

SAFETY DATA SHEET

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

1.1. Product identifier:

OLEUM

Chemical name: Oleum
CAS number: 8014-95-7
EC number: 616-954-1
Index number: 016-019-00-2

Registration number:

Since the REACH regulation identifies the Oleum as a mixture, the registration was done with the separate registration of sulphur trioxide and sulphuric acid.

Sulphur trioxide: 01-2119458835-26-0020

Sulphuric acid: 01-2119458838-20-0045

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

Product for sulphonation, used as an oxidizing agent. For industrial use.

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

Information about the manufacturer:

Bigé Holding Kft.

5007 Szolnok, Tószegi út 51.

Hungary

Tel: +36 56 505 800

1.3.1. Responsible person:

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E-mail:

titkarsag@bigeholdingkft.hu

1.4. Emergency telephone number:

Please fill in

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture:

Classification according to Regulation (EC) No 1272/2008 (CLP):

Skin corrosion/irritation, Hazard Category 1A – H314

Specific target organ toxicity – Single exposure, Hazard Category 3, Respiratory tract irritation – H335

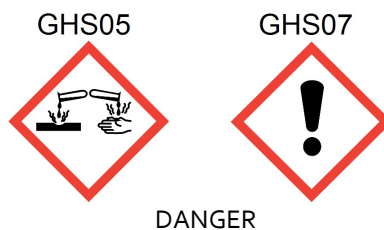
Hazard statements:

H314 – Causes severe skin burns and eye damage.

H335 – May cause respiratory irritation.

2.2. Label elements:

Chemical name: Oleum
CAS number: 8014-95-7
Index number: 016-019-00-2



Hazard statements:

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

Precautionary statements:

P223 – Do not allow contact with water.
P260 – Do not breathe mist/vapours/spray.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.
P303 + P361 + P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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/doctor.

EUH 014 – Reacts violently with water.

2.3. Other hazards:

Reacts violently with water, alkalis. These reactions are accompanied by heat generation. During violent reactions combustible materials may catch on fire. Attacks most organic materials. Has a strongly oxidizing effect.
Results of PBT and vPvB assessment: No data available (inorganic material).
Endocrine disrupting property: Not an endocrine disruptor.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance:

IUPAC name: Sulphuric acid (fuming, with 20 - 65% SO₃ content)
Chemical name: Oleum
Synonym: fuming sulphuric acid, pyrosulphuric acid, vitriol
CAS number: 8014-95-7
Index number: 016-019-00-2
Molecular formula: H₂SO₄ x SO₃
Molecular weight: Depends on the SO₃ content.

Note B:

Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations.

In Part 3 entries with Note B have a general designation of the following type: 'nitric acid ... %'.

In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

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.
- Give the injured person plenty of water to drink (several litres).
- Do not induce vomiting. (hazard of perforation)
- Do not try to neutralise.

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.

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.

EYE CONTACT:

Measures:

- In case of contact with eyes flush immediately with plenty of flowing water (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:

In case of inhalation: the vapours of sulphuric acid strongly irritate the mucous membranes and the respiratory tract. Corrosion is possible. 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, lachrymation may occur.

In chronic cases lung oedema, conjunctivitis may occur.

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

Symptomatic treatment is needed. For clarifying the danger of a toxic lung oedema, make as quick as possible a throat X-ray picture.

SECTION 5: FIREFIGHTING 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:

If bigger quantity gets into the environment, do not use water.

5.2. Special hazards arising from the substance or mixture:

Oleum is non-combustible.

In case of contact with metals hydrogen is formed (hazard of explosion).

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.

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.

5.3. Advice for firefighters:

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:**
Allow only well-trained experts wearing suitable protective clothing to abide in the field of the 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 the spillage and the resulting waste according to the applicable environmental regulations. Do not allow the product 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 product 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.
Recommended substance for neutralisation: lime milk, lime hydrate, soda solution.
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 Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling:**
Observe conventional hygiene precautions.
Keep container closed when not in use.
Technical measures:
Ensure adequate ventilation.
Use as less product as possible.
Wear appropriate protective equipment.
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.
Can be stored for indefinite time.
Incompatible materials: See Section 10.5
Packaging material: Should be stored in well closed containers.
- 7.3. Specific end use(s):**
Product for sulphonation, used as an oxidizing agent. For industrial use.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1. Control parameters:**
- Occupational exposure limit values** (Commission Directive (EC) No 2000/39 of 8 June 2000):
Sulphuric acid (mist) (CAS: 7664-93-9): 8 hours: 0.05 mg/m³

DNEL values		Oral exposure		Dermal exposure		Inhalative exposure	
		Short term (acute)	Long term (chronic)	Short term (acute)	Long term (chronic)	Short term (acute)	Long term (chronic)
Consumer	Local	no data	no data	no data	no data	no data	no data
	Systemic	no data	no data	no data	no data	no data	no data
Worker	Local	no data	no data	no data	no data	no data	no data
	Systemic	no data	no data	no data	no data	no data	no data

PNEC values		
Compartment	Value	Note(s)
Freshwater	no data	no notes
Marine water	no data	no notes
Freshwater sediment	no data	no notes
Marine water sediment	no data	no notes
Sewage Treatment Plant (STP)	no data	no notes
Intermittent release	no data	no notes
Secondary poisoning	no data	no notes
Soil	no data	no notes

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:**

- Eye/face protection:** Use appropriate face protection and safety glasses (EN ISO 16321-1:2022; EN 166).
- Skin protection:**
 - Hand protection:** Use appropriate, acid resistant protective gloves (EN 374).
 - Other:** Use appropriate, acid resistant protective clothing (protective clothes tight at the neck and joint, protective boots, protective gloves, face mask).
- Respiratory protection:** In case of emergency, use self-contained respiratory equipment.
- Thermal hazards:** No thermal hazards 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 is necessary before deciding upon further protective measures.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. **Information on basic physical and chemical properties:**

Parameter	Value / Test method / Remarks
1. Physical state	liquid
2. Colour	colourless
3. Odour, odour threshold	pungent
4. Melting point/freezing point	10-35 °C (depending on the concentration)
5. Boiling point or initial boiling point and boiling range	58 - < 140 °C (depending on the concentration)
6. Flammability	not flammable
7. Lower and upper explosion limit	no data*
8. Flash point	not relevant
9. Auto-ignition temperature	not relevant

10. Decomposition temperature	151 °C
11. pH	< 1 (strong acid)
12. Kinematic viscosity	no data*
13. Solubility in water in other solvents	limitlessly soluble in water with heat generation (with explosion-like decomposition); insoluble in other solvents
14. Partition coefficient n-octanol/water (log value)	no data*
15. Vapour pressure	105 hPa (20 °C, 65 % concentration)
16. Density and/or relative density	1.88-2.02 g/cm ³ (depending on the concentration)
17. Relative vapour density	2.76 (air = 1; 65 % concentration)
18. Particle characteristics	no data*

9.2. **Other information:**

9.2.1. **Information with regard to physical hazard classes:**

Explosive properties: Not relevant.

Oxidizing properties: Strong oxidizing effect.

9.2.2. **Other safety characteristics:**

Dynamic viscosity: 21.6 mPa.s (15 °C) (65 % concentration)

*: The manufacturer did not carry out any tests on this parameter for the product or the results of the tests are not available at the time of publication of the data sheet, or the property is not applicable for the product.

SECTION 10: STABILITY AND REACTIVITY

10.1. **Reactivity:**

Hygroscopic, corrosive.

10.2. **Chemical stability:**

Stable within normal temperature and general work conditions.

10.3. **Possibility of hazardous reactions:**

Reacts violently with water, alkalis. 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, alkalis, acids with water content, combustible materials.

10.6. **Hazardous decomposition products:**

Sulphur trioxide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. **Information on hazard classes as defined in Regulation (EC) No 1272/2008:**

Acute toxicity: Based on available data, the classification criteria are not met.

Skin corrosion/irritation: Causes severe skin burns and eye damage.

Serious eye damage/irritation: Causes severe eye damage.

Respiratory or skin sensitisation: Based on available data, the classification criteria are not met.

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: Based on available data, the classification criteria are not met.

Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT-single exposure: May cause respiratory irritation.

STOT-repeated exposure: Based on available data, the classification criteria are not met.

Aspiration hazard: Based on available data, the classification criteria are not met.

11.1.1. **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:**

Ingestion: corrosion in the mouth and throat.

Skin: irritation, corrosion, wounds due to burning.

If the liquid gets into the eyes, strong corrosion occurs, in more serious cases it causes blindness. Burning sensation, lachrymation may occur.

The vapours of oleum strongly irritate the mucous membranes and the respiratory tract.

Causes skin irritation.

The vapours strongly irritate the eyes.

- 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:**
No data available.
- 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.
May cause respiratory irritation.
- 11.1.6. Interactive effects:**
No data available.
- 11.1.7. Absence of specific data:**
No information.
- 11.2. Information on other hazards:**
Endocrine disrupting properties:
Endocrine disrupting property: Not an endocrine disruptor.
Other information:
No data available.

SECTION 12: ECOLOGICAL INFORMATION

- 12.1. Toxicity:**
The substance is not classified as hazardous for the environment.
- 12.2. Persistence and degradability:**
It should not get into waste water or sewer without dilution and neutralisation. Recommended substance for neutralisation: lime milk, lime hydrate, soda solution.
- 12.3. Bioaccumulation potential:**
No data available.
- 12.4. Mobility in soil:**
Spreads in the air in mist form. Water/soil: well-soluble, quick spreading.
- 12.5. Results of PBT and vPvB assessment:**
No data available (inorganic material).
- 12.6. Endocrine disrupting properties:**
Endocrine disrupting property: Not an endocrine disruptor.
- 12.7. Other adverse effects:**
Do not enter into drains, watercourses and soil.
Harmful for aquatic organisms. The effects of the product depend on the environmental circumstances, for example: pH, temperature, the composition of organic and inorganic substances.

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.
List of Waste Code:
No waste disposal key according to the List of Waste Code (LoW code) can be determined for this product, as only the purpose of application defined by the user enables an allocation. The LoW code number has to be determined after a discussion with a waste disposal specialist.
- 13.1.2. Information regarding the disposal of the packaging:**
Dispose according to the relevant regulations.
The contaminated packaging must be fully emptied. The uncleaned packaging has to be disposed in the same manner as the product.
- 13.1.3. Physical/chemical properties that may affect waste treatment options shall be specified:**
No data available.
- 13.1.4. Sewage disposal:**
No data available.
- 13.1.5. Special precautions for any recommended waste treatment:**
No data available.

SECTION 14: TRANSPORT INFORMATION

- 14.1. UN number or ID number:**
UN 1831
- 14.2. UN proper shipping name:**
International transport: SULPHURIC ACID, FUMING
- 14.3. Transport hazard class(es):**
Class: 8(6.1)
- 14.4. Packing group:**
I
- 14.5. Environmental hazards:**
ADR/RID/ADN Environmentally hazardous: No
IMDG: Marine pollutant: No
- 14.6. Special precautions for user:**
ADR/RID/ADN Limited quantity: 0
Excepted quantity: E0
Transport category: 1
Tunnel restriction code: (C/D)
Hazard identification No.: X886
Special provisions: -
IMDG EmS: F-A, S-B
Stowage and handling: Category C; SW₂, SW₁₅
Segregation: -
Properties and observations: Colourless, oily liquid, may be partly crystallized. Solution of varying quantities of sulphur trioxide in sulphuric acid. Reacts violently with water and organic material, generating heat. In the presence of moisture, highly corrosive to most metals. Toxic if swallowed, by skin contact or by inhalation. Causes severe burns to skin, eyes and mucous membranes.
Segregation group: 1 Acids
- 14.7. Maritime transport in bulk according to IMO instruments:**
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 (EC) No 1999/45 and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94, as well as Council Directive (EEC) No 76/769 and Commission Directives (EEC) No 91/155, (EEC) No 93/67, (EC) No 93/105 and (EC) No 2000/21
- 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 (EEC) No 67/548 and (EC) No 1999/45, and amending Regulation (EC) No 1907/2006
- COMMISSION REGULATION (EU) 2020/878** of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- 15.2. Chemical safety assessment:** Chemical safety assessment has been carried out for 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) 2020/878.

The hazard classification of the substance did not change compared to the previous version.

This safety data sheet supersedes all previous versions according to Annex II of Regulation (EC) No 1907/2006.

Literature references / data sources:

Previous version of the safety data sheet (13. 03. 2020, version 3).

Relevant hazard statements (code and full text) of Sections 2 and 3:

H314 – Causes severe skin burns and eye damage.

H335 – May cause respiratory irritation.

EUH 014 – Reacts violently with water.

Training advice: No data available.

Full text of the abbreviations in the safety data sheet:

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.

ADR: Agreement concerning the International Carriage of Dangerous Goods by Road.

ATE: Acute Toxicity Estimate.

AOX: Adsorbable organic halides.

BCF: Bioconcentration factor.

BOD: Biological Oxygen Demand.

CAS number: Chemical Abstract Service number.

CLP: Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.

CMR effects: Carcinogenic, mutagenic, reprotoxic effects.

COD: Chemical Oxygen Demand.

CSA: Chemical Safety Assessment.

CSR: Chemical Safety Report.

DNEL: Derived-No-Effect-Level.

ECHA: European Chemical Agency.

EC: European Community.

EC number: EINECS and ELINCS numbers (see also EINECS and ELINCS).

EEC: European Economic Community.

EEA: European Economic Area (EU + Iceland, Liechtenstein and Norway).

EINECS: European Inventory of Existing Commercial Chemical Substances.

ELINCS: European List of Notified Chemical Substances.

EN: European Norm.

EU: European Union.

EuPCS: European Product Categorisation System.

EWC: European Waste Catalogue (replaced by LoW – see below).

GHS: Globally Harmonized System of Classification and Labelling of Chemicals.

IATA: International Air Transport Association.

ICAO-TI: Technical Instructions for the Safe Transport of Dangerous Goods by Air.

IMDG: International Maritime Dangerous Goods.

IMO: International Maritime Organization.

IMSBC: International Maritime Solid Bulk Cargoes.

IUCLID: International Uniform Chemical Information Database.

IUPAC: International Union of Pure and Applied Chemistry.

Kow: n-Octanol - Water Partition Coefficient.

LC₅₀: Lethal concentration resulting in 50 % mortality.

LD₅₀: Lethal dose resulting in 50 % mortality (median lethal dose).

LoW: List of Waste.

LOEC: Lowest Observed Effect Concentration.

LOEL: Lowest Observed Effect Level.

NOEC: No Observed Effect Concentration.

NOEL: No Observed Effect Level.

NOAEC: No Observed Adverse Effect Concentration.

NOAEL: No Observed Adverse Effect Level.

OECD: Organization for Economic Cooperation and Development.

OSHA: Occupational Safety and Health Administration.

PBT: Persistent, Bioaccumulative and Toxic.

PNEC: Predicted No Effect Concentration.

QSAR: Quantitative Structure Activity Relationship.

REACH: Regulation 1907/2006/EC concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.

RID: Regulations Concerning the International Transport of Dangerous Goods by Rail.

SCBA: Self Contained Breathing Apparatus.

SDS: Safety Data Sheet.

STOT: Specific Target Organ Toxicity.

SVHC: Substances of Very High Concern.

UN: United Nations.

UVCB: Chemical Substances of Unknown or Variable Composition, Complex Reaction Products and Biological Materials.

VOC: Volatile Organic Compound.

vPvB: very Persistent and very Bioaccumulative.

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:
MSDS-Europe
International branch of ToxInfo Kft.

Professional help regarding the explanation of
the safety data sheet:
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