

SAFETY DATA SHEET

Prepared in the format conforming to the Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (OJ of EU no L132 of 29 May 2015)

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

1.1 Product identifier

Trade name

Sulphuric acid – aqueous solutions

Systematic name

Sulphuric acid (VI) 30 – 50%

Registration No.: 01-2119458838-20-XXXX

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

Identified uses: Electrolyte solutions for use in batteries.

Uses advised against: Not identified.

1.3 Details of the supplier of the safety data sheet:

Supplier (user):

ZAP SZNAJDER BATTERIEN S.A.

47 Warszawska Str.

05-820 Piastów, Poland

Phone: + 48 22 723 60 11 ext. 237

Fax: + 48 22 723 65 20

E- mail address: s-gasiniak@zap.pl

1.4 Emergency telephone number

Emergency telephone number in Poland (operating during hours: 9:00 – 16:00): + 48 22 723 60 11 ext. 237

Date of compilation: 2018.06.11

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

Skin corrosion/irritation, Hazard Category 1A (Skin Corr. 1A)

Causes severe skin burns and eye damage. (H314)

Serious eye damage/eye irritation, Hazard Category 1 (Eye Dam.1)

Causes serious eye damage. (H318)

Harmful effects on human health:

The substance has a local corrosive and harmful effect. May cause burns of the skin, conjunctiva, cornea. May cause irritation of the mucous membranes and respiratory system characterized by scratching in the throat, cough. If swallowed, there is a risk of burns of the mouth, throat, and digestive tract and perforation of the stomach walls. Symptoms: nausea, vomiting, severe pain.

Environmental effects:

High concentrations of the product in disposed waste water may cause acidification of water. Neutralization before being directed to the wastewater treatment plant is necessary.

Adverse effects associated with physico-chemical properties:

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The product (substance) has a very low pH. Neutralization before being directed to the wastewater treatment plant is necessary.

2.2 Label elements

Pictograms:



Signal Word: **Danger**

Hazard Statement:

H314 - Causes severe skin burns and eye damage.

Precautionary Statement:

P260 - Do not breathe dust/fume/gas/mist/vapours/ spray.

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): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 - Immediately call a POISON CENTER/doctor.

2.3 Other hazards

The PBT and vPvB properties for inorganic substances are not determined.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

| <u>Name</u> | <u>Index No.</u> | <u>CAS No.</u> | <u>EC No.</u> |
|-------------------------------|------------------|----------------|---------------|
| Sulphuric acid (VI) 30 - 50 % | 016-020-00-8 | 7664-93-9 | 231-639-5 |

The rest is water.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation: Remove casualty from exposure site to fresh air, place in reclining or sitting position, keep at rest and protect against heat loss. In case of spasm of the glottis (suffocation, aphonia, hoarseness), atrowent from the capsule can be given to inhale. Administer oxygen to breathe. Provide medical advice immediately.

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- Skin contact: Take off contaminated clothes and rinse immediately with plenty of running water. Cover the burns with a sterile dressing. Call a physician immediately.
- Eye contact: Rinse immediately with copious amount of lukewarm water for at least 15 min. Remove contact lenses. To avoid cornea damage, don't use jet stream. If the irritation persists, consult an ophthalmologist.
- Ingestion: If swallowed, don't provoke vomiting. Rinse mouth with plenty of water. If the victim is conscious, give egg white, or milk to drink. Call a physician.

4.2 Most important symptoms and effects, both acute and delayed

In the form of mist and fumes causes pain, lacrimation, conjunctivitis, cornea damage, sore throat, cough, reflexive shortness of breath and faster breathing, shortness of breath, glottic spasm, laryngeal edema, bronchospasm, pulmonary edema. Death may occur as a result of glottic spasm. Skin contamination causes chemical burns, and concentrated sulphuric acid - also thermal burns (exothermic reaction with wet skin). Contamination of the eyes causes eyelids burns, eyeballs burns and permanent damage. Ingestion causes mouth, throat, and esophagus burns; perforation of the esophagus, stomach, gastrointestinal haemorrhage, shock may occur. The lethal dose is 6-8 g.

Chronic intoxication symptoms: chronic conjunctivitis, nosebleeds, chronic bronchitis. Repeated exposure of the skin may cause ulceration, changes in nails, damage to tooth enamel. The consequence of chronic exposure to sulphuric acid 's mists may be neoplastic changes.

4.3 Indication of any immediate medical attention and special treatment needed

No special requirements, apply symptomatic treatment. Provide the assisting physician with the SDS.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Non-flammable substance. Fire in the surroundings should be extinguished with the media suitable for the materials involved in fire.

Unsuitable extinguishing media: Do not use a solid water jet on the liquid surface.

5.2 Special hazards arising from the substance or mixture

During fire sulphur oxides are emitted.

5.3 Advice for firefighters

Wear antistatic gas-tight protective suit, self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective clothing made of natural fabrics (cotton) or synthetic fibres, safety gloves made of nitrile (thickness 0.4 ± 0.05 mm, breakthrough time ≥ 480 min), fluorine rubber (thickness 0.7 ± 0.1 mm, breakthrough time ≥ 480 min). Wear safety goggles. Do not eat, drink or smoke during handling. Avoid direct contact with the substance. Remove from the affected area unprotected persons who do not participate in removal of the failure. Do not breathe fumes.

6.2 Environmental precautions

Protect from releasing to sewage system, surface and ground water, soil. Before direction to the wastewater treatment plant dilute with plenty of water.

6.3 Methods and materials for containment and cleaning up

Secure sink basins. If possible stop the leak (close liquid inflow, seal). Damaged packaging place in an acid-proof overpack. In case of large spillage, embank place of failure, pump out collected liquid; small amounts of spilled liquid should be covered with non-flammable absorbent material (preferably ground limestone) and collected in a

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closed, acid-proof container. Pass to disposal. Use a neutralizing agent (dilute sodium hydroxide, calcium carbonate or sodium carbonate). Rinse the contaminated surface thoroughly with water.

6.4 Reference to other sections

Remove according to the recommendations listed in the section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Open and handle containers with care. It is recommended to take special precautions during work with the substance in order to avoid contact with eyes and skin. Protect from releasing undiluted substance to sewage system, water courses and soil. Do not eat, drink or smoke while handling. Wash hands during intervals and after finishing work. Take off contaminated clothing and wash it before reusing.

7.2 Conditions for safe storage, including any incompatibilities

Provide appropriate ventilation. Store in original, properly labelled, tightly closed containers; in a cool, dry, properly ventilated storage premise with mechanical ventilation and acid-proof, nonabsorbent, easily washable floor. Store away from organic materials; do not allow contact with metals.

7.3 Specific end use(s)

No information about the applications other than those mentioned in subsection 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Controls parameters

| Component | CAS-no. | Parameter | value | unit |
|------------------------|-----------|--------------|-------|-------------------|
| Sulphuric acid (mist)* | 7664-93-9 | IOELV (8-hr) | 0,05 | mg/m ³ |

* The mist is defined as the thoracic fraction

[COMMISSION DIRECTIVE 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 Commission Directive 2000/39/EC]

Sulphuric acid (VI):

DNEL for workers:

0.1 mg/m³ (inhalation) – short-term

0.05 mg/m³ (inhalation) – long-term

PNEC:

0.0025 mg/l (freshwater)

0.00025 (marine water)

0.002 mg/kg (sludge – freshwater and marine water)

8.2 Exposure controls

8.2.1 *Appropriate engineering controls*

Local exhaust ventilation eliminating vapours from emission places and general ventilation are necessary. Suction inlets of local ventilation should be placed at the height of work plane or below. Uptake ventilators of general ventilation should be placed at the top of the room and near the floor. In case of insufficient ventilation wear respiratory protection. Provide eye wash station.

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8.2.2 Individual protective measures such as personal protective equipment

- Respiratory protection: If permissible concentrations of vapours are exceeded, use respiratory protection with filter labelled P3.
- Skin and hands protection: Wear protective clothing made of natural fabrics (cotton) or synthetic fibres, safety gloves made of nitrile (thickness 0.4 ± 0.05 mm, breakthrough time ≥ 480 min) or latex (thickness 0.7 ± 0.1 mm, breakthrough time ≥ 480 min).
- Eye/face protection: Safety goggles protecting against liquid drops.
- Occupational hygiene: General industrial hygiene rules apply. Don't allow exceeding occupational exposure levels. After finishing work remove contaminated clothes. Wash hands and face before work breaks. Wash entire body after finishing work. Do not drink, eat and smoke during work.

8.2.3 Environmental exposure controls

Prevent from draining to a municipal sewage system and watercourses.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- a) Appearance
Yellow liquid.
- b) Odour
Pungent, suffocating.
- c) Odour threshold
No data available.
- d) pH
< 0.5 at 25 °C
- e) Melting/freezing point
No data available.
- f) Initial boiling point and boiling range
~ 125 °C
- g) Flash point
Non-flammable substance.
- h) Evaporation rate
No data available.
- i) Flammability
Non-flammable substance.
- j) Upper/lower flammability or explosive limits
Study unjustified from a scientific point of view.
- k) Vapour pressure
No data available.
- l) Vapour density
No data available.
- m) Relative density
1.23 – 1.40 (water=1)
- n) Solubility(ies)
Soluble in water.
- o) Partition coefficient: n-octanol/water
Not determined for inorganic substances.
- p) Auto-ignition temperature
Study unjustified from a scientific point of view.
- q) Decomposition temperature

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Anhydrous sulphuric acid decomposes at 150-180°C to SO₃ and H₂O.

r) Viscosity

No data available.

s) Explosive properties

The substance has no explosive properties.

t) Oxidising properties

Sulphuric acid is a strong oxidizing agent.

9.2 Other information

No data.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No reactivity if stored and used as intended.

10.2 Chemical stability

Stable in standard conditions of storage and use.

10.3 Possibility of hazardous reactions

Sulphuric acid reacts with metals with hydrogen evolution. Rapidly dissolves in water with heat generation (exothermic reaction). Causes charring of organic substances, destruction of plant and animal tissues.

10.4 Conditions to avoid

High temperature. Anhydrous sulphuric acid decomposes at 150-180°C to SO₃ and H₂O.

10.5 Incompatible materials

Reacts with metals with hydrogen evolution. It reacts dangerously with: chlorates and perchlorates, hydrochloric acid, organic substances, especially nitro derivatives.

10.6 Hazardous decomposition products

Not known.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

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

| <u>Component</u> | <u>CAS-no</u> | <u>Method</u> | <u>value</u> | <u>unit</u> |
|---------------------|---------------|------------------------------------|--------------|------------------------|
| Sulphuric acid (VI) | 7664-93-9 | LD ₅₀ – oral, rat | 2140 | mg/kg |
| | | LCLo – inhalation, rat | 178 | ppm (7h) |
| | | LC ₅₀ – inhalation, rat | 510 | mg/m ³ (2h) |
| | | The lethal dose is 6-8 g. | | |

Skin corrosion/irritation:

Causes severe skin burns

Serious eye damage/irritation:

Causes serious eye damage.

Respiratory or skin sensitisation:

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

Germ cell mutagenicity:

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

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Carcinogenicity:

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

Reproductive toxicity:

Based on available data, the classification criteria are not met. Inhalation: NOAEC: 19,3 mg/m³

STOT-single exposure:

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

STOT-repeated exposure:

Based on available data, the classification criteria are not met. Inhalation: NOAEC: 0.3 mg/m³

Aspiration hazard:

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

Health effects of local exposure

Inhalation: May cause irritation of the respiratory tract, mucous membranes of the nose and mouth. May cause burning sensation in the nose and throat, coughing, feeling of suffocation.

Eye contact: Corrosive to the eyes, causing redness, lacrimation, pain, weakness of view, may cause conjunctivitis. Eye contact causes destruction of the protective apparatus of the eye, burns to the eyeball - the cornea and deeper structures of the eye.

Skin contact: Corrosive causing pain, redness, chemical burn: blisters, necrosis. Extensive skin contamination can cause shock, collapse.

Ingestion: Causes burns of the mucous membranes of the oropharynx and distal portions of the gastrointestinal tract with the risk of damage to the walls, perforation, hemorrhage, shock and death.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

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

| <u>Component</u> | <u>CAS no.</u> | <u>Method</u> | <u>Value</u> | <u>Unit</u> |
|---------------------|----------------|---|--------------|-------------|
| Sulphuric acid (VI) | 7664-93-9 | LC ₅₀ - fish (<i>Brachydanio rerio</i>) | 82 | mg/l (24h) |
| | | LC ₅₀ - fish (<i>Lepomis macrochirus</i>) | 49 | mg/l (48h) |
| | | EC ₅₀ - invertebrates (<i>Crangon crangon</i>) | 70-80 | mg/l (48h) |
| | | EC ₅₀ - invertebrates (<i>Daphnia magna</i>) | 88 | mg/l (64h) |
| | | EC ₅₀ - bacteria (<i>activated sludge</i>) | 58 | mg/l (120h) |

Lethal concentration for fish - 6.3 mg/l (24 h); long-term exposure - 1.2 mg/l

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

Partition coefficient octanol/water: (K_{ow}): Not determined – inorganic substance.

Bioconcentration factor (BCF): No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

The substance meets neither PBT nor vPvB criteria.

12.6 Other adverse effects

High concentrations of the product in disposed waste water may pose threat to the aquatic environment (low pH).

Neutralize with limewater before disposal to the waste-water treatment plant.

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SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Do not dispose together with municipal waste. Prevent from draining to a municipal sewage system and watercourses.

European Waste Code:

16 06 06* Separately collected electrolyte from batteries and accumulators

Used packaging, should be thoroughly emptied. Re-use package can be (after cleaning) reused. Single-use container (after thorough cleaning) shall be recycled.

Special precautions:

Dispose product and packaging off safely. Care should be taken when handling emptied containers that have not been thoroughly cleaned.

SECTION 14: TRANSPORT INFORMATION

ADR/RID, IMDG, IATA

14.1 UN number

ADR

2796

IMDG

2794

14.2 UN proper shipping name

ADR

SULFURIC ACID with not more than 51% acid or BATTERY FLUID, ACID

IMDG

BATTERIES, WET, FILLED WITH ACID, electric storage

14.3 Transport hazard class(es)

8

14.4 Packing group

II

14.5 Environmental hazards

The substance is not hazardous to the environment according to the UN Model Regulations.

14.6 Special precautions for user

Always transport in closed containers that are upright and properly secured. Ensure that persons transporting the product know what to do in case of accident or spillage of the product.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

SECTION 15: REGULATORY INFORMATION

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- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ EU L396 of December 30, with later amendments);
COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH);
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 (OJ EU L353 of December, 31 2008, with later amendments ATP 1-10).
- 15.2 Chemical safety assessment
Supplier has assessed the chemical safety of the substance.

SECTION 16: OTHER INFORMATION

This safety data sheet has been prepared in the Ignacy Mościcki' Industrial Chemistry Research Institute on the basis of the data delivered by the manufacturer.

NOTE!!! Sulphuric acid is a category 3 drug precursor.

Data for the registered substances: <http://echa.europa.eu/web/guest/information-on-chemicals/registered-substances>

The information contained in this safety data sheet describes the product exclusively from the safety requirements perspective. The user is responsible for setting up the conditions for safe use of the product and bears a sole responsibility for the consequences of its incorrect use.

Abbreviations:

| | |
|------------------|---|
| IOELV | Indicative occupational exposure limit value |
| vPvB | very Persistent very Bioaccumulative. |
| PBT | Persistent, Bioaccumulative, Toxic. |
| LD ₅₀ | Lethal dose, median dose, where 50 % of test subject dies. |
| LC ₅₀ | Lethal concentration, median concentration where 50 % of test subjects dies. |
| EC ₅₀ | The effective concentration of substance that causes 50% of the maximum response. |
| LCL ₀ | Lowest Lethal Concentration. |
| DNEL | Derived No-Effect Level. |
| PNEC | Predicted No Effect Concentration. |
| NOAEC | No observed adverse effect concentration. |
| BCF | Biological Concentration Factor. |

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