use of sulphuric acid in gas purification, scrubbing, flue gas scrubbing: PROC1, PROC2, PROC8b
Use of sulphuric acid in production of sulphuric acid contained batteries: PROC2, PROC3, PROC4, PROC9.
Use of sulphuric acid in maintenance of sulphuric acid contained batteries: PROC19
Use of sulphuric acid in recycling of sulphuric acid contained batteries: PROC2, PROC4, PROC5, PROC8a.
Use of sulphuric acid contained batteries: PROC19
Use of sulphuric acid as laboratory chemicals: PROC22
Use of sulphuric acid in industrial cleaning: PROC3
Mixing, preparation and repackaging of sulphuric acid: PROC3, PROC10.

1.3. Details of the supplier of the safety data sheet:

Big Holding Trading and Production Ltd.
H-5007 Szolnok, Tószegi út 51.
Tel.: + 36 56 505 800
Fax: + 36 56 505 800

1.3.1. Responsible person: István Tóth
E-mail: itoth@tvmszolnok.hu

1.4. Emergency telephone number: **Public Toxicological Health Service (ETTSZ)**
1096 Budapest, Nagyvárad tér 2.
Tel.: +36 1 476 6464, +36 80 201 199

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification based on the CLP regulation:
Skin corrosion/irritation: Category 1A



H-phrases:

H314 – Causes severe skin burns and eye damage.

P-phrases:

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

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

P303 + P361 + P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

Classification based on the REACH regulation:



Risk phrases:

R 35 - Causes severe burns.

Safety phrases:

S 26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S 30 - Never add water to this product

S 45 - In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).

2.2. Label elements

CAS number 7664-93-9

EU number 231-639-5

Index number: 016-020-00-8

REACH registration number: 01-2119458838-20-0045

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Note B

Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different labelling since the hazards vary at different concentrations. In this case the manufacturer or any other person who markets such a substance in aqueous solution must state the percentage concentration of the solution on the label.

2.3. Other hazards:

In case of inhalation: the vapours of sulphuric acid strongly irritate the mucuous membranes and the respiratory tract. Corrosion is possible.

In case of ingestion: corrosion in the mouth and throat. Pain, vomiting, fainting may occur.

In case of skin contact: irritation, corrosion, wounds due to burning.

In case of eye contact: the vapours strongly irritate the eyes. If the liquid gets into the eyes, strong corrosion occurs, in more serious cases it causes blindness. Burning sensation, lacrymation may occur.

In chronic cases lung oedema, conjunctivitis may occur.

During the chemical processes, higher toxicity gases, vapours, liquids may be formed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Synonyms: hydrated sulphuric acid, vitriol, battery acid, hydrogen-tetraoxo-sulphate

Formula: H₂SO₄

Relative molar mass: 98 g/mol

Purity: min. 15 %

4. FIRST AID MEASURES

4.1. Description of first aid measures:

IN CASE OF INGESTION:

Measures:

- Obtain immediate medical attention and show him the label!
- Place the victim into comfortable position!
- Do not give the victim anything to eat or drink, and do not induce vomiting if the victim is unconscious.

IN CASE OF INHALATION:

Measures:

- Take the victim into fresh air, loosen his clothes and let him rest.
- If the breath has stopped, breathing support or artificial respiration have to be applied.
- In given cases, administering oxygen may be necessary.
- Obtain immediate medical attention and show him the label!

IN CASE OF SKIN CONTACT:

Measures:

- Remove the contaminated clothes and shoes.
- Wash the contaminated area with plenty of warm water and soap (for 15 minutes) and cover with sterile lint.
- Obtain immediate medical attention and show him the label!

IN CASE OF EYE CONTACT:

Measures:

- In case of contact with eyes flush immediately with plenty of flowing water for 15 minutes holding eyelids apart (for at least 15 minutes)!
- Obtain immediate medical attention and show him the label!

4.2. Most important symptoms and effects, both acute and delayed:

Inhalation: the vapours of sulphuric acid strongly irritate the mucuous membranes and the respiratory tract. Corrosion is possible.

In case of ingestion: corrosion in the mouth and throat. Pain, vomiting, fainting may occur.

In case of skin contact: irritation, corrosion, wounds due to burning.

In case of eye contact: the vapours strongly irritate the eyes. If the liquid gets into the eyes, strong corrosion occurs, in more serious cases it causes blindness. Burning sensation, lacrymation may occur.

In chronic cases lung oedema, conjunctivitis may occur.

4.3. Indication of any immediate medical attention and special treatment needed:

No data available.

5. FIREFIGHTING MEASURES

5.1. Extinguishing media:

5.1.1. Suitable extinguishing media:

The sulphuric acid is not combustible, in case of fire use extinguishing media appropriate for the surrounding environment.

5.1.2. Unsuitable extinguishing media:

None known.

5.2. Special hazards arising from the substance or mixture:

In case of heat, toxic gases, vapours may be formed.

5.3. Advice for firefighters:

Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:

6.1.1 For non-emergency personnel:

Keep unprotected people away, allow only well trained experts wearing suitable protective clothing to abide in the field of accident.

6.1.2 For emergency responders:

Avoid skin contact.

Avoid eye contact.

Do not inhale the vapours of the product.

Stop the leaking if it can be done without any risks.

6.2. Environmental precautions:

Dispose of spillage and waste (product/packaging) in accordance with all applicable environmental laws. Do not allow to enter sewers/soil/surface or ground water. Notify the respective authorities in accordance with local law in the case of environmental pollution immediately.

6.3. Methods and material for containment and cleaning up:

Dike the spilled material and pump it up. The residues have to be absorbed with absorbent (eg.: dry earth, sand or other inert absorbent), then place into suitable, closed, properly labelled chemical waste container for disposal. During disposal wear suitable personal protective equipment.

6.4. Reference to other sections:

For further and detailed information see section 8 and 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling:

Observe conventional hygiene precautions.

Technical measures:

Ensure adequate ventilation.

Use as less product as possible.

The protective equipment must be available.

Keep the unused containers closed.

Precautions against fire and explosion:

Follow the fire protection suitable for the surrounding environment.

Do not use near to open flame or hot surfaces.

The emptied containers may contain hazardous product residues.

7.2. Conditions for safe storage, including any incompatibilities:

Keep in original, closed and labelled container.

The place of storage has to be properly ventilated and cleanable.

Store in cool and dry place.

Keep away from moisture.

Follow all instructions on the label.

Keep away from combustible substances.

Keep unauthorized persons away, place appropriate transparents, subscriptions.

Storage: for indefinite time.

Incompatible materials: water, alkalis, acids with water content, combustible materials.

Packaging material: no data available.

7.3. Specific end use(s):

For the identified uses see the exposition scenario.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

SULPHURIC ACID (CAS number: 7664-93-9): 8 hours: 0,05 mg/m³

DNEL		Routes of exposure	Exposure frequency:	Remarks:
Worker:	Consumer:			
		Dermal:	Short term (acute) Long term (repeated)	
		Inhalative	Short term (acute) Long term (repeated)	
		Oral	Short term (acute) Long term (repeated)	

PNEC			Exposure frequency:	Remarks:
Water	Soil	Air		
			Short term (single use) Long term (repeated)	
			Short term (single use) Long term (repeated)	
			Short term (single use) Long term (repeated)	

- 8.2. Exposure controls:
 In case of a hazardous material with no controlled concentration limit it is the employer's duty to keep concentration levels down to a minimum achievable by existing scientific and technological means, where the hazardous substance poses no harm to workers.
- 8.2.1 Appropriate engineering controls
 In pursuance of work is proper foresight needed to avoid spilling onto clothes and floors and to avoid contact with eyes and skin. Use corrosion proof ventilation, which must be separated from other ventilation systems. The construction materials must be corrosion proof. Avoid inhalation of vapours. Avoid contact with skin and eyes. In the vicinity of the workplace, eye wash bottle must be available. Do not eat, smoke, store food in the workplace. Ensure cold-warm water washing facility.
- 8.2.2. Individual protection measures, such as personal protective equipment:
1. Eye/face protection: use adequate face mask.
 2. Skin protection:
 - a. Hand protection: use appropriate, acid proof protective gloves.
 - b. Other: use adequate protective clothes (protective clothes tight at the neck and joint, protective boots, protective gloves, face mask).
 3. Respiratory protection: In case of emergency, use self contained respiratory equipment.
 4. Thermal hazard.
- 8.2.3. Environmental exposure controls:
 No specific prescription.
The requirements detailed in Section 8 assume skilled work under normal conditions and usage of the product for appropriate aims. If conditions differ from normal or work is carried out under extreme conditions an expert's advice should be sought out before deciding upon further protective measures.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties:

Parameter		Test method:	Remarks:
1. Appearance:	colourless to brown, viscous liquid.		
2. Odour:	pungent		
3. Odour threshold:	no data available		
4. pH value:	< 1		strong acid
5. Melting point/freezing point:	10,4 – 10,9 °C -1,11 – 3,0 °C -13,89 - -10 °C 7,56 °C	100% conc. 98% conc. 96 % conc. 83 % conc.	
6. Initial boiling point and boiling range:	290 °C 310 – 335 °C 330 °C 360 °C	100% conc. 98% conc. 96 % conc. 77% conc.	
7. Flash point:	not relevant		
8. Evaporation rate:	no data available		
9. Flammability:	non flammable.		
10. Upper/lower flammability or explosive limits:	no data available		
11. Vapour pressure:	130 Pa 214 Pa 6 Pa	97 % conc., 148,5°C 65% conc., 20 °C 90% conc. 20°C	
12. Relative density:	1,8144 – 1,8305 kg/l	90-100% conc.	

13. Solubility(ies):	In water: miscible	with explosion like decomposition
	in other solvent: not miscible.	
14. Partition coefficient: n-octanol/water:	not relevant	
15. Auto-ignition temperature:	not relevant	
16. Decomposition temperature:	151 °C	
17. Viscosity:	22,5 Cp (0,0025 PaS, 22,5 mPaS)	20 °C, 95% conc.
18. Explosive properties:	not explosive	
19. Oxidizing properties:	non oxidizing	

9.2. Other information:

Dissociation coefficient: pKa = 1,92
Particle size dispersion: not necessary in case of liquids.

10. STABILITY AND REACTIVITY

10.1. Reactivity:

None known.

10.2. Chemical stability:

At normal temperature: stabile at general conditions of work.

10.3. Possibility of hazardous reactions:

reacts violently with water, alkalies. The reactions are followed by big heat build-up. Desctruct the most organic materials. In the violent reactions the combustibile materials may catch fire. Strong oxidizing effect.

10.4. Conditions to avoid:

decomposes to the effect of heat.

10.5. Incompatible materials:

water, alkalies, acids with water content, combustibile materials.

10.6. Hazardous decomposition products:

sulphur-trioxide

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:

Acute toxicity: causes serious burns.
Skin corrosion/irritation: Category 1A
Serious eye damage/eye irritation: causes serious burns.
Respiratory or skin sensitisation: none known.
Germ cell mutagenicity: none known.
Carcinogenicity: none known.
Reproductive toxicity: none known.
STOT-single exposure: none known.
STOT-repeated exposure: none known.
Aspiration hazard: none known.

11.1.1. For substances subject to registration, brief summaries of the information derived from the test conducted:
For detailed test results contact the supplier of the substance.

11.1.2. elevant toxicological properties of the hazardous substances:

LD₅₀ (Oral): 2140 mg/bw kg
LC₅₀ (inhalative): 375 mg/air m³

11.1.3. Information on likely routes of exposure:

ingestion, inhalation, skin contact, eye contact.

11.1.4. Symptoms related to the physical, chemical and toxicological characteristics:

Inhalation: Corrosion is possible.

In case of ingestion: corrosion in the mouth and throat. Pain, vomiting, fainting may occur.

In case of skin contact: irritation, corrosion, wounds due to burning.

In case of eye contact: if the liquid gets into the eyes, strong corrosion occurs, in more serious cases it causes blindness. Burning sensation, lacrymation may occur.

In chronic cases lung oedema, conjunctivitis may occur.

During the chemical processes, higher toxicity gases, vapours, liquids may be formed.

11.1.5. Delayed and immediate effects as well as chronic effects from short and long-term exposure:

The vapours of sulphuric acid strongly irritate the mucuous membranes and the respiratory tract.

Causes skin irritation.

The vapours strongly irritate the eyes.
Causes severe skin burns and eye damage.

11.1.6. Interactive effects:
No data available.

11.1.7. Absence of specific data
No information.

11.1.8. Other information:
Inhalation: long term: rat > 1 mg/m³

12. ECOLOGICAL INFORMATION

12.1. Toxicity:

LC₅₀ (freshwater fish): 16 mg/l
EC₁₀/LC₁₀ (freshwater fish): 0,025 mg/l
EC₅₀/LC₅₀ (freshwater invertebrates): 100 mg/l
EC₁₀/LC₁₀ (freshwater invertebrates): 0,15 mg/l
EC₁₀/LC₁₀ (freshwater algae): 100 mg/l
EC₁₀/LC₁₀ (aquatic microorganisms): 26000 mg/l

The substance is listed in Annex I, has no effect on the environment.

Water hazard class (WGK, German regulation, self-classification): 1 Slightly water polluting substance

12.2. Persistence and degradability:

The product is a simple inorganic substance, which is not biodegradable.

12.3. Bioaccumulation potential:

Not expected. The total dissociation of sulphuric acid at environmental pH implies that it will not adsorb onto particulates or accumulate in living tissues.

12.4. Mobility in soil:

Sulphuric acid is a strong mineral acid that dissociates readily in water to hydrogen ions and sulphate ions and is totally miscible with water. The hydrogen ions, although not degraded as such due to their elemental nature, contribute to the pH of the local environment. The sulphate ions are incorporated into the various mineral species present in the environment.

12.5. Results of PBT and vPvB assessment:

The product neither PBT nor vPvB substance.

12.6. Other adverse effects:

No data available.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods:

Disposal according to the local regulations.

13.1.1. Information regarding the disposal of the product:

Do not dispose together with domestic waste. Recommended substance for neutralisation: lime hydrate.

During the disposal of the product, its residue and its packaging the national and local prescriptions should be observed. The EWC codes indicated below are only recommendations, but they may have to be changed due to special circumstances, in such cases new classification may be needed.

13.1.2. Information regarding the disposal of the packaging:

Empty the containers contaminated with sulphuric acid as much as possible. The uncleaned containers should be disposed like the product.

13.1.3. Physical/chemical properties that may affect waste treatment options shall be specified:

None known.

13.1.4. Sewage disposal:

None known.

13.1.5. Special precautions for any recommended waste treatment

No data available.

14. TRANSPORT INFORMATION

14.1. UN Number:

1830 (If concentration > 51%)

2796 (If concentration < 51%)

14.2. UN proper shipping name:

SULPHURIC ACID (If concentration > 51%)

14.3. Transport hazard class(es):

8

Label: 8

Hazard number: 80

Classification code: C1

- 14.4. Packing group:
II
- 14.5. Environmental hazards:
No data available.
- 14.6. Special precautions for user:
No data available.
- 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:
No data available.

15. REGULATORY INFORMATION

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture:
1. REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC
 2. COMMISSION REGULATION (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
 3. DIRECTIVE 1999/45/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations
 4. REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
 5. COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- 15.2. Chemical safety assessment:
Chemical safety assessment is available about the product.

16. OTHER INFORMATION

Information regarding the revision of the safety data sheet: -

Full text of the abbreviations in the safety data sheet:

DNEL: Derived no effect level. **PNEC:** Predicted no effect concentration. **CMR effects:** Carcinogenicity, Mutagenicity and reproduction toxicity. **PBT:** Persistent, bioaccumulative and toxic. . n.d.: not defined. . n.a.: Not applicable. .

Data sources: -

Relevant R-Phrases (number and full text) of Section 2 and 3:

R 35 - Causes severe burns.

Relevant H-Phrases (number and full text) of Section 2 and 3:

H314 – Causes severe skin burns and eye damage.

Training instructions:

Recommended restrictions on use (non-statutory recommendations by supplier): -

This safety data sheet had been prepared on the basis of information provided by the manufacturer. The information, data and recommendations contained herein are provided in good faith, obtained from reliable sources and believed to be true and accurate as of the date issued; however, no representation is made as to the comprehensiveness of the information. The SDS shall be used only as a guide for handling the product; in the course of handling and using the product other considerations may arise or be required. Since the conditions or the handling, the storage and the disposal of this product are beyond the control of the manufacturer, the distributor or the preparer of this SDS, no warranty, expressed or implied, regarding the product described in this SDS shall be created or inferred by any statement in this SDS. No responsibility is assumed regarding the accuracy, completeness or suitability of all or any of the information contained herein or the results to be obtained from the use thereof at the time of use. In no way shall the manufacturer, the distributor or the preparer of the be liable for any claims, losses or damages of third parties, personal injury, property damage, lost profits or any special, direct, indirect, incidental, consequential or exemplary damages resulting from the use of or reliance upon such information. Users are cautioned to determine the appropriateness and applicability of the above information to their particular circumstances and purposes and assume all risk associated with the use of this product. It is the responsibility of the user to fully comply with local, national and international regulations concerning the use of this product.