

SAFETY DATA SHEET

acc. to 91/155/EWG and 2001/58/EG

Date of Print: 21.02.11

Revised on: 10.02.2011

1. DESIGNATION OF MATERIAL / PREPARATION AND COMPANY

Designation of Material or Dispensation / Trade Name: **SULPHURIC ACID 37 m-% - ACCUMULATOR ACID**

Application of Material / Dispensation: battery acid
accumulator acid

Manufacturer / Supplier: Banner GmbH
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Information Field: Department for Operational Safety
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Department for Transport
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Emergency Information: Information Center for Poisoning
Tel. +43 / 1 / 4064343

2. COMPOSITION / DETAILS ON COMPONENTS

Designation of Mat.	CAS-No.	Content	EG-No.	EINECS-No.	Code Letter	R-Rates
Sulphuric Acid	7664-93-9	37 m-%	016-020-00-8	231-639-5	C	35
Sodium Sulphate	- -	0,8 m-%	- -	- -	- -	- -

The amount of sodium sulphate will be adjusted according to demand, the level of research, and the development of the Banner GmbH company.

3. POSSIBLE HAZARDS

q DESIGNATION OF HAZARD



C Caustic

q SPECIAL NOTES ON HAZARDS FOR HUMANS AND THE ENVIRONMENT

- Causes severe chemical burns
- Destroys organic material through charring
- As the temperature increases, it has an oxidizing effect
- Covetously absorbs water
- Explosive corrosion products are created through contact with chloratone and permanganates
- An explosion-like reaction occurs after contact with alkali metals, earth-alkali metal, as well as with amoniac solutions
- Causes irritation to the mucous membranes, chemical burns to the skin, and heavy tissue damage
- Danger of perforation of oesophagus or stomach
- Possible dental damage through direct chronic influence

q POSSIBILITIES OF CONTAMINATION

- Inhaling vapors, contact to skin and eyes, swallowing.

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4. FIRST AID MEASURES

q GENERAL NOTES

- Immediately remove clothing soiled with product.

q AFTER INHALING

- Bring wounded person out of the danger zone to fresh air, consult a doctor.
- Keep the wounded person in a quiet resting position and prevent hypothermia.
- Allow a semi-seated position if shortness of breath occurs.
- Facilitate the inhaling of Dexamethason-21-isonicotinat (e.g. Auxiloson-can of aerosol) as soon as possible:
4 strokes to start with, then two more strokes every five minutes until the first package is empty.
In the following, one stroke every hour.
- For unconsciousness with continued breathing, find a secure sideways position.
- Conduct mouth-to-nose resuscitation when breathing stops, if this is not possible conduct mouth-to-mouth resuscitation.
Keep respiratory tracts clear.
- In the event of cardiac arrest immediately conduct heart-lung resuscitation.

q AFTER SKIN CONTACT

- Remove moistened clothing as quick as possible, thereby heeding self-protection.
- Rinse main areas affected for ten minutes with running water.
- Dab concentrated acid with dry cellulose or textile material beforehand, as it reacts intensely with water under strong heat development.
- When possible, apply a flood-shower after large-scale moistening, or rinse otherwise with large quantities of water. Then rest the wounded person motionless and warm.
- Consult a doctor.

q AFTER EYE CONTACT

- Rinse the eye – protecting the unharmed one – for at least ten minutes with running water and with the eyelids wide open.
- Direct a mild jet of water at the eye in order to remove acid residue as quickly and completely as possible.
- Consult a doctor.

q AFTER SWALLOWING

- Rinse mouth, spit out the liquid.
- Immediately provide 1 or 2 glasses of water (milk or tea) for drinking.
- Do not try to neutralize with leaches / do not apply A-coal!
- Do not facilitate vomiting.
- Call the EMT to the site of the accident.
- Should the person affected spontaneously vomit, hold the person's head low to the stomach, in order to prevent vomit from entering the windpipe.

Absolutely ensure rapid medical care.

q NOTES FOR THE DOCTOR

- Inform the doctor about substance / product and measures conducted.
- Danger of perforation of stomach.

q THE FOLLOWING REMEDIES MUST BE AVAILABLE AT THE WORKPLACE

- Eye rinser
- Neutralization spray (e.g. Auxilosone-can of aerosol)

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5. MEASURES FOR FIRE-FIGHTING

q SUITABLE FIRE-FIGHTING AGENTS

- Foam
- Carbon dioxide
- Fire-Fighting powder

q UNSUITABLE FIRE-FIGHTING AGENTS FOR SAFETY REASONS

- Water

q SPECIAL HAZARD THROUGH THE SUBSTANCE, ITS COMBUSTION PRODUCTS, OR FORMING GASES

- When heating up or in case of fire, the formation of sulphur trioxide is possible.
- In closed rooms, the amassing of hydrogen is possible.

q SPECIAL PROTECTIVE GEAR

- Carry a respirator autonomous from surrounding air.

q FURTHER DATA

- Cool hazardous containers with a jet of water (danger of bursting).

6. MEASURES FOR UNINTENTIONAL RELEASE

q SAFETY MEASURES FOR PERSONS

- Protective gear according to paragraph 8 (leaking sulphuric acid on the ground represents a major danger of slipping).
- Vacate hazardous area.
- Warn the affected vicinity and keep unprotected persons away from site.

q MEASURES FOR ENVIRONMENTAL PROTECTION

- Prevent penetration of sewage system, holes, and basements.
- Notify authorities when large quantities penetrate the underground and bodies of water.

q CLEANING / ABSORBING PROCEDURES

- Dilute with water and then neutralize it (e.g. sodium hydroxide, sodium carbonate, or calcium carbonate) *Caution!* Strong formation of CO₂ when applying carbonates.

Alternatives:

- Absorb with calcium or water-free soda and store in closed arrangement until disposal.
- Immediately cleanse moistened surfaces with large amounts of water.
- Dispose of contaminated material as waste according to paragraph 13.
- Dispose of the absorbed material in correspondence to regulations.

7. HANDLING AND STORAGE

q HANDLING – NOTES ON SAFE HANDLING

- Always keep the containers tightly sealed.
- Provide washing facilities at the workplace.

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7. HANDLING AND STORAGE *(Continued)*

q **HANDLING – NOTES ON SAFE HANDLING *(Continued)***

- Provide emergency showers when handling larger quantities.
- Provide eye rinsers – clearly indicate their location.
- Watch for cleanliness at the workplace.
- Only the substance quantities required to continue working may be on location at the workplace.
- In order to mix concentrated sulphuric acid with water and organic liquids, add slowly by stirring and cooling, when necessary, otherwise severe reactions and spontaneous heat development may occur.
- Use tightly sealing devices with suction for filling and re-filling.
- Prevent free-fall and minimize dropping heights.
- Avoid spraying.
- Prevent access of moisture.
- Only fill into marked arrangements.
- Use acid-resistant relief devices.
- Prevent any contact when handling openly.
- Use suitable cover-containments when transporting in breakable receptacles.

q **HANDLING – NOTES ON PREVENTION OF FIRE**

- Substance is not inflammable.
- Adapt measures for the prevention of fire and explosion to the respective field.
- Provide acid-resistant flooring.

q **STORAGE CONDITIONS**

- Do not use food containers – danger of confusion!
- Containers must be marked clearly and permanently.
- Only use containers made from steel, PE, or PP.
- Light metal, zinc sheet, or iron containers are not suitable.
- Try to store in original containers.
- Keep containers tightly sealed.
- Store cool and dry.
- Provide acid-resistant flooring.

q **NOTES ON MIXED STORAGE**

- Do not store together with alkali (leaches).
- Only goods with the same storage classification should be stored together.
- Storage together with the following substances is prohibited:
 - § Medication, foods, and feed, including additives
 - § Infectious, radioactive, and explosive substances
 - § Organic peroxides
 - § Inflammable substances
- Storage together with the following substances is only permitted under specific circumstances:
 - § Pressurized gas packages
 - § Self-Inflammatory substances
 - § Substances which form inflammable gases with water
 - § Dispensations containing ammonium nitrate
 - § Inflammable solid material with a 4.1 A storage classification
 - § Highly inflammable, easily inflammable, and inflammable liquids
- The substance should not be stored together with substances which could cause hazardous chemical reactions.

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8. LIMITATION OF EXPOSURE AND PERSONAL PROTECTIVE GEAR

q NOTES ON THE DEVELOPMENT OF TECHNICAL FACILITIES

- Provide good ventilation of the workspace.
- Only apply in closed equipment.
- Direct exhaust air to the outside through a suitable separator.
- Refer to paragraph 7, no additional measures are required.

q COMPONENTS WITH LIMITING VALUES REFERRING TO THE WORKPLACE AND REQUIRING SUPERVISION

Designation of Substance	CAS-No.	Content	Type (MAK/TRK)	Value / Unit
sulphuric acid	7664-93-9	37 m-%	MAK Avg. Daily Value	1 mg.m ⁻³

q GENERAL MEASURES FOR PROTECTION AND HYGENE

- Foods and fine foods may only be stored in such a manner, so that they do not come in contact with the hazardous substance.
- Do not eat, drink, or smoke during work.
- Prevent skin contact.
- Prevent eye contact.
- Prevent inhaling of vapors.
- Prevent contact with clothing.
- Water down clothing well before cleaning.

q PERSONAL PROTECTIVE GEAR

- Provide bathrooms with showers and possibly facilitate rooms with separate storage for street and work clothes.

q RESPIRATOR

- In exceptional cases (e.g. unintentional substance release, exceeded limiting air value) wearing a respirator is required.
- Respirator: particle filter P2 or P3, indicating colour is white.

q PROTECTION OF HANDS

- Use protective gloves.
- The material of the gloves must be sufficiently resistant to the applied substance.
- Check tightness before use.
- Heed skin protection.
- Pre-Rinse worn gloves before removing them; store them in a well-ventilated manner.

q MATERIAL OF GLOVES

Suitable material of gloves (time of penetration of the material of the gloves depending on the time of exposure \geq 8 hours):

- Polychloroprene - CR (0,5 mm)
- Natural nitril rubber / nitril latex - NBR (0,35 mm)
- Natural butyl rubber – butyl (0,5 mm)
- Natural fluoride rubber - FKM (0,4 mm)
- Polyvinylchloride – PVC (0,5 mm)

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8. LIMITATION OF EXPOSURE AND PERSONAL PROTECTIVE GEAR *(Continued)*

q SKIN PROTECTION

Non-Suitable material of gloves:

- Natural rubber / natural latex - NR

The increase in temperatures through heated substances, body heat, etc. and the decrease of the thickness of the layers through expansion may lead to a reduction of the time of penetration.

This data is only valid for the pure substance.

- Preventive skin protection is required.
- Apply skin protection preparations which are insoluble in water to clean skin and rub it in thoroughly after each break.
- It is required to cleanse skin with water and soap before breaks and after work has ended.
- After cleansing, apply skin care products which contain fat.

q EYE PROTECTION

- Sufficient eye protection must be worn.
- Use wicker-goggles.
- Use a protective film if the entire face, and not only the eye, has been affected.
- If vapors or aerosols appear, which are harmful to the eye, protection must be ensured through a full-size mask.

q BODY PROTECTION

- Wear tight, sufficient layers of aprons and boots or suitable chemical-resistant protective gear, depending on the danger.
- The protective gear should be acid-resistant.

9. PHYSICAL AND CHEMICAL PROPERTIES

q GENERAL DATA

- Form: liquid
- Color: from colorless to brownish
- Odor: no odor

q IMPORTANT DATA FOR CONSERVATION OF HEALTH AND ENVIRONMENT AS WELL AS FOR SAFETY

- pH-Value: highly ACIDIC < 1
- Boiling point / boiling range: > 100°C
- Point of inflammability: not applicable
- Inflammability (solid, gas): not applicable
- Danger of explosion: none
- Inflammatory features: none
- Steam pressure at 20°C: < 1 Pa
- Relative density at 20°C: 1,28 g.cm⁻³
- Dilution in water: fully mixable
- Viscosity: not available

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10. STABILITY AND REACTIVITY (Continued)

q CONDITIONS AND SUBSTANCES TO BE AVOIDED

- Highly exothermal reaction with oxidating material such as potassium chloride and/or peroxides (explosive)
- Heat development with alkaline oxides, carbonates and hydroxides
- Reaction with alkali (leaches).
- Reaction with light metals under formation of hydrogen.
- Warming up occurs when water is added.
- Corrosion temperature: > 338°C
- Under regular conditions the product is stable.
- No hazardous reactions occur when handled and stored according to guidelines.

q HAZARDOUS CORROSION PRODUCTS

- Sulphur oxide (SO_x).
- Sulphur trioxide (SO₃) and SO₃ vapor.
- No corrosion when used corresponding to purpose.

11. TOXICOLOGY DATA

q ACUTE TOXICITY

- LD/LC50 values relevant to rating: 7664-93-9 sulphuric acid
Oral | LD50 | 2.140 mg.kg⁻¹(rat)
- Strong caustic effect on mucous membrane and skin.
- Danger of severe eye and lung damage.

q CHRONIC TOXICITY

Irritation of eyes and respiratory tracts, decay of teeth, skin damage.

q ADDITIONAL NOTES ON TOXICOLOGY

Heavy caustic effect on the oral area and throat as well as danger of perforation of oesophagus and stomach when swallowed.

12. ECOLOGY DATA

q GENERAL NOTES

- Water hazard classification WGK 1 – low hazard to water
- May not enter the sewage or the pre-flooding without having been diluted or neutralized.
- Do not allow penetration of ground water or bodies of water.

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13. NOTES ON DISPOSAL

q RECOMMENDATION

- Do not dispose product along with household refuse.
- Do not allow penetration of sewage system.

q NUMBER OF THE KEYS FOR DISPOSAL

- 52101 according to ÖNORM S 2100; Accumulator acids

q DISPOSAL NOTICE

- Chemical-physical treatment: suitable
- Biological treatment: not suitable
- Thermal treatment: not suitable
- Depository: not suitable
- Packaging not cleaned: Disposal according to official regulations

14. TRANSPORTATION GUIDELINES

q LAND TRANSPORTATION ADR/RID (ACROSS BORDERS / DOMESTIC)

- ADR/RID-Grade: 8
- Classification code: C1
- Kemler Number: 80
- UN Number: 2796
- Packaging Group: II
- Hazard Notice: 8
- Designation of Goods: BATTERY FLUID, ACID (sulphuric acid)

q SEA-VESSEL TRANSPORTATION IMDG

- IMDG Grade: 8
- UN Number: 2796
- Packaging Group: II
- Marine pollutant status: no
- EMS Number: F-A, S-B
- MFAG: 700
- Proper Technical Name: BATTERY FLUID, ACID (sulphuric acid)

q AIR TRANSPORTATION ICAO-TI AND IATA-DGR

- ICAO/IATA Grade: 8
- UN/ID Number: 2796
- Packaging Group: II
- Proper Technical Name: BATTERY FLUID, ACID (sulphuric acid)

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15. AUSTRIAN AND EU REGULATIONS (Marking according to EEC Guidelines)

q HAZARD SYMBOLS AND HAZARD DESIGNATION OF THE PRODUCT



q DETERMINING COMPONENTS OF HAZARDS FOR LABELLING

- Sulphuric acid (battery fluid, acid)

q R-RATES

- R35 Causes severe chemical burns.

q S-RATES

- S01/02 Sealed storage and keep out of the reach of children.
- S26 After eye contact, immediately rinse with water thoroughly and consult a doctor.
- S30 Never add water.
- S45 In case of an accident or of health concerns, immediately call upon a doctor (present this label if possible).

q NATIONAL REGULATIONS

The classification according to the Austrian ChemG BGBl.No. I 53/1997 is equal to the classification of the EU guidelines.

q CLASSIFICATION ACCORDING TO VbF

does not apply

q WATER HAZARD CLASSIFICATION

WGK I low hazard to water, substance no. 182

16. FURTHER DATA

q RELEVANT R-RATES

- R35 Causes severe chemical burns.

q DATA SHEET ISSUING

- Department for Safety and Environmental Technology of the Banner GmbH company.

q CONTACT PERSON

- | | | |
|-------------------------------------|--------------------|-------------------------------|
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The classification equals the current EC guidelines, however, it is supplemented by remarks from professional literature and by company details.

The details and data correspond to our present state of knowledge, however, these do not represent any assurance in regard to features or description of quality. We cannot accept liability for that.