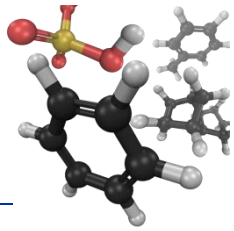


SAFETY DATA SHEET
SULPHURIC ACID

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1. Product identifier

Substance name:	SULPHURIC ACID
Product name:	SULPHURIC ACID
Index No.:	016-020-00-8
EINECS:	231-639-5
CAS number:	7664-93-9
CAS name:	Sulphuric acid
IUPAC name:	Sulphuric acid VI
REACH registration number:	01-2119458838-20-0046
Type of substance:	Composition: mono constituent substance Origin: inorganic

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

1.2.1. Relevant identified uses

Sulphuric acid is used in many chemical syntheses (sulfonation, nitration), to the production of phosphoric acid, fertilizers, hydrochloric acid, insulation and abrasive materials, explosives, wood boards, for refining of fats and hydrocarbons, as dehydrating factor, as electrolyte in acidic batteries, in production of artificial silk, as pH regulator, in food industry, in surface treatment processes, purification, in electrolytic processes, scrubbing, in industrial cleaning, in waste water treatment processes, as laboratory reagent.

See section 16 for list of descriptors combination.

1.2.2. Uses advised against

The acquisition, possession or use by cut users is subject to restrictions.

1.3. Details of the supplier of the safety data sheet

Company identification: Petrochemia – Blachownia Sp. z o.o.
Szkolna 15
47-225 Kędzierzyn - Koźle
POLAND
Phone +48 77 488 68 01 (pon. – pt.; godz. 7^{00} – 15^{00})
Fax. +48 77 488 67 21

E-mail of responsible person for SDS: reach@petrochemia-bl.com.pl

1.4. Emergency telephone number

Department of Chemical Safety
Nofer Institute of Occupational Medicine, Łódź, Poland
+48 42 631 47 67
+48 42 657 99 00
working days Mo. – Fri. 8^{00} - 15^{00}

Company's Emergency phone number (round the clock): +48 697 986 566
Emergency services: general emergency number: 112
fire brigade: 998
emergency medical service: 999

SECTION 2: HAZARD IDENTIFICATION

2.1 Classification of the substance

PHYSICAL / CHEMICAL HAZARDS
Not sufficient for classification.

HEALTH HAZARD
Skin irritation Skin Corr. Kat. 1A; H314 Causes severe skin burns and eye damage.

ENVIRONMENTAL HAZARDS
Not sufficient for classification.

2.2 Label element

Product identifier: SULPHURIC ACID
Substance: Sulphuric acid
Index No: 016-020-00-8

Hazard pictograms:

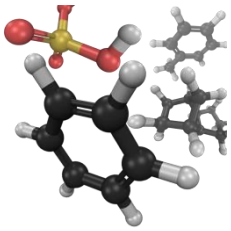
GHS05

Signal word:
Danger

Hazard statements:
H314 Causes severe skin burns and eye damage

Precautionary statements:

P260	Do not breath mist / fumes / spray.
P264	Wash hands / the whole body thoroughly after handling.
P280	Wear protective gloves / protective clothing / eye protection / face protection.
P301+P330+P331	IF SWALLOWED: rinse mouth, Do NOT induce vomiting
P303+P361+P353	IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water / shower.
P304+P340	IFNHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing



P305+P350+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 PIOSON CENTER or doctor / physician.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents / container to / as dangerous wastes.

2.3 Other hazards

Substance do not meet the specific criteria for persistent and bioaccumulative and toxic (PBT) or the criteria for very persistent and very bioaccumulative (vPvB) detailed in Annex XIII of regulation 1907/2006/EC as indicate that the substance would not have these properties and the substance is not considered a PBT/vPvB.

The substance is not included in the list established in accordance with Article 59(1) of regulation 1907/2006 for having endocrine disrupting properties.

The substance is not a substance identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS number	EC number (EINECS)	Index number	Classification	Specific Conc. Limits, M-factors
Sulphuric acid	7664-93-9	231-639-5	016-020-00-8	Skin Corr. 1A; H314	Skin Corr. 1A; H314: C ≥ 15 % Skin Irrit. 2; H315: 5 % ≤ C < 15 % Eye Irrit. 2; H319: 5 % ≤ C < 15 %

Degree of purity: min. 96 % v/v

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

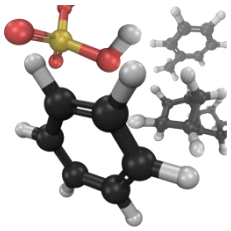
4.1.1. General advice

Take care to self-protect by avoiding becoming contaminated.

In case of health troubles or doubts, seek medical advice immediately and show this Material Safety Data Sheet. Ensure activity of vitally important functions until the arrival of the doctor (artificial respiration, inhalation of oxygen, heart massage). If patient is unconscious, or in case of danger of blackout (apsychia), transport patient in a stabilised position. In case of first degree burns (painful redness), and second degree burns (painful blisters), cool the affected area with cold running water for a long time. In case of third degree burns (redness, cracking).

4.1.2. Inhalation

Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.



4.1.3. Skin contact

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 15 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

4.1.4. Eye contact

Immediately flush eyes with clean lukewarm water and continue flushing for at least 15 minutes – keep the eyelids widely apart and flush thoroughly with mild water stream from the inner to the outer canthus. Avoid strong stream of water in order not to damage of cornea.
People exposed to eye contamination should be informed about necessity of theirs immediate flushing.

4.1.5. Ingestion

Wash out mouth with water. In the event of swallowing, induce patient to drink plenty of water. Get medical attention immediately.

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

Inhalation toxicity: Mist and fumes caused pain of throat, cough, shallow and quick breathing, airlessness, contraction of glottis, laryngeal oedema, bronchi contraction, pulmonary oedema. Risk of sudden death as a result of glottis contract.
Skin Irritation / corrosion: Contamination of skin results in chemical and thermal (exothermic reaction of sulphuric acid with wet skin) burns. Possibility of shock; extensive burns may cause death
Eye irritation / corrosion: Mist and fumes caused eyes pain and watering, burns of conjunctiva and corneas. Eye contamination results in burns of eyelid and eyeball and may cause permanent damage
Ingestion: Burns of oral cavity, throat, oesophagus; perforation of oesophagus and stomach; bleeding of digestive tract, shock. Lethal dose of sulphuric acid: 6-8g/kg b.w..
Sensitisation: Not expected to be a skin sensitizer.
Long-term and chronic effect: Chronic ophthalmia, nose bleeding, chronic bronchitis. Repeated exposure of skin may cause ulceration, nails changes, damage of tooth enamel.

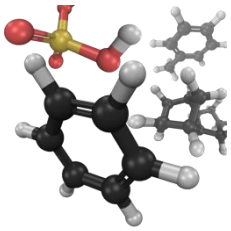
4.3. Indication of any immediate medical attention and special treatment needed

Inhalation: Dexamethasone for inhalation can be given. First symptoms of glottis oedema are the reason for providing oxygen and hydrocortisone and furosemide intravenously. transport to the hospital with continuous medical treatment.
Skin burns: Depending on location and extensiveness of burns surgeon's attention can be necessary. Painkilling medicines can be given.
Eye Burns: Ophthalmological attention is necessary in every case. Painkilling medicines can be given.
Ingestion: Assume a constant intravenous route. Painkilling medicines can be given parenterally. Surgeon's attention can be necessary.

SECTION 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

In case of fire use water spray (fog), foam, dry chemical or CO_2, keep safe distance (risk of explosion). Avoid penetration of water to the tanks – sulphuric acid dissolve in water releasing huge amount of heat.



5.2. Special hazards arising from the substance

In a fire or if heated, a pressure increase will occur and the container may burst. Sulphuric acid react with most metals to form explosive / flammable hydrogen gas.
Hazardous combustion products: Decomposition products may include the following materials: sulphur oxides

5.3. Advice for fire-fighters

Fire-fighters should wear appropriate equipment and self-contained breathing apparatus with a full face-piece operated in positive pressure mode.

SECTION 6: ACCIDENTAL RELEASE MEASURES

The rules of conduct will depend on local terrain conditions. Information included in this safety data sheet should be treated as general rules and obeyed during sulphuric acid transport. Detailed rules of conduct in place of using should be provided taking in to consideration of general rules, resulted from environment protection and health and safety law requirements and also from local safety rules.

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protective equipment. Avoid breathing vapours, mist or aerosol. Ensure adequate ventilation and absence of sources of ignition. Beware of accumulation of vapours in low areas or contained areas, where explosive concentrations may occur.

6.1.1. For non-emergency personnel

Use appropriate personal protection measures as described in section 8 of the safety data sheet. Follow the instructions of the people giving help / evacuation.

6.1.2. For emergency responders

Use appropriate personal protection measures as described in section 8 of the safety data sheet. Remove the injured from the danger zone; inform appropriate services, provide first aid in accordance with the guidelines contained in section 4 of the safety data sheet.

6.2. Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Land spillage

Prevent further leakage or spillage if safe to do so. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas.

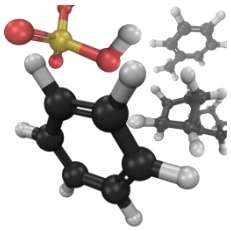
Spillages in water or at sea

Prevent further leakage or spillage if safe to do so. If the spillage contaminates rivers, lakes or drains inform respective authorities. In case of drinking water contamination alert users.

6.3. Methods and material for containment and cleaning up

Small spills

Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.



Large spills

Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Any case: Stay upwind. Keep non-involved personnel away from the area of spillage. Ensure adequate ventilation, especially in confined areas.

6.4. Reference to other sections

Fire-fighting measures - see section 5; waste management - see section 13 of the charter; personal protection equipment - see section 8 of the SDS; emergency telephone numbers - see section 1.4.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Put on appropriate personal protective equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous.

For contact wit sulphuric acid may be used such materials which are recommended by theirs producers as sulphuric acid resistant. Using of acid resistant linings are recommended (e.g. acid resistant steel, some plastics, glass, rubber).

During selection of appropriate materials take into consideration following information:

- in contact with concentrated sulphuric acid may be used carbon steel; passivation of steel surface come after the reaction of sulphuric acid react with carbon steel and protective layer is formed;
- in case of diluted solution of sulphuric acid protective layer doesn't form and usage of acid protective linings is necessary; such linings should be also used when concentrated sulphuric acid, during handling or storage, may have contact with moisture or may be diluted.

7.2. Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well ventilated area, away from incompatible materials (see section 10) and food and drink. Separate from alkalis. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

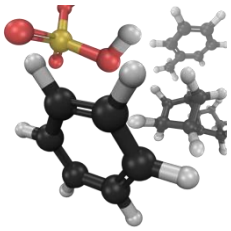
Packaging materials

Recommended: Use original container.

Remarks: Vent waste air only via suitable separators or scrubbers.

7.3. Specific end use(s)

See in exposure scenarios in Annexes.



SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Significant routes of exposure:
Human exposure: mist by inhalation; skin irritant.
Environmental exposure: air
Pattern of exposure: accidental/infrequent

8.1. Control parameters

Exposure limits

	Sulphuric acid (VI) – mist
TWA; mg/m^3	*0,05*
STEL; mg/m^3	-
Notation "skin"	-

The mist is defined as the thoracic fraction.
A skin notation assigned to the occupational exposure limit value indicates the possibility of significant uptake through the skin.
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.
According to: Commission Directive No 2009/161/EU of 17 December 2009 establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending of Directive 2000/39/EC
Exposure controls in accordance with local and national regulations.

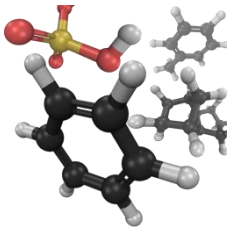
DNEL: Derived No Effect Level (long-term based on local effect)
Workers
Acute – local effect (inhalation) 0,1 mg/m^3 {irritation (respiratory tract)}
Long-term - local effects (inhalation) 0,005 mg/m^3 {irritation (respiratory track)}
General population
Significant additional inhalation exposure (over and above background levels resulting from other sources including combustion of fossil fuels) of the general population is not predicted

PNEC: Predicted No Effect Concentration

Aqua – freshwater	0,0025 mg/l
Aqua - marine water	0,00025 mg/l
Aqua - intermittent releases	not relevant
Sediment	2 x 10^{-3}mg/kg wwt
Sediment (marine water)	2 x 10^{-3}mg/kg wwt
Soil	no relevant exposure is expected
Sewage Treatment Plant	8,8 mg/l

8.2. Exposure controls

The substance should be rigorously contained by technical means during its whole lifecycle; procedural and control technologies are used to minimise emissions and any resulting exposures; only properly trained and authorised personnel handle the substance; special procedures such as purging and washing should be applied during cleaning and maintenance works, in cases of accident and where waste is generated, procedural and/or control technologies should be used to minimise emissions and the resulting exposures; and substance-handling procedures should be well documented and strictly supervised by the site operator.



8.2.1. Appropriate engineering controls

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on risk assessment of local circumstances.
Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to local airborne concentrations below the exposure guidelines / limits. Firewater monitors and deluge systems is recommended.

8.2.2. Personal protective equipment

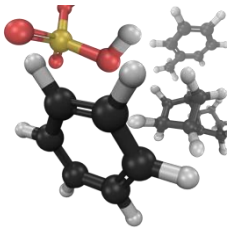
Consider the potential hazards of this material applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment.
If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended
Respiratory protection: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
The absorber should be selected depending on substance volumetric concentration: up. to 0,1%vol. – E1; 0,1–0,5 %vol. – E2; 0,5–1%vol. – E3.
When mixture of vapours of different substances may occur use universal ABEK absorber.
When concentration of compound is higher than 1% of volume or there is oxygen lack in air (below 17%) use self-contained breathing apparatus.
In case of emergency or when substance concentration isn't known use personal protective equipment in highest class of protection.
Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations <1 hours (breakthrough time): Fluorinated rubber - FKM
Eye protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Recommended: Tightly-fitting goggles and face shield.
Skin and body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: chemical-resistant protective suit
Caution: If during operations with sulphuric acid risk of pouring of workers with acid, safety shower and eyewash fountains should be installed.

8.2.3. General safety and hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

8.2.4. Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or



engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION

Physical State:	Oily liquid
Colour:	Colourless to yellow
Odour:	sharp, suffocating

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Density (at 20 °C):	1,8144-1,8305 kg/L (90-100% sulphuric acid)
Flash Point:	not applicable
Explosion limits	not expected to possess explosive properties
Autoignition Temperature:	not applicable
Boiling Point / Range:	290°C (100% sulphuric acid) 310-335°C (98% sulphuric acid) 330°C (96% sulphuric acid) 360°C (77% sulphuric acid)
Vapour Pressure:	130 Pa (97% sulphuric acid) at 148,5°C 214 Pa (65% sulphuric acid) at 20°C 6 Pa (90% sulphuric acid) at 20°C
Log Pow (n-Octanol/Water Partition Coefficient):	not relevant for ionisable substances
Solubility in Water at 20°C	miscible
Surface tension at 25°C	not expected to be surface active
Viscosity: at 20°C	22,5 cP (0,0025 Pas; 22,5 mPas) (95% sulphuric acid)
Oxidising properties:	does not meet the criteria as an oxidiser

9.2. *Other information*

Melting point:	10,4 - 10,9ºC (100% sulphuric acid) (-)1,11 – (+)3,0ºC (98% sulphuric acid) (-)13,9 – (-)10ºC (96% sulphuric acid) 7,56ºC (83% sulphuric acid)
Molecular Weight:	98,08 g/mol

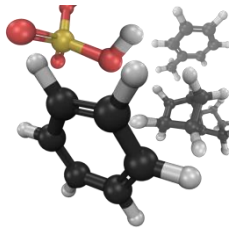
SECTION 10: STABILITY AND REACTVITY

10.1. Reactivity

Highly reactive with water and alkalis

10.2. Chemical stability

In normal conditions -stable



10.3. Possibility of hazardous reactions

Sulphuric acid react with most metals to form explosive / flammable hydrogen gas.

10.4. Conditions to avoid

Avoid high temperature (above 150°C); high humidity.

10.5. Incompatible materials

Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with the following materials: alkalis.

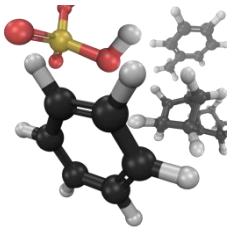
10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous reactions will not occur.

SECTION 11:TOXICOLOGICAL INFORMATION

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

	Conclusion / Remarks
Acute toxicity	
By oral route By inhalation By dermal route	LD50 value of 2140 mg/kg bw LC50 375 mg/m³ air -
Skin corrosion / irritation	Corrosive Irritating to eyes and skin for concentrations of >=5% to 15%
Serious eye damage / irritation	Corrosive Irritating to eyes and skin for concentrations of >=5% to 15%
Respiratory or skin sensitisation	Not sensitising
Germ cell mutagenicity	
In vitro studies In vivo studies	Not genotoxic
Carcinogenicity	A number of studies (using various animal species) have not demonstrated any carcinogenic effect of inhalation exposure to sulphuric acid mists
Reproductive toxicity	
Fertility Pre-natal developmental tox study	No evidence of reproductive effects. A study of developmental toxicity in the rabbit and mouse (using inhalation exposure) has been performed with sulphuric acid NOAEC 19,3 mg/m3) sufficient to cause mild maternal toxicity No evidence of teratogenicity was seen in either species, at exposure levels sufficient to cause mild maternal toxicity.
STOT – single exposure	May cause drowsiness and dizziness; affects central nervous system (route of exposure: inhalation)
STOT- repeated exposure	
Route: inhalation	NOAEC: 0,3 mg/m³ Target organs: respiratory: larynx
Aspiration toxicity	
By oral route	May be fatal if swallowed and enters airways
By inhalation	



11.2. Information on other hazards

	Conclusion / Remarks
Endocrine disrupting properties	The substance is not included in the list established in accordance with Article 59(1) of regulation 1907/2006 for having endocrine disrupting properties. The substance is not a substance identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.
Toxicokinetics	Sulphuric acid (as such) is not expected to be absorbed or distributed throughout the body as the acid will rapidly dissociate; the hydrogen ion will form water. In a study of the clearance of radiolabeled sulphuric acid aerosol in different species, the authors observed that the sulphur from sulphuric acid was rapidly cleared (from 2 -9 minutes) from the lungs of animals into the blood following inhalation exposure (Dahl, 1983). Sulphate is a normal constituent of the blood (present at 0,8 -1,2 mg/dl) and is a normal metabolite of sulphur-containing amino acids. The body has efficient sulphate homeostatic mechanisms and excess sulphate is excreted in the urine (capacity-limited proximal tubular absorption); urinary sulphate concentrations of up to 500 µmol/dl/kg bw have been reported. The body pool of this anion is large, and it is therefore unlikely that occupational exposure will significantly add to the normal body burden.

SECTION 12: ECOLOGIOCAL INFORMATION

12.1. Toxicity

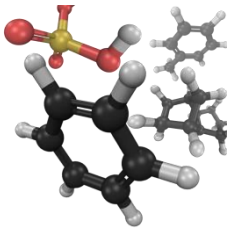
	Conclusion / Remarks
Aquatic toxicity:	
Short term toxicity testing on invertebrates (Daphnia)	48hr EC50/LC50 100 mg/l
Long term toxicity testing on invertebrates (Daphnia)	10 days NOEC 0,15 mg/l
Growth inhibition study aquatic plants	72hr NOEC 100 mg/l
Short term toxicity testing on fish	96hr LC50 16 mg/l
Long term toxicity testing on fish	10 months NOEC 0,025 mg/l
Activated sludge respiration inhibition testing	37 days NOEC 26000 mg/l
Long term toxicity to sediment organisms	Not available
Terrestrial toxicity	
Long term toxicity to invertebrates:	No terrestrial exposure is expected therefore no data is provided
Effects on soil microorganism:	
Long-term toxicity to plant:	
Long-term or reproductive toxicity to birds:	

12.2. Persistence and degradability

Sulphuric acid is a simple inorganic substance, which will not biodegrade. The substance dissociates readily in water to hydrogen ions and sulphate ions (at environmentally relevant pH) and is totally miscible with water. The hydrogen ions, although not degraded as such due to their elemental nature, will react with (OH) and be neutralised. The sulphate ions are incorporated into the various mineral species present in the environment.

12.3. Bioaccumulative potential

Sulphuric acid is a strong mineral acid (pKa =1.92) that dissociates readily in water to hydrogen ions and sulphate ions (at environmentally relevant pH) and is totally miscible with water. The resulting



hydrogen ions and sulphate ions are naturally present in water/sediment and no bioaccumulation of these ions is predicted. The hydrogen ions will react with hydroxyl ions to form water.

12.4. Mobility in soil

Sulphuric acid is a strong mineral acid (pKa =1.92) that dissociates readily in water to hydrogen ions and sulphate ions (at environmentally relevant pH) and is totally miscible with water. The resulting hydrogen ions and sulphate ions are naturally present in water/sediment and no bioaccumulation of these ions is predicted. The hydrogen ions will react with hydroxyl ions to form water.

12.5. Results of PBT and vPvB assessment

Does not meet criteria.

12.6. Endocrine disrupting properties

The substance is not included in the list established in accordance with Article 59(1) of regulation 1907/2006 for having endocrine disrupting properties.
The substance is not a substance identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

12.7. Other adverse effects

It is not expected that sulphuric acid has an effect on global warming, ozone depletion in the stratosphere or ozone formation in the troposphere.

SECTION 13: DISPOSAL CONSIDERATIONS

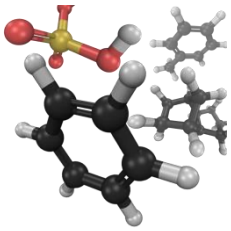
Wastes classification : according to Waste Catalogue.

13.1. Waste treatment methods

Do not let the product get into the sewage systems and soil waters. Do not store on municipal landfills. Consider possibility of use. Carry on the recovery or disposal of wastes in accordance to law regulations. Recommended way of disposal: incineration.
Disposable packaging provide to an authorized recipient. Carry on the recovery or disposal of wastes in accordance to law regulations.
Reusable packaging after careful cleaning can be reused if necessary.

SECTION 14: TRANSPORT INFORMATION

Subsection	Road transport (ADR)	Railway transport (RID)
14.1. ***UN numer or ID nimber***	UN 1830	UN 1830
14.2. Proper shipping name	SULPHURIC ACID	SULPHURIC ACID
14.3. Transport hazard class(es)	8	8
14.4. Packing group	II	II
14.5. Environmental hazards	no	no
14.6. Special precautions for users	Excepted quantities: LQ22 Packing instructions: P001, IBC02	Excepted quantities: LQ22 Packing instructions: P001, DPPL02
14.7. Marine transport in bulk according to IMO instruments	-	-



SECTION 15: REGULATORY INFORMATION

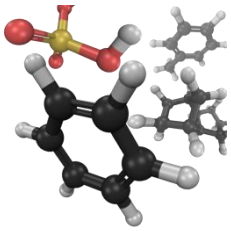
15.1. Safety, health and environmental regulations / legislation specific for the substance

Sulphuric acid is qualified as drugs precursors cat. 3 according to Regulation (EC) No 273/2004 concerning drug precursors.

Pursuant to the EU Regulation No. 2019/1148, sulfuric acid is on the list of explosives precursors for which suspicious transactions are subject to notification.

15.1.1. EU regulations

- 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, 93/105/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.
- Directive No 2012/18/EC of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC.
- Regulation (EC) No 273/2004 of the European Parliament and of the Council of 11 February 2004 on drug precursors.
- Directive No 2004/37/EC of the European Parliament and of the Council of 29 April 2004 on the protection of workers from the risks related to exposure to carcinogens or mutagens at work (sixth individual directive within the meaning of Article 16(1) of Directive 89/391/EEC).
- Council Directive No 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteen individual directive within the meaning of Article 16(1) of Directive 89/391/EEC).
- Commission Directive No 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC.
- Commission Directive No 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending of Directive 2000/39/EC.
- Commission Directive No 2009/161/EU of 17 December 2009 establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending of Directive 2000/39/EC
- Commission Directive (EU) 2017/164 of 31 January 2017 establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU
- Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.



- Commission Decision of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste
- Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods.
- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).
- Regulations concerning the International Carriage of Dangerous Goods by Rail (RID).
- Regulation (EC) No 273/2004 of the European Parliament and of the Council of 11 February 2004 on drug precursors.
- Commission Delegated Regulation (EU) 2017/2100 of 4 September 2017 setting out scientific criteria for the determination of endocrine-disrupting properties pursuant to Regulation (EU) No 528/2012 of the European Parliament and Council.
- Regulation (EC) No 273/2004 of the European Parliament and of the Council of 11 February 2004 on drug precursors.
- Regulation (EU) No 2019/1148 of the European Parliament and of the Council of 20 June 2019 on the marketing and use of explosives precursors, amending Regulation (EC) No 1907/2006 and repealing Regulation (EU) No 98/2013

15.2. Chemical Safety Assessment

Chemical Safety Assessment has been carried out.

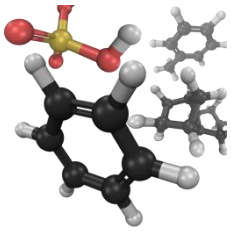
SECTION 16: OTHER INFORMATION

16.1. Indication of changes

This version replaces versions 4.1 of 15.08.2020.
Adaptation of the card to the new format in accordance with Commission Regulation (EU) 2020/878 of June 18, 2020. amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).
Section 1.4. – Information on alarm numbers has been updated.
Section 2.3. - Information on endocrine disrupting properties has been added.
Section 3 – Information concerning specific concentration limits has been added.
Section 6.1. - Information on personal precautions and emergency procedures has been clarified.
Section 6.4. - Reference to other sections has been updated.
Section 8.1. - The methods of exposure assessment have been specified and the legal basis has been given.
Section 11 - Updated information on toxicological hazards in terms of endocrine disrupting properties.
Section 12 - Supplemented information on ecological hazards in terms of endocrine disrupting properties
Section 13 – Information concerning wastes disposal has been updated.
Section 15 – Law Requirements have been updated.

16.2. Abbreviations and acronyms

EC50	Half maximal effective concentration
LC50	Lethal concentration, 50 %
LD50	Median Lethal Dose
NOAEC / NOAEC	No Observed Adverse Effect Level / Concentration
PBT	Persistent, Bioaccumulative and Toxic



vPvB	Very Persistent and Very Bioaccumulative
CSR	Chemical Safety Report

16.3. Key literature references and sources for data

Registration dossier for sulphuric acid.

16.4. Advice on any training for workers

To ensure protection of human health and the environment all workers involve in benzene handling should be appropriately trained. Trainings should include physical and chemical properties of the substance, effects for human health and on environment as well as way of protection (including personal protective equipment) and first aid measurements. Trainings should include accident / emergency simulations and should be periodically repeat.

16.5. Further information

This SDS is prepared for the purpose of providing health, safety and environmental data. The information given corresponds with our actual knowledge and experience. While the descriptions, data and information contained in the present datasheet are provided in good faith, these are to be considered as guidance only. Thus, this SDS shall not constitute a guarantee for any specific properties or quality standards.

This information is meant to describe our product in view of possible safety requirements, but it remains the responsibility of the customer to determine the applicability of the information and suitability of any product for its own particular purpose, to provide a safe workplace and comply with all applicable laws and regulations.

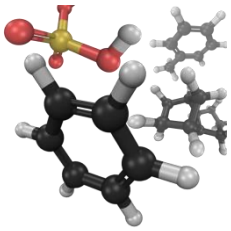
Since handling, storage, use and disposal is of the product are beyond our control and our knowledge, we do exclude any responsibility connecting to handling, storage, use or disposal of this product.

Please note that if the product used as a component of another product, this SDS information may not be applicable.

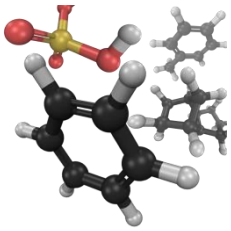
16.5.1. Identified uses

Uses by workers in industrial settings

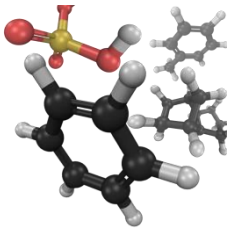
Identified Use Name	**Use descriptors**
Manufacture / Production	***Process category (PROC):*** PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) ***Environmental release category (ERC):*** ERC1: Manufacture of substances ***Sector of end use (SU):*** SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals



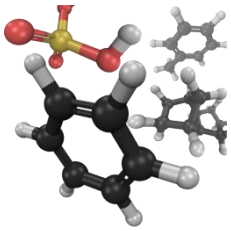
	SU3: Industrial uses: Uses of substance at industrial sites ***Exposure scenario reference in the CSR:*** 1
Use as an intermediate in manufacture of inorganic and organic chemicals including fertilizers	***Process category (PROC):*** PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) ***Environmental release category (ERC):*** ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates) ***Sector of end use (SU):*** SU4: Manufacture of food products SU6b: Manufacture of pulp, paper and paper products SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU14: Manufacture of basic metals, including alloys SU3: Industrial uses: Uses of substance at industrial sites ***Exposure scenario reference in the CSR***: 2
Use as processing aid, catalyst, dehydrating agent, pH regulator	***Process category (PROC):*** PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13: Treatment of articles by dipping and pouring ***Environmental release category (ERC):*** ERC6b: Industrial use of reactive processing aids ***Sector of end use (SU):*** SU4: Manufacture of food products SU5: manufacture of textiles, leather, fur SU6b: Manufacture of pulp, paper and paper products SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU11: Manufacture of rubber products SU23: Electricity, steam, gas water supply and sewage treatment SU3: NACE Code: E36-37 ***Exposure scenario reference in the CSR:*** 3
Use in the process of surface	***Process category (PROC):*** PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure



treatments, purification and etching	PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13: Treatment of articles by dipping and pouring ***Environmental release category (ERC):*** ERC6b: Industrial use of reactive processing aids ***Sector of end use (SU):*** SU2a: Mining (without offshore industries) SU14: Manufacture of basic metals, including alloys SU15: Manufacture of fabricated metal products, except machinery and equipments Su16: Manufacture of computer, electronic and optical products, electrical equipment SU3: Industrial uses: Uses of substance at industrial sites ***Exposure scenario reference in the CSR***: 5
Use in electrolytic processes	***Process category (PROC):*** PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13: Treatment of articles by dipping and pouring ***Environmental release category (ERC):*** ERC5: Industrial use resulting in inclusion into or onto a matrix ERC6b: Industrial use of reactive processing aids ***Sector of end use (SU):*** SU14: Manufacture of basic metals, including alloys SU15: Manufacture of fabricated metal products, except machinery and equipments SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment SU3: Industrial uses: Uses of substance at industrial sites ***Exposure scenario reference in the CSR***: 6
Use in gas purification, scrubbing, flue gas scrubbing	***Process category (PROC):*** PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities ***Environmental release category (ERC):*** ERC7: Industrial use ***Sector of end use (SU):*** SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU3: NACE Code C20.1.1: manufacture of industrial gases ***Exposure scenario reference in the CSR:*** 7
Use in industrial cleaning	***Process category (PROC):*** PROC2: Use in closed, continuous process with occasional controlled exposure PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and / or significant contact)



	PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring ***Environmental release category (ERC):*** ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open system ***Sector of end use (SU):*** SU3: Industrial uses: Uses of substance at industrial sites ***Exposure scenario reference in the CSR:*** 13
Mixing, preparation and repacking of sulphuric acid	***Process category (PROC):*** PROC1: Use in closed process, no likelihood of exposure PROC3: Use in closed batch process (synthesis or formulation) PROC5: Mixing and blending in batch processes for formulation of preparations and articles (multistage and / or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) ***Environmental release category (ERC):*** ERC2: Formulation of preparations ***Sector of end use (SU):*** SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) SU3: Industrial uses: Uses of substance at industrial sites ***Exposure scenario reference in the CSR***: 14
Use in production of sulphuric acid contained batteries	***Process category (PROC):*** PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) ***Environmental release category (ERC):*** ERC2: Formulation of preparations ERC5: Industrial use resulting in inclusion into or onto a matrix ***Sector of end use (SU):*** SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU3: NACE Code C27.2 (Manufacture of batteries and accumulators) ***Exposure scenario reference in the CSR***: 8
Use in recycling of sulphuric acid contained batteries	***Process category (PROC):*** PROC2: Use in closed, continuous process with occasional controlled exposure PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities



	Environmental release category (ERC): ERC1: Manufacture of substances ***Sector of end use (SU):*** SU3: Industrial uses: Uses of substance at industrial sites ***Exposure scenario reference in the CSR:*** 10

Uses by workers in professional settings {(SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)}

Identified Use name	Use descriptors
Use as laboratory chemicals	***Process category (PROC):*** PROC15: Use as laboratory reagent ***Environmental release category (ERC):*** ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open system ***Sector of end use (SU):*** 22 ***Exposure scenario reference in the CSR:*** 12
Use in maintenance of sulphuric acid contained batteries	***Process category (PROC):*** PROC19: Hand-mixing with intimate contact and only PPE available ***Environmental release category (ERC):*** ERC8b: Wide dispersive indoor use of reactive substances in open system ERC9b: Wide dispersive outdoor use of substances in closed systems ***Sector of end use (SU):*** 22 ***Exposure scenario reference in the CSR***: 9

Uses by consumers {(SU21: Consumer uses: Private households (= general public = consumers)}

Identified Use name	Use descriptors
Use of sulphuric acid contained batteries	***Article category (AC):*** AC3: Electrical batteries and accumulators ***Environmental release category (ERC):*** ERC9b: Wide dispersive outdoor use of substances in closed systems ***Sector of end use (SU):*** 21 ***Exposure scenario reference in the CSR:*** 11

Annexes: Exposure scenarios

Annex 1 Exposure scenario 1: Manufacture / Production
Annex 2 Exposure scenario 2: Use as an intermediate in manufacture of inorganic and organic chemicals including fertilizers
Annex 3 Exposure scenario 3: Use as processing aid, catalyst, dehydrating agent, pH regulator
Annex 4 Exposure scenario 5: Use in the process of surface treatments, purification and etching
Annex 5 Exposure scenario 6: Use in electrolytic processes
Annex 6 Exposure scenario 7: Use in gas purification, scrubbing, flue gas scrubbing
Annex 7 Exposure scenario 13: Use in industrial cleaning
Annex 8 Exposure scenario 14: Mixing, preparation and repacking of sulphuric acid
Annex 9 Exposure scenario 8: Use in production of sulphuric acid contained batteries
Annex 10 Exposure scenario 10: Use in recycling of sulphuric acid contained batteries
Annex 11 Exposure scenario 12: Use as laboratory chemicals
Annex 12 Exposure scenario 9: Use in maintenance of sulphuric acid contained batteries
Annex 13 Exposure scenario 11: Use of sulphuric acid contained batteries