

Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date 05.05.2009

Revision: 05.05.2009

1 Identification of substance:

· **Product details:**

· **Trade name:** *Sulphuric acid tech., 94/96/98 %*

· **Application of the substance/the preparation** *Initial product for chemical reactions*

· **Manufacturer/Supplier:**

Aurubis Bulgaria AD

BG-2070 Pirdop

Bulgaria

· **Informing department:**

Safety Department

Iuli Marinov, tel.: +359 728 6 2302

email: Iuli.Marinov@aurubis.com

· **Emergency information:** Tel.: (+359) 887 989 708 – Deputy Manager of Commercial Department

2 Hazards identification

· **Hazard designation:**



C Corrosive

· **Information pertaining to particular dangers for man and environment**

R 35 Causes severe burns.

· **GHS label elements**



Danger

H314 - Causes severe skin burns and eye damage.

· **Prevention:**

P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

· **Response:**

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 IF INHALED: Remove victim to fresh air and keep at rest in a position 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 or doctor/physician.

P363 Wash contaminated clothing before reuse.

· **Additional information:**

Reacts violently with water.

Possible dangerous reactions with numerous products, especially metals with formation of hydrogen, which is inflammable and can form explosive mixtures with air.

Powerful oxidising agent. Organic material may be burned on contact.

According to the IARC there is a risk of cancer to the respiratory tract in humans in the case of certain processes where mists of strong inorganic acids are generated which also contain sulfuric acid.

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3 Composition/information on ingredients

- **Chemical characterization:**
- **CAS No. Designation:**
7664-93-9 Sulphuric acid
- **Identification number(s):**
- **EINECS Number:** 231-639-5
- **Index number:** 016-020-00-8

4 First aid measures

- **General information** Instantly remove any clothing soiled by the product.
- **After inhalation**
In case of unconsciousness bring patient into stable side position for transport.
Supply fresh air or oxygen; call for doctor.
- **After skin contact**
Instantly wash with water and soap and rinse thoroughly.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.
- **After eye contact**
Rinse opened eye for several minutes under running water.
Call a doctor immediately.
- **After swallowing**
Do not induce vomiting; instantly call for medical help.
Rinse out mouth and then drink plenty of water.
- **Information for doctor**
Elimination of primary poison of first importance. Check pH value! If swallowed, cave perforation in the gastro-intestinal tract by means of coagulation necrosis. If necessary, endoscopic diagnosis.

5 Fire fighting measures

- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents** Water with a full water jet.
- **Special hazards caused by the material, its products of combustion or flue gases:**
Can be released in case of fire
Sulphur oxide (SO_x)
Formation of Hydrogen with metals
- **Protective equipment:**
Wear self-contained breathing apparatus.
Wear full protective suit.
- **Additional information** Welding is forbidden on uncleaned containers due to risk of hydrogen formation.

6 Accidental release measures

- **Person-related safety precautions:**
Wear protective equipment. Keep unprotected persons away.
Use breathing protection against the effects of fumes/dust/aerosol.
- **Measures for environmental protection:** Do not allow to enter drainage system, surface or ground water.
- **Measures for cleaning/collecting:**
Use neutralizing agent.
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.

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· **Additional information:** See Section 8 for information on personal protection equipment.

7 Handling and storage

- **Handling**
- **Information for safe handling:**
 - Keep containers tightly sealed.
 - Ensure good ventilation/exhaustion at the workplace.
 - Wear breathing protection when decanting larger quantities without extractor facilities.
 - Avoid splashes or spray in enclosed areas.
 - Prevent formation of aerosols.
 - When diluting, always stir the product into standing water.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and containers:** Provide acid resistant floor.
- **Information about storage in one common storage facility:**
 - Store away from foodstuffs.
 - Store away from metals.
 - Store away from flammable substances.
 - Store away from reducing agents.
- **Further information about storage conditions:**
 - Keep container tightly sealed.
 - Protect from humidity and keep away from water.
 - This product is hygroscopic.
- **Storage class** 8 B

8 Exposure controls and personal protection

- **Additional information about design of technical systems:**
 - Liquid level indicator to prevent overflow. Make sure that containers are tightly closed and dried.
- **Components with critical values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the compilation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures**
 - Keep away from foodstuffs, beverages and food.
 - Instantly remove any soiled and impregnated garments.
 - Wash hands during breaks and at the end of the work.
 - Avoid contact with the eyes and skin.
 - Previn bottles (made by Prevor) should be carried to enable immediate neutralisation of wetted skin or eyes.
 - An eye- and shower station should be found at the work place.
- **Breathing equipment:**
 - In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
- **Recommended filter device for short term use:** Combination filter E-P3
- **Protection of hands:**
 - Only use chemical protective gloves with CE-labelling of category III.
 - Check protective gloves prior to each use for their proper condition.
 - Avoid direct contact with the chemical/ the product/ the preparation by organizational measures.
 - For the protection against chemicals in areas with heightened risk of injury (mechanical hazard) no recommendation for a suitable glove material can be given.

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· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

PVC gloves

Nitrile rubber, NBR

Fluorocarbon rubber (Viton)

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Not suitable are gloves made of the following materials:**

Natural rubber, NR

Chloroprene rubber, CR

Leather gloves

· **Eye protection:**

Gauze goggles

Face protection

· **Body protection:** Acid resistant protective clothing

9 Physical and chemical properties:

· **General Information**

Form:	Liquid
Colour:	Colourless
Smell:	Odourless

· **Change in condition**

Melting point/Melting range:	100% +10,4 °C
	98% + 6 °C
	96% - 10 °C
	94% - 30 °C
Boiling point/Boiling range:	98% 330 °C
	96% 310 °C

· **Flash point:** Not applicable

· **Inflammability (solid, gaseous)** Product is not inflammable.

· **Ignition temperature:**

· **Decomposition temperature:** > 338°C

· **Self-inflammability:** Product is not selfigniting.

· **Danger of explosion:** Product is not explosive.

· **Steam pressure at 20°C:** <0.01 hPa

· **Density at 20°C** 1.84 g/cm³

· **Solubility in/Miscibility with Water:** Fully miscible

· **Viscosity:**
dynamic at 20°C: 21 mPas

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10 Stability and reactivity

- **Thermal decomposition/conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:**
Reducing agents, bases, metals, cellulosic materials, organic materials, combustible materials
- **Dangerous reactions**
Reacts with metals forming hydrogen
Reacts with organic substances
Reacts violently with water
- **Dangerous products of composition:** Sulphur oxides (SO_x)
- **Additional information:** Strong hygroscopic

11 Toxicological information

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

Oral	LD50	2140 mg/kg (Rat)
Inhalative	LC50/4 h	0.85 mg/l (Mouse)
		0.375 mg/l (Rat)

· **Primary irritant effect:**

· **on the skin:** Strong caustic effect on skin and mucous membranes.

· **on the eye:**

Strong caustic effect.

Permanent eye damage.

· **Sensitization:** No sensitizing effect known.

· **Additional toxicological information:**

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

· **Acute effects (acute toxicity, irritation and corrosivity)**

After inhalation

- Dry/sore throat

- Coughing

- Irritation of the respiratory tract

- Irritation of the nasal mucous membranes

On continuous exposure/contact

- Corrosion of the upper respiratory tract

Following symptoms may appear later

- possible laryngeal spasm/oedema

- risk of pneumonia

- risk of lung oedema

- respiratory difficulties

After ingestion

- nausea

- abdominal pain

- blood in stool

- blood in vomit

- burns to the gastric/intestinal mucosa

After absorption of high quantities

- shock

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· **Repeated dose toxicity**

On continuous/repeated exposure/contact

- red skin
- dry skin
- itching
- skin rash/inflammation
- affection/discolouration of the teeth
- inflammation/damage of the eye tissue

· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

Carcinogenicity

- on ingestion (rat, mouse): weak local carcinogen
- by inhalation (rat, hamster, guinea-pig): no carcinogenic effects have been observed

Mutagenicity

- Point mutations (*S. typhimurium*, *E. Coli* with or without metabolic activation): negative
- chromosomal aberrations (*CHO* with or without metabolic activation): positive (due to its pH)

Reproductive toxicity

- Developmental toxicity study (by inhalation mouse, rabbit): no embryotoxic or teratogenic effects have been observed
- NOEL, foetal toxicity: 20 mg/m³

12 Ecological information:

· **Information about elimination (persistence and degradability):**

· **Other information:**

Sulphate ion is ubiquitous in the environment and metabolised by living micro-organisms and plants

· **Behaviour in environmental systems:**

· **Mobility and bioaccumulation potential:**

Sulphate ion is metabolised by living micro-organisms and plants without bioaccumulation

· **Ecotoxicological effects:**

· **Aquatic toxicity:**

- LC50 (96 h) : 42 mg/l (*Gambusia Affinis*)*
- LC50 (96 h) : 16 mg/l (*Lepomis Macrochirus*)*
- LC50 (24 h) : 82 mg/l (*Brachydanio Rerio*)*
- EC50 (24 h) : 29 mg/l (*Daphnia Magna*)*

· **Remark:**

Sludge digestion is inhibited at 58 mg/l, 50% 120h

Large discharges in sewers may be detrimental to waste water treatment plants through inhibition of sludge or bio-film organisms due to acidification.

· **General notes:**

Do not allow product to reach ground water, water bodies or sewage system.

Must not reach sewage water or drainage ditch undiluted or unneutralized.

Water hazard class 1 (Assessment by list): slightly hazardous for water.

13 Disposal considerations

· **Product:**

· **Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

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Small amounts may be diluted with plenty of water and washed away. Dispose of bigger amounts in accordance with Local Authority requirements.

· **European waste catalogue**

06 01 01	sulphuric acid and sulphurous acid
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· **Uncleaned packagings:**

· **Recommendation:**

Uncleaned empty containers should be packaged, sealed, labelled, and disposed of recycled according to relevant national and local regulations.

· **Recommended cleaning agent:** Water, if necessary with cleaning agent.

14 Transport information

· **Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**



· **ADR/RID-GGVS/E Class:** 8 Corrosive substances.

· **Kemler Number:** 80

· **UN-Number:** 1830

· **Packaging group:** II

· **Label** 8

· **Designation of goods:** 1830 SULPHURIC ACID

· **Limited quantities (LQ)** LQ22

· **Transport category** 2

· **Tunnel restriction code** E

· **Maritime transport IMDG/GGVSea:**



· **IMDG/GGVSea Class:** 8

· **UN Number:** 1830

· **Label** 8

· **Packaging group:** II

· **EMS Number:** F-A,S-B

· **Correct technical name:** SULPHURIC ACID

· **Air transport ICAO-TI and IATA-DGR:**



· **ICAO/IATA Class:** 8

· **UN/ID Number:** 1830

· **Label** 8

· **Packaging group:** II

· **Correct technical name:** SULPHURIC ACID

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· **UN "Model Regulation": UN1830, SULPHURIC ACID, 8, II**

15 Regulatory information

· **Designation according to EC guidelines:**

The product has been classified and labelled in accordance with EC Directives / Ordinance on Hazardous Materials (GefStoffV)

· **Code letter and hazard designation of product:**


C Corrosive

· **Risk phrases:**

35 Causes severe burns.

· **Safety phrases:**

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

30 Never add water to this product.

45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

· **National regulations**

· **Water hazard class:** Water hazard class 1 (Assessment by list): slightly hazardous for water.

· **Other regulations, limitations and prohibitive regulations**

The recommendations given in the leaflets of the "Berufsgenossenschaft der Chemischen Industrie" (Employers Liability Insurance Association for the German Chemical Industry) entitled M 004 "Ätzende Stoffe" and BGI 592 "Entleeren von anorganischen Säuren und Laugen aus Eisenbahnkesselwagen" should be followed.

16 Other information:

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing data specification sheet:**

Aurubis AG

GESUNDHEITSSCHUTZ-Arbeitssicherheit

· **Contact:**

Herr Münkler Tel.: +49 / (0)40 / 78 83 39 09

email: u.muenkel@aurubis.com

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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. * Data compared to the previous version altered.

This version supersedes the version dated 20.02.2008.

The chapters in which changes were made are marked with an asterisk in the left margin.

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