

SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier:
SULPHURIC ACID

CAS number: 7664-93-9
EC number: 231-639-5
Index number: 016-020-00-8
Registration number: 01-2119458838-20-0045

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

Sulphuric acid for industrial use.
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, and 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:

Information about the manufacturer:

Bigé 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: Krisztián Fehér
E-mail: kfeher@bigeholdingkft.hu

1.4. Emergency telephone number: **Public Toxicological Health Service (ETTSZ)**
1096 Budapest, Nagyváradi tér 2.
Tel.: 06 1 476 6464, 06 80 201 199 (0-24 h)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance:

Classification according to Regulation 1272/2008/EC (CLP):
Skin Corr. 1A - H314

Warning H statements:

H314 – Causes severe skin burns and eye damage.

2.2. Label elements:

CAS number: 7664-93-9
EC number: 231-639-5



Warning **H statements:**

H314 – Causes severe skin burns and eye damage.

Precautionary **P statements:**

P223 – Keep away from any possible contact with water, because of violent reaction and possible flash fire.

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.

Note:

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:

If inhaled: the vapours of sulphuric acid strongly irritate the mucous 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.

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, lachrymation may occur.

In chronic cases lung oedema, conjunctivitis may occur.

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

No other known specific hazards for human or environment.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance:

Description:

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

CAS number: 7664-93-9

EC number: 231-639-5

Formula: H₂SO₄

Molar mass: 98 g/mol

Purity: min. 15 %

SECTION 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:

- Remove to fresh air, keep warm and at rest.
- If the breath has stopped, breathing support or artificial respiration have to be applied.
- In certain 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:**

If inhaled: the vapours of sulphuric acid strongly irritate the mucous 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.

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, lachrymation 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.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. **Extinguishing media:**

5.1.1. Suitable extinguishing media:

Choose extinguishing media suitable for the surrounding fire.

5.1.2. Unsuitable extinguishing media:

None known.

5.2. **Special hazards arising from the substance or mixture:**

Sulphuric acid is non-combustible.

In case of fire, smoke and other combustion products may be formed, the inhalation of such combustion products can have serious adverse effects on health.

The formation of dangerous decomposition products greatly depends on the circumstances of the combustion. A complex mixture of airborne solid, liquid and gas substances may occur, such as carbon monoxide, carbon dioxide and unidentified compounds.

5.3. **Advise for fire fighters:**

Wear full protective clothing and self-contained breathing apparatus.

SECTION 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 contact with eyes and skin.

Do not breathe the vapours of the product.

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

Wear appropriate protective equipment.

6.2. **Environmental precautions:**

Dispose of spillage and waste (product/packaging) in accordance with all applicable environmental laws. Do not allow the substance and the resulting waste 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 of the spilled material have to be absorbed with non-combustible absorbent (e.g. dry earth, sand or other inert absorbent) then place the collected waste into appropriate, labelled, closable hazardous waste container till proper removal/disposal.

During the collection, placement, disposal of the waste, wear appropriate individual protective equipment.

6.4. **Reference to other sections:**

For further and detailed information see section 8 and 13.

SECTION 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.
 Wear appropriate protective equipment.
 Keep container closed when not in use.
 Precautions against fire and explosion:
 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:
 Technical measures and storage condition:
 Keep in original, closed and appropriately 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 material.
 Keep unauthorized persons away, place appropriate transparent, subscriptions.
 Storage: for indefinite time.
 Incompatible materials: water, alkalies, acids with water content, combustible materials.
 Packaging material: no special prescriptions.
- 7.3. Specific end use(s):
 No specific instructions available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Exposure limit values:

Sulphuric acid (CAS number: 7664-93-9): ÁK value: 0.05 mg/m³ (toracal) CK value: -

DNEL		Routes of exposure	Exposure frequency:	Remarks:
Worker	Consumer			
no data available	no data available	Dermal	Short term (acute) Long term (repeated)	no data available
no data available	no data available	Inhalative	Short term (acute) Long term (repeated)	no data available
no data available	no data available	Oral	Short term (acute) Long term (repeated)	no data available

PNEC			Exposure frequency:	Remarks:
Water	Soil	Air		
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available

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 structural materials have to be corrosion-proof.

Avoid inhalation of vapours.

In the vicinity of the workplace, eye wash bottle and emergency shower 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 protection and safety glasses (EN 166).
 2. Skin protection:
 - a. Hand protection: use appropriate acid resistant protective gloves (EN 374).
 - b. Other: use adequate acid resistant 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: none known.
- 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.**

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties:

Parameter		Test method:	Remarks:
1. Appearance:	colourless - 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 % concentration 98 % concentration 96 % concentration 83 % concentration	
6. Initial boiling point/boiling range:	290 °C 310 – 335 °C 330 °C 360 °C	100 % concentration 98 % concentration 96 % concentration 77 % concentration	
7. Flash point:	not relevant		
8. Evaporation rate:	no data available		
9. Flammability (solid, gas):	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 Vapour density:	no data available		
13. Relative density:	1.8144 – 1.8305 kg/l	90-100 % conc.	
14. Solubility(ies):	in water: miscible; other solvents: insoluble		with explosion-like decomposition
15. Partition coefficient: n-octanol/water:	not relevant		
16. Self-ignition temperature:	not relevant		
17. Degradation temperature:	151 °C		
18. Viscosity:	22.5 Cp (0.0025 PaS, 22.5 mPaS)	20 °C, 95% conc.	
19. Explosive properties:	non-explosive		
20. Oxidizing properties:	non-oxidizing		

9.2. Other information:

Dissociation coefficient: pKa = 1.92
 Particle size dispersion: not necessary in case of liquids.

SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:
None known.
- 10.2. Chemical stability:
Stable within normal temperature and general work conditions.
- 10.3. Possibility of hazardous reactions:
Reacts violently with water, alkalies. The reactions are followed by strong heat build-up. Destroys the most organic materials. During the violent reactions, the combustible 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, combustible materials.
- 10.6. Hazardous decomposition products:
Sulphur trioxide.

SECTION 11: TOXICOLOGICAL INFORMATION

- 11.1. Information on toxicological effects:
Acute toxicity: none known.
Skin corrosion/irritation: causes severe burns.
Serious eye damage/eye irritation: causes serious eye damage.
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. Relevant toxicological properties of the hazardous substances:
Oral LD₅₀ 2140 mg/bw kg
Inhalation LC₅₀ 375 mg/air³
- 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:
If inhaled: 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.
Eye contact: if the liquid gets into the eyes, strong corrosion occurs, in more serious cases it causes blindness. Burning sensation, lachrymation may occur.
In chronic cases lung oedema, conjunctivitis may occur.
During the chemical processes, higher toxicity gases, vapours, liquids may be formed.
The vapours of sulphuric acid strongly irritate the mucous membranes and the respiratory tract.
Causes skin irritation.
The vapours strongly irritate the eyes.
- 11.1.5. Delayed and immediate effects as well as chronic effects from short and long-term exposure:
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:
No data available.

SECTION 12: ECOLOGICAL INFORMATION

- 12.1. Toxicity:
Aquatic toxicity:
LC₅₀ 16 mg/l (freshwater fish)
EC₁₀/LC₁₀ 0.025 mg/l (freshwater fish)
EC₅₀/LC₅₀ 100 mg/l (freshwater invertebrates)
EC₁₀/LC₁₀ 0.15 mg/l (freshwater invertebrates)
EC₁₀/LC₁₀ 100 mg/l (freshwater algae):
EC₁₀/LC₁₀ 26000 mg/l (aquatic microorganisms)

- 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.

SECTION 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 household waste. Recommended substance for neutralisation: lime hydrate.
No appropriate EWC code can be given for the substance, since the identification of the proper code can be done with the method of use defined by the user of the substance. The European waste code number has to be determined after a discussion with a specialist dealing with waste disposal.
- 13.1.2. Information regarding the disposal of the packaging:
Dispose according to the relevant regulations.
The contaminated packaging must be fully emptied. The emptied packaging can only be sent to recycling after proper cleaning. The uncleaned packaging has to be disposed in the same manner as the substance.
- 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.

SECTION 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):
ADR/RID-GGVS/E class: 8 C1
Kemler-number: 80
Labels: 8
IMDG Class: 8
Labels: 8
ICAO/IATA class: 8
Labels: 8
- 14.4. Packaging group:
II
- 14.5. Environmental hazard:
No relevant information available.
- 14.6. Special precautions for user:
No relevant information available.
- 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code:
Not applicable.

SECTION 15: REGULATORY INFORMATION

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture:
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

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

Commission Regulation (EU) 2015/830 of 28 May 2015 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.

SECTION 16: OTHER INFORMATION

Information regarding the revision of the safety data sheet:

The safety data sheet has been revised according to Regulation (EU) 2015/830 (Section 1-16).

No change in the classification of the product.

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 toxicity for reproduction. PBT: Persistent, bioaccumulative and toxic. vPvB: Very Persistent, Very Bioaccumulative. n.d.: not defined. n.a.: not applicable. $\bar{A}K$ value: allowed average concentration. CK value: allowed peak concentration (short term highest allowed air pollution). MK value: maximal concentration.

Data sources: previous version of the safety data sheet (2015. 06. 22., version: 2)

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

H314 – Causes severe skin burns and eye damage.

Training instructions: no data available.

This safety data sheet had been prepared on the basis of information provided by the manufacturer/supplier and conform to the relevant regulations.

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.

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.

Safety data sheet was prepared by: ToxInfo Kft.

Professional help regarding the explanation of the safety data sheet:

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