

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Pentanal® sulfuric acid 0,5 mol/l (1N)

| | | | |
|---------------|-------------------|---------|-----|
| Creation date | 17th October 2019 | Version | 3.0 |
| Revision date | 25th April 2022 | | |

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

- 1.1. Product identifier**
 Substance / mixture Pentanal® sulfuric acid 0,5 mol/l (1N)
 Chemical name substance
 CAS number sulphuric acid ... %
 Index number 7664-93-9
 EC (EINECS) number 016-020-00-8
 Registration number 231-639-5
 01-2119458838-20-0004
- 1.2. Relevant identified uses of the substance or mixture and uses advised against**
Substance's intended use
 Chemical production, analytical chemistry, laboratory synthesis, industrial applications.
Substance uses advised against
 The product should not be used in ways other than those referred in Section 1.
- 1.3. Details of the supplier of the safety data sheet**
Supplier
 Name or trade name Ing. Petr Švec - PENTA s.r.o.
 Address Radiová 1122/1, Praha 10, 102 00
 Czech Republic
 Identification number (CRN) 02096013
 VAT Reg No CZ02096013
 Phone +420 226 060 681
 E-mail info@pentachemicals.eu
 Web address www.pentachemicals.eu
- Competent person responsible for the safety data sheet**
 Name Ing. Petr Švec - PENTA s.r.o.
 E-mail info@pentachemicals.eu
- 1.4. Emergency telephone number**
 European emergency number: 112

SECTION 2: Hazards identification

- 2.1. Classification of the substance or mixture**
Classification of the substance in accordance with Regulation (EC) No 1272/2008
 The substance is classified as dangerous.

 Skin Corr. 1A, H314
 Full text of all classifications and hazard statements is given in the section 16.
Most serious adverse effects on human health and the environment
 Causes severe skin burns and eye damage.

- 2.2. Label elements**
Hazard pictogram



Signal word
 Danger

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Pentanal® sulfuric acid 0,5 mol/l (1N)

| | | | |
|---------------|-------------------|---------|-----|
| Creation date | 17th October 2019 | Version | 3.0 |
| Revision date | 25th April 2022 | | |

Dangerous substance

sulphuric acid ... %
(Index: 016-020-00-8; CAS: 7664-93-9)

Hazard statements

H314 Causes severe skin burns and eye damage.

Precautionary statements

P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a doctor.

2.3. Other hazards

The substance does not have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605. Substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII of Regulation (EC) No. 1907/2006 (REACH) as amended.

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical characterization

The substance specified below.

| Identification numbers | Substance name | Content in % weight | Classification according to Regulation (EC) No 1272/2008 | Note |
|---|---|---------------------|--|------|
| Index: 016-020-00-8 CAS: 7664-93-9 EC: 231-639-5 Registration number: 01-2119458838-20-0004 | substance main component sulphuric acid ... % | | Skin Corr. 1A, H314 Specific concentration limit: Skin Corr. 1A, H314: C ≥ 15 % Eye Irrit. 2, H319: 5 % ≤ C < 15 % Skin Irrit. 2, H315: 5 % ≤ C < 15 % | 1, 2 |

Notes

- 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.
- Substance with a Union workplace exposure limit.

Full text of all classifications and hazard statements is given in the section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Take care of your own safety. If any health problems are manifested or if in doubt, inform a doctor and show him information from this safety data sheet. If unconscious, put the person in the stabilized (recovery) position on his side with his head slightly bent backwards and make sure that airways are free; never induce vomiting. If the person vomits by himself, make sure that the vomit is not inhaled. In life threatening conditions first of all provide resuscitation of the affected person and ensure medical assistance. Respiratory arrest - provide artificial respiration immediately. Cardiac arrest - provide indirect cardiac massage immediately.

If inhaled

Take care of your own safety, do not let the affected person walk! Terminate the exposure immediately; move the affected person to fresh air. Beware of the contaminated clothes. Depending on the situation, call the medical rescue service and ensure medical treatment considering the frequent need of further observation for at least 24 hours.

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Pentanal® sulfuric acid 0,5 mol/l (1N)

| | | | |
|---------------|-------------------|---------|-----|
| Creation date | 17th October 2019 | Version | 3.0 |
| Revision date | 25th April 2022 | | |

If on skin

Remove contaminated clothes. Take off any rings, watches, bracelets before or during washing if worn in the contaminated areas of the skin. Depending on the situation, call the medical rescue service and always ensure medical treatment. Rinse contaminated areas with a flow of water, lukewarm at best, for 10-30 minutes; do not use any brush, soap or neutralizers. Rinse skin with water or shower. Rinse cautiously with water for several minutes.

If in eyes

Rinse eyes immediately with a flow of running water, open the eyelids (also using force if needed); remove contact lenses immediately if worn by the affected person. No neutralization should be performed in any case! Rinsing should be continued for 10-30 minutes from the inner to the outer eye corner to make sure that the other eye is not involved. Depending on the situation, call medical rescue service or ensure medical treatment as promptly as possible. Everyone must be referred for treatment even if affected only a little.

If swallowed

RINSE THE MOUTH WITH WATER IMMEDIATELY AND LET THE PERSON DRINK 2-5 dl of cold water to reduce the heating effect of the corrosive substance. Consuming larger amounts of liquid is not advisable as it may induce vomiting and potential inhaling of the corrosive substances in the lungs. The affected person must not be forced to drink, particularly if already feeling pain in the mouth or throat. In this case let the affected person only rinse the mouth with water. DO NOT PROVIDE ACTIVATED CARBON! Depending on the situation, call medical rescue service or ensure medical treatment as promptly as possible.

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

If inhaled

Inhaling vapours can cause corrosion of the breathing system.

If on skin

Causes severe skin burns.

If in eyes

Causes serious eye damage.

If swallowed

Corrosion of the digestion system can occur.

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

Symptomatic treatment.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Alcohol-resistant foam, carbon dioxide, powder, water spray jet, water mist.

Unsuitable extinguishing media

Water - full jet.

5.2. Special hazards arising from the substance or mixture

In the event of fire, carbon monoxide, carbon dioxide and other toxic gases may arise. Inhalation of hazardous degradation (pyrolysis) products may cause serious health damage.

5.3. Advice for firefighters

Self-Contained Breathing Apparatus (SCBA) with a chemical protection suit only where personal (close) contact is likely. Use a self-contained breathing apparatus and full-body protective clothing. Do not allow run-off of contaminated fire extinguishing material to enter drains or surface and ground water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment for work. Follow the instructions in the Sections 7 and 8. Do not inhale mist/vapours/spray. Prevent contact with skin and eyes.

6.2. Environmental precautions

Prevent contamination of the soil and entering surface or ground water.

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Pentanal® sulfuric acid 0,5 mol/l (1N)

| | | | |
|---------------|-------------------|---------|-----|
| Creation date | 17th October 2019 | Version | 3.0 |
| Revision date | 25th April 2022 | | |

6.3. Methods and material for containment and cleaning up

Spilled product should be covered with suitable (non-flammable) absorbing material (sand, diatomaceous earth, earth and other suitable absorption materials); to be contained in well closed containers and removed as per the Section 13. In the event of leakage of the substantial amount of the product, inform fire brigade and other competent bodies. After removal of the product, wash the contaminated site with plenty of water. Do not use solvents.

6.4. Reference to other sections

See the Section 7, 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Prevent formation of gases and vapours in concentrations exceeding the occupational exposure limits. Do not inhale mist/vapours/spray. Prevent contact with skin and eyes. Wash hands and exposed parts of the body thoroughly after handling. Use personal protective equipment as per Section 8. Observe valid legal regulations on safety and health protection.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed containers in cold, dry and well ventilated areas designated for this purpose. Store locked up.

7.3. Specific end use(s)

not available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

European Union

Commission Directive 2009/161/EU

| Substance name (component) | Type | Value |
|--|-------------|------------------------|
| Sulphuric acid (mist) (CAS: 7664-93-9) | OEL 8 hours | 0,05 mg/m ³ |

8.2. Exposure controls

Follow the usual measures intended for health protection at work and especially for good ventilation. This can be achieved only by local suction or efficient general ventilation. Do not eat, drink and smoke during work. Wash your hands thoroughly with water and soap after work and before breaks for a meal and rest.

Eye/face protection

Protective goggles or face shield (based on the nature of the work performed).

Skin protection

Hand protection: Protective gloves resistant to the product (butyl rubber, Viton). When choosing appropriate thickness, material and permeability of the gloves, observe recommendations of their particular manufacturer. Observe other recommendations of the manufacturer. Other protection: Protective work clothing (rubber apron). Other protection: Work boots (boots). Contaminated skin should be washed thoroughly.

Respiratory protection

Halfmask with a filter against organic vapours or a self-contained breathing apparatus as appropriate if exposure limit values of substances are exceeded or in a poorly ventilated environment. Respirator.

Thermal hazard

Not available.

Environmental exposure controls

Observe usual measures for protection of the environment, see Section 6.2.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|----------------|-------------------|
| Physical state | liquid |
| Colour | colourless |
| Odour | without fragrance |

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Pentanal® sulfuric acid 0,5 mol/l (1N)

| | | | |
|---------------|-------------------|---------|-----|
| Creation date | 17th October 2019 | Version | 3.0 |
| Revision date | 25th April 2022 | | |

| | |
|--|--------------------|
| Melting point/freezing point | data not available |
| Boiling point or initial boiling point and boiling range | data not available |
| Flammability | data not available |
| Lower and upper explosion limit | data not available |
| Flash point | data not available |
| Auto-ignition temperature | data not available |
| Decomposition temperature | data not available |
| pH | data not available |
| Kinematic viscosity | data not available |
| Solubility in water | data not available |
| Partition coefficient n-octanol/water (log value) | data not available |
| Vapour pressure | data not available |
| Density and/or relative density | data not available |

9.2. Other information

not available

SECTION 10: Stability and reactivity

10.1. Reactivity

The substance is non-flammable.

10.2. Chemical stability

The product is stable under normal conditions.

10.3. Possibility of hazardous reactions

Unknown.

10.4. Conditions to avoid

The product is stable and no degradation occurs under normal use. Protect against flames, sparks, overheating and against frost.

10.5. Incompatible materials

Protect against strong acids, bases and oxidizing agents.

10.6. Hazardous decomposition products

Not developed under normal uses. Dangerous outcomes such as carbon monoxide and carbon dioxide are formed at high temperature and in fire.

SECTION 11: Toxicological information

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

Inhalation of solvent vapors above values exceeding exposure limits for working environment may result in acute inhalation poisoning, depending on the level of concentration and exposure time. No toxicological data is available for the substance.

Acute toxicity

Based on available data the classification criteria are not met.

sulphuric acid ... %

| Route of exposure | Parameter | Value | Time of exposure | Species | Sex |
|-------------------|-----------|-------------|------------------|-------------------------|-----|
| Oral | LD50 | 2 140 mg/kg | | Rat (Rattus norvegicus) | |

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/irritation

Causes severe skin burns and eye damage.

Respiratory or skin sensitisation

Based on available data the classification criteria are not met.

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Pentanal® sulfuric acid 0,5 mol/l (1N)

| | | | |
|---------------|-------------------|---------|-----|
| Creation date | 17th October 2019 | Version | 3.0 |
| Revision date | 25th April 2022 | | |

Germ cell mutagenicity

Based on available data the classification criteria are not met.

Carcinogenicity

Based on available data the classification criteria are not met.

Reproductive toxicity

Based on available data the classification criteria are not met.

Toxicity for specific target organ - single exposure

Based on available data the classification criteria are not met.

Toxicity for specific target organ - repeated exposure

Based on available data the classification criteria are not met.

Aspiration hazard

Based on available data the classification criteria are not met.

11.2. Information on other hazards

not available

SECTION 12: Ecological information

12.1. Toxicity

Acute toxicity

sulphuric acid ... %

| Parameter | Value | Time of exposure | Species | Environment |
|-----------|-----------|------------------|---------------------------------|-------------|
| IC50 | >100 mg/l | 72 hour | Algae (Desmodesmus subspicatus) | |
| EC50 | >100 mg/l | 48 hour | Daphnia (Daphnia magna) | |
| | 42 mg/l | 96 hour | Fishes (Gambusia affinis) | |

12.2. Persistence and degradability

not available

12.3. Bioaccumulative potential

Not available.

12.4. Mobility in soil

Not available.

12.5. Results of PBT and vPvB assessment

Product does not contain any substance meeting the criteria for PBT or vPvB in accordance with the Annex XIII of Regulation (EC) No 1907/2006 (REACH) as amended.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms as it does not meet the criteria set out in section B of Regulation (EU) No 2017/2100. The substance does not have 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

Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Hazard of environmental contamination; dispose of the waste in accordance with the local and/or national regulations. Proceed in accordance with valid regulations on waste disposal. Any unused product and contaminated packaging should be put in labelled containers for waste collection and submitted for disposal to a person authorised for waste removal (a specialized company) that is entitled for such activity. Do not empty unused product in drainage systems. The product must not be disposed of with municipal waste. Empty containers may be used at waste incinerators to produce energy or deposited in a dump with appropriate classification. Perfectly cleaned containers can be submitted for recycling.

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Pentanal® sulfuric acid 0,5 mol/l (1N)

| | | | |
|---------------|-------------------|---------|-----|
| Creation date | 17th October 2019 | Version | 3.0 |
| Revision date | 25th April 2022 | | |

Waste management legislation

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste, as amended.
Decision 2000/532/EC establishing a list of wastes, as amended.

SECTION 14: Transport information

- 14.1. UN number or ID number**
UN 2796
- 14.2. UN proper shipping name**
SULPHURIC ACID
- 14.3. Transport hazard class(es)**
8 Corrosive substances
- 14.4. Packing group**
II - substances presenting medium danger
- 14.5. Environmental hazards**
not relevant
- 14.6. Special precautions for user**
Reference in the Sections 4 to 8.
- 14.7. Maritime transport in bulk according to IMO instruments**
not relevant

Additional information

| | |
|---------------------------|-------------|
| Hazard identification No. | 80 |
| UN number | 2796 |
| Classification code | C1 |
| Safety signs | 8 |



Air transport - ICAO/IATA

| | |
|----------------------------------|-----|
| Packaging instructions passenger | 851 |
| Cargo packaging instructions | 855 |

Marine transport - IMDG

| | |
|----------------------|----------|
| EmS (emergency plan) | F-A, S-B |
|----------------------|----------|

SECTION 15: Regulatory information

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

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing the European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, as amended. Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16th 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, as amended. Product contains restricted explosives precursors: Making available, introduction, possession and use according to Regulation (EU) 2019/1148, Article 5.

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Pentanal® sulfuric acid 0,5 mol/l (1N)

| | | | |
|---------------|-------------------|---------|-----|
| Creation date | 17th October 2019 | Version | 3.0 |
| Revision date | 25th April 2022 | | |

15.2. Chemical safety assessment

not available

More information

Restricted explosives precursors shall not be made available to, or introduced, possessed or used by members of the general public (according to the Annex I to the Regulation (EU) 2019/1148 as amended). The supplier is obliged to report suspicious transactions, disappearances and thefts to the relevant state authority.

SECTION 16: Other information

A list of standard risk phrases used in the safety data sheet

| | |
|------|--|
| H314 | Causes severe skin burns and eye damage. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |

Guidelines for safe handling used in the safety data sheet

| | |
|----------------|--|
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P310 | Immediately call a doctor. |

Other important information about human health protection

The product must not be - unless specifically approved by the manufacturer/importer - used for purposes other than as per the Section 1. The user is responsible for adherence to all related health protection regulations.

Key to abbreviations and acronyms used in the safety data sheet

| | |
|---------|---|
| ADR | European agreement concerning the international carriage of dangerous goods by road |
| BCF | Bioconcentration Factor |
| CAS | Chemical Abstracts Service |
| CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substance and mixtures |
| EC50 | Concentration of a substance when it is affected 50% of the population |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| EmS | Emergency plan |
| ES | Identification code for each substance listed in EINECS |
| EU | European Union |
| EuPCS | European Product Categorisation System |
| IATA | International Air Transport Association |
| IBC | International Code For The Construction And Equipment of Ships Carrying Dangerous Chemicals |
| IC50 | Concentration causing 50% blockade |
| ICAO | International Civil Aviation Organization |
| IMDG | International Maritime Dangerous Goods |
| INCI | International Nomenclature of Cosmetic Ingredients |
| ISO | International Organization for Standardization |
| IUPAC | International Union of Pure and Applied Chemistry |
| LD50 | Lethal dose of a substance in which it can be expected death of 50% of the population |
| log Kow | Octanol-water partition coefficient |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| OEL | Occupational Exposure Limits |
| PBT | Persistent, Bioaccumulative and Toxic |
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| RID | Agreement on the transport of dangerous goods by rail |

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH) as amended

Pentanal® sulfuric acid 0,5 mol/l (1N)

| | | | |
|---------------|-------------------|---------|-----|
| Creation date | 17th October 2019 | Version | 3.0 |
| Revision date | 25th April 2022 | | |

| | |
|-------------|---|
| UN | Four-figure identification number of the substance or article taken from the UN Model Regulations |
| UVCB | Substances of unknown or variable composition, complex reaction products or biological materials |
| VOC | Volatile organic compounds |
| vPvB | Very Persistent and very Bioaccumulative |
| Eye Irrit. | Eye irritation |
| Skin Corr. | Skin corrosion |
| Skin Irrit. | Skin irritation |

Training guidelines

Inform the personnel about the recommended ways of use, mandatory protective equipment, first aid and prohibited ways of handling the product.

Recommended restrictions of use

not available

Information about data sources used to compile the Safety Data Sheet

REGULATION (EC) No. 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (REACH) as amended. REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Data from the manufacturer of the substance / mixture, if available - information from registration dossiers.

More information

Classification procedure - calculation method.

Statement

The safety data sheet provides information aimed at ensuring safety and health protection at work and environmental protection. The provided information corresponds to the current status of knowledge and experience and complies with valid legal regulations. The information should not be understood as guaranteeing the suitability and usability of the product for a particular application.