Safety Data Sheet

According to Annex II to REACH - Regulation 2020/878

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

1.1. Product identifier

Product name	**SULPHURIC ACID**
Chemical name	**SULPHURIC ACID 98- 99%**
INDEX number	**016-020-00-8**
EC number	**231-639-5**
CAS number	**7664-93-9**
Registration Number	**01-2119458838-20-0099**

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

Intended use	Use in manufacture of inorganic and organic chemicals included fertilizers, processing aid , catalyst, dehydrating agent, pH regulator, for extracting and processing of minerals, process of surface treatments, purification and etching, electrolytic processes, flue gas scrubbing, manufacture, maintenance and recycling of batteries, laboratory chemicals, industrial cleaning, mixing, preparation and repackaging.
Uses advised against	Uses other than those indicated above

1.3. Details of the supplier of the safety data sheet

Name	Fluorsid S.p.A.
Full address	2ª Strada Macchiareddu
District and Country	09032 Assemini (CA) ITALY
	tel. +39 070 246321
	fax +39 070 2463235
e-mail address of the competent person responsible for the Safety Data Sheet	msds.cagliari@fluorsid.com

1.4. Emergency telephone number

For urgent inquiries refer to
Malta 112
United Kingdom NHS 111
Ireland Members of Public: +353 (01) 809 2166. (8.00 a.m. to 10.00 p.m. 7 days a week)
Healthcare Professionals: +353 (01) 809 2566 (24 hour service)

Company Emergency telephone number:
Fluorsid S.p.A.. Tel . +39 070 246321 (technical support - office hours)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2020/878.
Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Skin corrosion, category 1A	H314	Causes severe skin burns and eye damage.
Serious eye damage, category 1	H318	Causes serious eye damage.
	Classification note according to Annex VI to the CLP Regulation: B	

2.2. Label elements
Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:

Signal words: **Danger**

Hazard statements:

H314	Causes severe skin burns and eye damage.

Precautionary statements:

P260	Do not breathe fume / mist / vapours.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P280	Wear protective gloves/ protective clothing / eye protection / face protection.
P310	Immediately call a POISON CENTER / doctor.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Contains: **SULPHURIC ACID 98- 99%**

2.3. Other hazards

Highly reactive with water. Never add water to product.
The substance does not have persistence, bioaccumulation and toxicity (PBT) properties and is not very persistent and very bioaccumulative. (vPvB).
The substance does not have endocrine disrupting properties.

SECTION 3. Composition/information on ingredients

3.1. Substances

Contains:

Identification	**Conc. %**	**Classification (EC) 1272/2008 (CLP)**
SULPHURIC ACID		
CAS 7664-93-9 EC 231-639-5 INDEX 016-020-00-8 REACH Reg. 01-2119458838-20-0099	98-99	Skin Corr. 1A H314, Eye Dam. 1 H318, Classification note according to Annex VI to the CLP Regulation: B Specific concentration limits (Annex VI Reg. 1272/2008) *Eye Irrit. 2; H319: 5 % ≤ C < 15 %* *Skin Corr. 1A; H314: C ≥ 15 %* *Skin Irrit. 2; H315: 5 % ≤ C < 15 %*

The full wording of hazard (H) phrases and the classification notes are given in section 16 of the sheet.

SECTION 4. First aid measures

4.1. Description of first aid measures

General Recommendations:
Personal protective equipment (gloves, etc.) required for rescuers of victims, see section 8.
In case of product splashing into eyes and face, treat eyes first.
Handle patient and all contaminated clothing with sulphuric acid resistant gloves.
Install showers and eyewash stations near all storage, loading, unloading and substance movement stations.

Routes of exposure

Inhalation
Immediately call a physician. Immediately bring the victim far from the contaminated area and keep him warm and in complete relax. If inhalation has been violent, keep the patient under medical attention. In case of breath difficulties, employ oxygen therapy and let the patient to the medical attention. If breathing has stopped, perform artificial respiration, may be dangerous to perform mouth-to-mouth (use ball Ambu). If it is unconscious, place the victim in recovery position, and get immediately medical attention.

Skin contact
Immediately take out contaminated clothes and treat the affected part with a solution of Diphoterine. If Diphoterine solution is not immediately available in the accident place, wash the skin with abundant water until complete removal of any trace of acid or until the availability of Diphoterine solution. Continue treating with Diphoterine also during the transfer of the injured person to the hospital.
Chemical burns must be treated immediately by a doctor.

Eyes contact
Treat immediately the affected part with Diphoterine ocular washing. If Diphoterine solution is not immediately available in the accident place, wash with abundant water or physiological solution, keeping eyelids wide open, until complete removal of any trace of acid or until the availability of Diphoterine solution. Continue treating with Diphoterine also during the transfer of the injured person to the hospital.
Immediately consult a doctor or an ophthalmologist emergency room. Chemical burns must be treated immediately by a doctor.

Swallowing
In case of accidental swallowing seek medical attention. Waiting for physician arrival, rinse your mouth with water, do not induce vomiting.

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

Acute dose-dependent effects
Skin: irritation, burns of various degrees, necrosis.
Eyes: irritation, corneal damage.
Upper airways: irritation, corrosion, symptoms are: cough, shortness of breath, headache, nausea.
Digestive system: if ingested, retrosternal and epigastric pain, haematemesis, slow and continuous damage, tissue necrosis. Pyloric stenosis is possible after a latency of several weeks

Chronic effects
Skin: irritation, depigmentation, dry skin, hair removal, necrosis, ulceration.
Nose: irritation, septal lesions.
Upper airways: irritation

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

Consult a physician immediately in all cases of exposure.

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
Cool tank/container of sulphuric acid with water spray from secure location, warning not to enter water inside the vessels. Put in a safe place eventual dangerous vessels.
UNSUITABLE EXTINGUISHING EQUIPMENT
Do not use water; contact with the acid generates sketches.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
It reacts with metals to produce hydrogen, with consequent explosion risk.
Decomposition products may include sulfur oxides.

5.3. Advice for firefighters

GENERAL INFORMATION
Always wear full fire prevention gear..
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
The following indications are addressed to the personnel, adequately informed and trained, operating in the plant units in which the substance is normally used. This indications are intended to ensure, when this is possible without risks, the preliminary safety operations before leaving the area and waiting for the intervention of the emergency personnel.
Stop leak if you can do it without risk.
Remove non-emergency personnel from the area involved in the spill.
If possible, operate above wind.
Provide adequate ventilation (natural or forced) of the (closed) rooms affected by the spillage.All necessary precautions must be taken to ensure that the spillage does not come into contact with water to reduce the risk of violent reactions.

For emergency personnel
The following indications are addressed to expert personnel such as personnel belonging to the emergency team, specially trained. This indications are added to the previous indications referred to all personnel and / or non-emergency personnel. To the same personnel are referred the indications concerning environmental precautions and containment and reclamation methods.
Wear all the PPE provided based on the training received.
Operate according to the emergency procedures described in the Emergency Management Plan edited by the Employer. Send away individuals who are not suitably equipped. Eliminate all sources of ignition (cigarettes, flames, sparks, etc.) from the leakage site.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.
Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Avoid contact with eyes and skin. Do not inhale any vapors or mists. Do not eat, drink or smoke during use. Wash hands after use. Avoid the dispersion of the product in the environment.
Check the integrity of packaging before handling.
Handle in a suitable place with good general ventilation. Once the containers have been emptied, they must be transferred without delay to the area identified for disposal or reuse.

Never reuse empty packaging before they have undergone industrial cleaning.
Store in the original container or an approved alternative container made of a compatible material, kept tightly closed when not in use.
Remove contaminated clothing and protective equipment before entering eating areas.
Before carrying out transfer operations into other containers, make sure that there are no residues of incompatible substances inside them.
Keep away from heat, sparks and open flames, do not smoke or use matches or lighters. Avoid the accumulation of electrostatic charges.

7.2. Conditions for safe storage, including any incompatibilities

Buildings and places in which there is risk of exposure to the product must be separated and insulated from the other buildings and from work areas.
Provide adequate ventilation in the storage area in order to dilute any leakage of vapors from the containers.
Store the product in a well ventilated, dry and cool area. Protect from direct sunlight. Keep container tightly closed and sealed until its use.
Containers which are opened must be carefully resealed and kept upright to prevent leakage. Do not store the product in unlabelled containers.
Use appropriate containment to avoid environmental contamination. Exclude every source of ignition of flammable substances.
Keep containers away from any incompatible materials, checking section 10.
For storage area, provide acid-resistant floors.
Do not use metal containers if not adequately protected from corrosion.

7.3. Specific end use(s)

No use other than as indicated in section 1.2 of this safety data sheet

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

IRL	Éire	2020 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations (2001-2015) and the Safety, Health and Welfare at Work (Carcinogens) Regulations (2001-2019)
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Fourth Edition 2020)
EU	OEL EU	Directive (EU) 2022/431; Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2023

ACIDO SOLFORICO

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
OELV	IRL	0,05				
WEL	GBR	1				
OEL	EU	0,05*				THORA
TLV-ACGIH		0,2				

Predicted no-effect concentration - PNEC	
Normal value in fresh water	NPI
Normal value in marine water	NPI
Normal value for fresh water sediment	NPI
Normal value for marine water sediment	NPI
Normal value of STP microorganisms	NPI
Normal value for the terrestrial compartment	NPI
Normal value for the atmosphere	NPI

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers	Effects on workers

Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation					0,1 mg/m3		0,05 mg/m3	

*
The mist is defined as the thoracic fraction
When selecting an appropriate exposure monitoring method, account should be taken of potential limitations and interferences that may arise in the presence of other sulphur compounds.

Legend:
(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified ; LOW = low hazard ; MED = medium hazard ; HIGH = high hazard.

Recommended monitoring procedures
The methods for assessment of the atmosphere in the workplace must comply with the requirements stated in norms EN 482 and EN 689.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, if operations generate gases / vapors / mists, make sure that the workplace is well aired through effective local aspiration.
When choosing personal protective equipment, ask your PPE supplier for advice.
Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

HAND PROTECTION
Protect hands with category III and with acid-resistant work gloves (ref. standard EN 374 and Reg. (EU) 2016/425)
Recommended glove material:
- Teflon (thickness 0.5 mm, permeability time > 72 hours)
- Saranex (permeability time > 8 hours)
- PE (permeability time > 8 hours)
- Rubber (thickness 0.4 mm, permeability time > 1 hour)
- Rubber-Neoprene (permeability time > 1 hour)
- Neoprene (permeability time 1-6 hours)
- Nitrile (thickness 0.5 mm, permeability time > 1 hour)

When identifying the relevant material and the relative thickness to be used, it is highly recommended to consult directly with the PPE manufacturer to evaluate the effective protection.
The following must be considered: compatibility, degradation, breakthrough time and permeation.
The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

When using gloves, adopt the following general rules:
Additional protection with barrier creams is useful. Before each use the gloves must be inspected for damage or contamination (cuts, punctures, discolored spots, etc.). Gloves must be removed in compliance with current hygiene regulations. In case of spillage on gloves, you should remove them and wash your hands immediately. It is always necessary to wash your hands thoroughly after taking off your gloves. Disposable gloves should never be reused.

THERMAL DANGERS
Based on the use described in sect. 1.2, protective gloves are not required due to risks arising from heat and/or flame.

SKIN PROTECTION
If the result of risk assessment is low, a complete barrier for the permeation of liquids is not necessary and when the personnel are able to take timely adequate actions if their clothes are contaminated (for example potential exposure to small amounts of light sprays, liquid aerosols or small volume of accidental spills), wear acid proof clothes (type 6) according to EN13034.
In case of processes where the risk of potential contact with the substance is not negligible, or situations where the operator can come into direct contact with the chemical (for example in case of lines and equipment opening, reclamation and entry in equipment) wear completely waterproof coverall with headgear compliant with standard EN14605 (type 3) (suggested class 6, permeation time > 480 min) and
Wear category III professional PVC/nitrile antacid safety footwear (see Regulation 2016/425, standard EN ISO 20344 and EN ISO 20345).
Wash body with soap and water after removing protective clothing.

EYE PROTECTION
Wear a hood visor or protective visor combined with airtight goggles (see standard EN ISO 16321).
Before wearing the glasses they must be inspected for any damage or deterioration.

To ensure the correct use of PPE and the consequent health and safety of workers, a check with the manufacturer of the device is recommended, identifying as a priority and based on the dangers of the substance at least:
- the level of resistance to surface damage;
- the level of resistance to fogging of the eyepieces.
The technical information necessary for the correct identification of eye PPE can be found by consulting the manufacturer's information note.

RESPIRATORY PROTECTION
Use a mask with a type E filter whose class (2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.
If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS
Take all the necessary technical precautions to prevent the spread of the product in the environment. Do not disperse the product in the environment. The wastewater must be properly neutralized. Residues of air emissions treatment must be sent to the internal water treatment system, recycled in the process or sent to a treatment system outside.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value
Appearance	Liquid
Colour	Colourless
Odour	Odourless
Melting point / freezing point	3 at 5°C (sulphuric acid 98%)
Initial boiling point	335 °C (98 %)
Flammability	Non flammable (depending on the molecular structure)
Lower explosive limit	Not explosive. The substance does not have groups associated with explosiveness
Upper explosive limit	Not explosive. The substance does not have groups associated with explosiveness
Flash point	Not applicable, inorganic substance
Auto-ignition temperature	not available
Decomposition temperature	340 °C
pH	< 1 (10 g/l) - 20 °C
Kinematic viscosity	not available
Solubility	Miscible in water
Partition coefficient: n-octanol/water	Not applicable, inorganic substance
Vapour pressure	< 0,001 hPa - 20 °C
Density and/or relative density	1,83 g/cm3 - 20 °C
Relative vapour density	3,4 (air =1), EPA 1998
Particle characteristics	not applicable due to physical state

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Oxidising proprieties: The substance has no oxidizing groups.

Substances that emit flammable gases in contact with water: Sulfuric acid is a strong mineral acid that has a high affinity for (and is miscible with) water. It dissociates in water to form sulfate and hydrogen ions (hydronium). The dissolution and dissociation of sulfuric acid in water is strongly exothermic with a vigorous reaction OECD SIDS (2001)

9.2.2. Other safety characteristics

Dynamic Viscosity: A viscosity of 22.5 cP (0.0025 PaS; 22.5 mPaS) is reported for 95% sulfuric acid at 20 degrees Celsius.

SECTION 10. Stability and reactivity

10.1. Reactivity

SULPHURIC ACID corrodes numerous metals with the development of hydrogen; the corrosivity of sulfuric acid towards metals depends on its concentration and temperature.

10.2. Chemical stability

Strongly hygroscopic liquid.
At 340 ° C it decomposes into sulfur trioxide and water.

10.3. Possibility of hazardous reactions

Reacts violently for example with: carbides, perchlorates, permanganates, fulminates, nitrates, picrates, acrylonitrile, propargyl alcohol and alkalis.
These reactions can be explosive.
The dilution of the substance in water is strongly exothermic and fast. If water is poured over concentrated acid, the reaction is violent and accompanied by projections of liquid.

10.4. Conditions to avoid

Warm up. Exposure to air and humidity

10.5. Incompatible materials

Flammable, reducing, basic, organic substances, chlorates, hydrochloric acid, metals, sodium carbonate, hydrides, acrylonitrile, nitrobenzene, acetaldehyde, sulphides and water.

10.6. Hazardous decomposition products

As it burns, it develops sulfur oxides.
In case of reaction with metals, it develops hydrogen.
When heated, it emits gases and vapors that are potentially harmful to health.

SECTION 11. Toxicological information

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

Metabolism, toxicokinetics, mechanism of action and other information
References: Clearance Of Sulfuric Acid-Introduced 35S From The Respiratory Tracts Of Rats, Guinea Pigs And Dogs Following Inhalation Or Instillation (Fundamental & Applied Toxicology 3 (4) 293-297 (1983))
Reliability (Klimisch score): 2
Species: rat (F344), dog (Beagle), guinea pig (Hartley)
Routes of exposure: inhalation and instillation
Results: Sulphate is rapidly absorbed by the lungs following exposure by inhalation of sulfuric acid.

Information on likely routes of exposure
The main routes of potential exposure are inhalation, skin contact and ingestion.

Delayed and immediate effects as well as chronic effects from short and long-term exposur
Exposure to vapors or aerosols of the substance results in symptoms of irritation of the eyes, skin and respiratory tract. Severity is a function of concentration, duration of exposure, size of inhaled particles and ambient humidity.
Ingestion of a concentrated solution causes severe caustic lesions of the digestive tract.

ACUTE TOXICITY

SULPHURIC ACID
Reference: Range-finding toxicity data: List VII (Am Ind Hyg Assoc J. 1969 Sep-Oct; 30 (5): 470-6 (1969))
Reliability (Klimisch score): 2
Species: rat (Wistar)
Routes of exposure: oral
Results LD50: 2 140 mg / kg
Reference: The toxicity of H2SO4 aerosols to CD-1 mice and Fischer-344 rats. (Annual Report of the Inhalation Toxicology Research Institute (p435-439) (1979))
Reliability (Klimisch score): 2
Species: rat (Fischer 344; male / female)
Routes of exposure: inhalation (aerosol)
Results CL50: 375 mg / mÂ³
Acute skin toxicity: data not available.

SKIN CORROSION / IRRITATION
Corrosive for the skin
In humans, direct contact to skin with a concentrated solution of sulfuric acid (pH <2) causes caustic lesions (INRS, 2010)..

Specific concentration limits (Annex VI Reg. 1272/2008)
Skin Corr. 1A; H314: C ≥ 15%
Skin Irrit. 2; H315: 5% ≤ C <15%

SERIOUS EYE DAMAGE / IRRITATION
Causes serious eye damage
Based on the probative value of the available data determined by expert judgment, the substance is classified as H314 (Causes severe skin burns and eye damage).
Specific concentration limits (Annex VI Reg. 1272/2008)
Eye Irrit. 2; H319: 5% ≤ C <15%

RESPIRATORY OR SKIN SENSITISATION
Does not meet the classification criteria for this hazard class
There are no literature data on sensitization in either humans or animals.

GERM CELL MUTAGENICITY
Does not meet the classification criteria for this hazard class

Reference: Sublethal pH decrease may cause genetic damage to eukaryotic cells: a study on sea urchins and Salmonella typhimurium (Teratog. Carcinog. Mutagen. 6 (4): 275-287 (1986))
Reliability (Klimisch score): 2
In vitro test
Species: TA97, TA98, TA100, TA102, TA1535
Results: negative
In vivo test: data not available.

CARCINOGENICITY
Does not meet the classification criteria for this hazard class
Based on the evidence of available data, the substance is not classified for the hazard class CLP of carcinogenecity

REPRODUCTIVE TOXICITY
Does not meet the classification criteria for this hazard class

Adverse effects on sexual function and fertility
No data avaliable

Adverse effects on development of the offspring
Method: equivalent or similar to OECD 414

Reliability (Klimisch score): 2
Species: white rabbit (New Zealand); mouse
Routes of exposure: inhalation (aerosol)
Results: NOAEC (maternal - mouse): 5.7 mg / mÂ³; NOAEC (development - mouse): 19.3 mg / mÂ³; NOAEC (maternal - rabbit): 5.7 mg / mÂ³; NOAEC (development - rabbit): 19.3 mg / mÂ³.

STOT - SINGLE EXPOSURE
Does not meet the classification criteria for this hazard class
Exposure to sulfuric acid aerosols is responsible for irritation to the respiratory tract with an intensity that depends on the atmospheric concentration of acid, the characteristics of the aerosol, the duration of exposure and the sensitivity of the animal exposed.

STOT - REPEATED EXPOSURE
Does not meet the classification criteria for this hazard class
Based on the available data, the substance has no specific target organ toxicity effects due to repeated exposure and is not classified under the relevant CLP hazard class.

Method: OECD 412
Reliability (Klimisch score): 1
Species: rat (Wistar; females)
Routes of exposure: inhalation (aerosol)
LOAEC results: 0.3 mg / m³.

ASPIRATION HAZARD
Does not meet the classification criteria for this hazard class
There no available data for the hazard class CLP of aspiration hazard.

11.2. Information on other hazards

Based on the available data, the substance is not listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

SECTION 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity

Short-term effects

SULPHURIC ACID	
LC50 - for Fish	> 16 mg/l/96h 16-28 (pH 3.25 to 3.5) Lepomis macrochirus (J. Fish Bid. (1984) 25, 133-137.)
EC50 - for Crustacea	100 mg/l/48h Daphnia magna (OECD TG 202)
EC50 - for Algae / Aquatic Plants	> 100 mg/l/72h Desmodesmus subspicatus (OECD TG 201)

Long-term effects

NOEC for Aquatic invertebrates	Tanytarsus dissimilis) NOEC: 0,15 mg/L (pH 5,5). "Sulfuric Acid CAS No. 7664-93-9: SIDS Initial Assessment Report for 11th SIAM.", (OECD SIDS 2001)
NOEC for Fish	(Salvelinus fontinalis) NOEC: 0,31 mg/l (pH 5,2) "Water, Air and Soil Pollution 46: 387 - 398, 1989".
NOEC for Crustacea	0.15 mg/L (Tanytarsus dissimilis). Canadian Entomologist 102: 636 - 639 (1970)

12.2. Persistence and degradability

It dissociates rapidly in water with sulphate ions and hydrated protons and is totally miscible in water (at pH 3.92 for example dissociation is 99%) (OECD SIDS 2001).

12.3. Bioaccumulative potential

It does not bioaccumulate in tissues as it is completely dissociated in water (OECD SIDS 2001).

12.4. Mobility in soil

During transport in the soil, sulfuric acid can be neutralized by some basic components of the soil (carbonates). "
High mobility in soil (OECD SIDS 2001)

12.5. Results of PBT and vPvB assessment

The substance does not have persistence, bioaccumulation and toxicity (PBT) properties and is not very persistent and very bioaccumulative. (vPvB).

12.6. Endocrine disrupting properties

Based on the available data, the substance is not listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

12.7. Other adverse effects

Information not available

SECTION 13. Disposal considerations

13.1. Waste treatment methods

The substance, in case of disposal as such, pursuant to Regulation (EU) No. 1357/2014, must be classified as hazardous waste:
- HP 8 "Corrosive": may cause skin corrosion.
Reuse, when possible. Product residues shall be considered special hazardous waste. The hazards of the wastes containing this product shall be evaluated according to applicable regulations. (Directive 2008/98/EC and subsequent amendments and supplements).
Disposal must be performed by an authorised waste management enterprise in compliance with national and local regulations.
The legal responsible for disposal is the producer / holder of the waste.
Different EWC codes could be applied to this mixture according to the European Waste Catalogue based on the specific circumstances that generated the waste, possible alterations and / or possible contamination.

The product as such, out of specification contained in the original packaging, or poured into in an appropriate recipient for disposal, or the product in specification but no longer usable, shall be classified with a EWC code that is matching the description of the use shown at section 1.2.

The suitable final destination of the waste shall be evaluated by the producer on the basis of the chemical-physical characteristics of the waste, the compatibility with the authorized facility to which it will be provided for recovery, and the definitive treatment or disposal according to the procedures established by regulations in force.

For hazardous substances registered according to Regulation EC 1907/2006 (REACH), for which a chemical safety report has been drawn up, refer to the specific information contained in the exposure scenarios attached to the Safety Data Sheets.

CONTAMINATED PACKAGING
Contaminated packaging, properly labeled, shall be sent to recovery or disposal in compliance with national waste management regulations and they shall be classified with the following EWC code: **15 01 10***: packaging containing residues of or contaminated by hazardous substances

SECTION 14. Transport information

14.1. UN number or ID number

ADR / RID, IMDG, IATA: 1830

14.2. UN proper shipping name

ADR / RID:	SULPHURIC ACID
IMDG:	SULPHURIC ACID
IATA:	SULPHURIC ACID

14.3. Transport hazard class(es)

ADR / RID:	Class: 8	Label: 8
IMDG:	Class: 8	Label: 8
IATA:	Class: 8	Label: 8

14.4. Packing group

ADR / RID, IMDG, IATA: II

14.5. Environmental hazards

ADR / RID:	NO
IMDG:	NO
IATA:	NO

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 80	Limited Quantities: 1 L	Tunnel restriction code: (E)
	Special provision: -		
IMDG:	EMS: F-A, S-B	Limited Quantities: 1 L	
IATA:	Cargo:	Maximum quantity: 30 L	Packaging instructions: 855
	Pass.:	Maximum quantity: 1 L	Packaging instructions: 851
	Special provision:	-	

14.7. Maritime transport in bulk according to IMO instruments
Information not relevant

SECTION 15. Regulatory information

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

Seveso Category - Directive 2012/18/EU: None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product

Point 3

Contained substance

Point 75

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors

Restricted explosives precursor
The acquisition, introduction, possession or use of that restricted explosives precursor by members of the general public is subject to a restriction as set out in Article 5(1) and (3). Restricted explosives precursors shall not be made available to, or introduced, possessed or used by members of the general public.
All suspicious transactions and significant disappearances and thefts must be reported to the relevant national contact point.

Regulation (EC) No 273/2004 of the European Parliament and of the Council of 11 February 2004 on drug precursors
Sulfuric acid is included in category 3 of Annex I of EU Regulation No. 273/2004.

Council Regulation (EC) No 111/2005 of 22 December 2004 laying down rules for the monitoring of trade between the Community and third countries in drug precursors
Sulfuric acid is included in category 3 of the Annex of EU Regulation No. 111/2005 (threshold limit 100 kg, according to Annex II of EC Regulation No. 1277/2005).

Substances in Candidate List (Art. 59 REACH)
On the basis of available data, the product does not contain any SVHC in percentage ≥ than 0,1%.

Substances subject to authorisation (Annex XIV REACH)
None

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

Healthcare controls
Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

15.2. Chemical safety assessment

A chemical safety assessment has been performed for the substance.

SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Skin Corr. 1A	Skin corrosion, category 1A
Eye Dam. 1	Serious eye damage, category 1
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
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.

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE: Identifier in ESIS (European archive of existing substances)
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).
- PPE: Personal protective equipment

GENERAL BIBLIOGRAPHY

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
13. Regulation (EU) 2017/776 (X Atp. CLP)
14. Regulation (EU) 2018/669 (XI Atp. CLP)
15. Regulation (EU) 2019/521 (XII Atp. CLP)
16. Delegated Regulation (UE) 2018/1480 (XIII Atp. CLP)
17. Regulation (EU) 2019/1148
18. Delegated Regulation (UE) 2020/217 (XIV Atp. CLP)
19. Delegated Regulation (UE) 2020/1182 (XV Atp. CLP)
20. Delegated Regulation (UE) 2021/643 (XVI Atp. CLP)
21. Delegated Regulation (UE) 2021/849 (XVII Atp. CLP)
22. Delegated Regulation (UE) 2022/692 (XVIII Atp. CLP)
23. Delegated Regulation (UE) 2023/707
- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for the recipient of the Safety Data Sheet (SDS):

The recipient of this SDS shall make sure of reading and understanding the information included by all people who handle, store, use, or

otherwise come into contact in any way with the substance or mixture to which this SDS is referred to. In particular, the recipient shall provide adequate training to the personnel for the use of hazardous substances and/or mixtures. The recipient shall verify the suitability and completeness of the provided information according to the specific use of the substance or mixture. However, the substance or mixture referred to by this SDS shall not be used for uses other than those specified in Section 1. The Supplier don't assume responsibility for improper uses. Since the use of the product does not fall under the direct control of the Supplier, the user shall, under his own responsibility, fulfill national and EU regulations concerning health and safety.
The information included in this SDS are provided in good faith and are based on the current state of scientific and technical knowledge, at the revision date indicated, available to the Supplier indicated in Section 1 of this SDS. It shall not be meant that the SDS is a guarantee of any specific property of the substance or mixture. The information concern only to the substance or mixture specifically designated in Section 1 and it could not be valid for the substance or mixture used in combination with other materials or in any process not specified in the text.
This version of the SDS substitutes all the previous versions.

Changes to previous review:
The following sections were modified:
08/ 09 /11/ /13 /15/ 16