Safety Data Sheet

SULFURIC ACID, TECHNICAL

SDS No.: 30
Version (en): 1

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE

Product name	Sulfuric acid solution, technical	
Chemical Family	Inorganic acid	
CAS Number	7664-93-9	
Chemical Name	Sulfuric acid	
Synonyms	Sulphuric acid, Oil of Vitriol	
Type of use	As electrolyte in lead-acid batteries, in ore processing, fertilizer manufacturing, oil refining, wastewater processing and chemical synthesis.	
Company	„HIP-Petrohemija“ Pancevo Spoljnostarcevacka 82 26000 Pancevo Republic of Serbia	Customer Service Tel: +381(0)13 307 000 Fax: +381(0)13 310 207 Email (competent person): prodaja@hip-petrohemija.rs Webpage: www.hip-petrohemija.com
Emergency Contact (24h)	See Section 16. for the list of telephone numbers of poison centers in the European Economic Area	

SECTION 2: HAZARD IDENTIFICATION

CLP: C – Corrosive
GHS: DANGER! Causes severe skin burns and eye damage, category 1A, H314

Adverse environmental effects	In sufficient quantities sulfuric acid will change the pH of natural waters and soils and have an adverse effect on their flora and fauna
Adverse physical-chemical effects	Dilute sulfuric acid solutions will react with metals. This will result in physical damage to materials and generation of hydrogen. Hydrogen is a flammable gas.
Signs and Symptoms of Acute Exposure	
Skin	May cause irritation or burns on skin. May cause dermatitis, ulceration.
Inhalation	Harmful if inhaled. May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Causes chemical burns to the respiratory tract. May cause respiratory inflammation. Destructive to tissues of mucous membranes. May cause delayed lung injury, headache, vomiting, nausea, pulmonary edema.
Eyes	May be slight to severe. Irritation, burns, corneal necrosis (loss of sight).
Ingestion	May cause severe and permanent damage to the digestive tract. Causes burns in mouth, pharynx and gastrointestinal tract, nausea, vomiting, abdominal pain.
Chronic Health Effects	Prolonged or repeated contact may dry skin and cause irritation.
Conditions Aggravated by Exposure	Asthma, allergies.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

EU Inventory All components listed on European Inventory of Existing Chemical Substances (EINECS)

Component Name	CAS #	EU Inventory EC #	Index No.	Concentration Wt.%
Sulfuric acid	7664-93-9	231-639-5	016-020-00-8	≥78%
Chlorine	7782-50-5	231-959-5	017-001-00-7	Trace
Water	7732-18 -5	231-791-2	/	≤22%

Sulfuric acid

Classification and Labeling	CLP	GHS
Pictogram		
Clasification (Hazard Class and Category Code– GHS)	C; Corosive	Danger! Skin Corr. 1A
Risk Phrases (Hazard statement – GHS)	R35 Causes severe burns	H314 – Causes severe skin burns and eye damage

Chlorine

Classification and Labeling	CLP		GHS		
Pictogram					
Clasification (Hazard Class and Category Code– GHS)	T; Toxic	N ; Dangerous for the environment	Danger! Ox. Gas 1	Danger! Acute Tox. 3 * Eye Irrit. 2 STOT SE 3 Skin Irrit. 2	Danger! Aquatic Acute 1
Risk Phrases (Hazard statement –GHS)	R23 Toxic by inhalation R36/37/38 Irritating to eyes, respiratory system and skin.	R50 Very toxic to aquatic organisms	H270 – May cause or intensify fire; oxidizer	H331 – Toxic if inhaled H319 – Causes serious eye irritation H335 – May cause respiratory irritation H315 – Causes skin irritation	H400 - Very toxic to aquatic life

SECTION 4: FIRST AID MEASURES

General	Instantly remove any clothing soiled by the product.
Inhalation	Remove to fresh air immediately. If breathing is difficult, give oxygen. Seek medical attention.
Skin	Seek medical attention. Flush with large amounts of water for atleast 15 minutes, remove any contaminated clothing and do not wear again until cleaned.
Eyes	Seek medical attention. Flush immediately with cool water for atleast 15 minutes.
Ingestion	Seek medical attention. Give large quantities of water or milk. DO NOT induce vomiting.
Note to Physician	Following exposure the patient should be kept under medical review for at least 48 hours as delayed pneumonitis may occur.

SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties	Non combustible. But reacts with most metals to liberate Hydrogen which can form explosive mixture with air.
Extinguishing Media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Extinguishing Media (which shall not be used for safety reasons)	Do not use water jet
Hazardous Combustion Products	The product is non-combustible; however, emits toxic and corrosive fumes under fire conditions.
Protective Equipment/Clothing	Wear self-contained breathing apparatus and acid-resistant clothing to minimise risk of exposure.
Fire Fighting Guidance	Use self-contained breathing apparatus. Water applied to acid generates heat and causes it to splatter. Hence do not use water. Wear acid resistant clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Extra personal protection	Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
Environmental precautions	Avoid dispersal of spilled 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).
Recommended methods for cleaning and disposal	Small spill: Cover with dry earth, sand or other non-combustible material. Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal. Large spill: Restrict access to area until completion of clean up. Ensure trained personnel conduct clean up. Remove all ignition sources (no smoking, flares, sparks or flames). All equipment should be grounded. Ventilate area. Use appropriate personal protection equipment. Prevent liquid from entering sewers or waterways. Stop or reduce leak if safe to do so. Dike with inert material (sand, earth, etc.). Collect into plastic containers for disposal. Consider in situ neutralization and disposal. Ensure adequate decontamination of tools and equipment following clean up.

SECTION 7: HANDLING AND STORAGE

Handling	Do not ingest. Do not breathe mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Use EXTREME care when diluting with water. Always add acid to water. CAUTION: Hydrogen, a highly flammable gas, can accumulate to explosive concentrations inside drums, or inside most types of metal containers or tanks upon storage.
Storage	Do not store near combustible materials. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from combustible substances. Do not store near alkaline substances. Store in a cool place away from heated areas, sparks and flame. Keep tightly closed. Do not store in a damp atmosphere. Do not store near organic substances. Do not allow smoking and food consumption while handling. Metal and, specifically, carbon steel, storage tanks must be vented due to hydrogen release. Do not store below the following temperature: 0°C.
Specific use(s)	As electrolyte in lead-acid batteries, in ore processing, fertilizer manufacturing, oil refining, wastewater processing and chemical synthesis. Handling with materila according to Section 7 part Handling.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

ACGIH exposure limit lists have been checked for major components listed with CAS registry numbers. Other exposure limits may apply, check with proper authorities.

Sulfuric acid	**ACGIH**	TLV: 1 mg/m^3 as TWA; 3 mg/m^3 as STEL
	OSHA	TLV: 1 mg/m^3 as TWA
Chlorine	**ACGIH**	TLV: 0,5 ppm as TWA

Chemical Safety Report	
Derived No Effect Levels (DNEL)	Not available
Predicted No Effect Concentration (PNEC)	Not available

Engineering methods to reduce hazardous exposure are preferred controls. Handling should be done in closed ventilation system (e.g. exhaust hood). In areas of heavy handling mechanical ventilation should be provided sufficient to reduce the vapour mist concentration below the permissible levels. Processing equipment must be corrosion resistant. Provide eye wash and quick drench facilities in areas of use.

Inhalation	Use approved full face self-contained breathing apparatus if high airborne concentrations of the material are present.
Hand	Suitable protective gloves according to the character of the work performed, acid resistant.
Eyes	To prevent eye contact wear eye protection such as safety goggles or face shield.
Skin	To prevent skin contact wear protective clothing, such as apron, work pants, long sleeve work shirt or disposable coveralls.
Environmental exposure controls	Environmental exposure controls should be in accordance with applicable regional, national, and local laws and regulations.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state and Appearance	Liquid
Colour	Clear, colorless to cloudy.
Odour	Odourless
Odour Threshold	Not applicable
pH	<1
Boiling Point/Boiling Range	approx. 290°C
Melting Point	approx. -10°C
Flash Point	Non-conbustible
Auto-ignition	Not applicable
Flammability classification	Not classsified
Lower Flammable (explosion) Limit	Not applicable
Upper Flammable (explosion) Limit	Not applicable

Explosive Properties	Not applicable
Oxidizing Properties	Not applicable
Vapour Pressure	Less than 0.04 kPa (0.3 mm Hg) at 25°C
Evaporation Rate	Not applicable
Relative Density at 20°C (water=1)	1.7 g/cm^3
Solubility (Water)	Soluble in water in all proportions. Soluble in all proportions in ethanol (decomposes).
Partition Coefficient Octanol/Water (Log Pow)	Not applicable
Viscosity	No data available
Relative Vapour Density (air=1)	approx. 3.4
Evaporation	Probably very slow.
Additional Physical and Chemical Properties	/

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability	Normally stable.
Conditions to Avoid	Heat, direct sunlight.
Substances to Avoid	Incompatible with bases, halides, organic materials, carbides, nitrates, cyanides, chlorates, alkali halides, zinc salts, permanganates, e.g. potassium permanganate, hydrogen peroxide, azides, perchlorates., nitromethane, phosphorous. Reacts violently with:, cyclopentadiene, phosphorous(III) oxide, powdered metals.
Decomposition Products	Hydrogen gas and hazardous fumes of SOx
Hazardous Polymerization	Will not occur.
Reactions with Air and Water	Reacts exothermically on dilution with water.
Advice to prevent explosion	Reacts with many metals releasing flammable hydogen gas.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity

Liquid and mist cause severe irritation and burns to all body tissue. May be fatal if swallowed or inhaled. Inhalation may cause lung damage. Avoid breathing vapor.

oral- rat LD50	2140 mg/kg
inhalation-rat LC50	510 mg/m^3 2h

Repeated Dose Toxicity

Prolonged or repeated inhalation may cause nosebleeds, nasal congestion, erosion of the teeth, perforation of the nasal septum, chest pain and bronchitis. Prolonged or repeated eye contact may cause conjunctivities.

Chronic Toxicity

Carcinogenicity	Not a known carcinogen
Mutagenic effects	Not a known mutagen
Teratogenic effects	Not a known teratogen.

Special Remarks on Other Toxic Effects on Humans

The severity of damage depends on the concentration of the acid and the duration of the exposure. Contact with water will generate considerable heat. Contact with most metals will generate flammable hydrogen gas.

SECTION 12: ECOLOGICAL INFORMATION

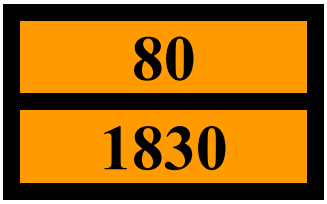
Ecotoxicity – Acute toxicity	**Gambusia affinis (Mosquito Fish):** 96 hour LC50 42 mg/l
Mobility	If product enters soil, it will be mobile and may contaminate groundwater.
Persistence and Degradability	
Air	Evaporation is very slow.
Soil	The acid will permeate soil, dissolving some soil material and will be somewhat neutralized.
Water	High water solubility. Sulfuric acid dissociates in water and it will lower pH. It will be neutralized by naturally alkalinity of surface water.
Bioaccumulation	This material will not bioaccumulate.
Biodegradation	Not biodegradable
Environmental adverse effects	Toxic to aquatic life. Acidic substance leading to a lower pH. However, pH will increase rather quickly because of dilution until an ecological neutral product is obtained. Fatal to aquatic life due to pH shift.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste disposal
Empty containers must be decontaminated. Disposal should be in accordance with applicable regional, national, and local laws and regulations.

SECTION 14: TRANSPORT INFORMATION

UN broj	1830
H.I.N. (Kemlerov broj)	80



Road (ADR) / Rail (RID)/ Water (ADNR)

Proper Shipping Name	SULPHURIC ACID	**Required label(s)**
UN Number	1830	
Hazard class	8 (Corrosive)	
Transport category	C1	
Packaging group	II	

Marine (IMO)

Proper Shipping Name	SULPHURIC ACID	**Required label(s)**
UN Number	1830	
IMDG class	8 (Corrosive)	
EmS category	F-A, S-B	
Packaging group	II	

Air Transport (IATA/ICAO)

Proper Shipping Name	SULPHURIC ACID	**Required label(s)**
UN Number	1830	
ICAO/IATA class	8 (Corrosive)	
Packaging group	II	

SECTION 15: REGULATORY INFORMATION

Regulatory information	The SDS has been prepared according to EC REGULATION No. 1907/2006 REACH. The product has been classified as dangerous according to EC REGULATIONs, No. 1272/2008/EC, No. 1999/45/EC and No. 67/548/EEC.

Sulfuric acid			
CAS # (IUPAC)	7664-93-9 (Sulfuric acid)		
EU Inventory EC #	231-639-5		
Index No.	016-020-00-8		
Classification and Labeling	**CLP**	**GHS**	
Pictogram			
Clasification (Hazard Class and Category Code– GHS)	**C; Corosive**	**Danger! Skin Corr. 1A**	
Risk Phrases (Hazard statement – GHS)	R35 Causes severe burns	H314 – Causes severe skin burns and eye damage	
Safety Phrases (Precautionary Statements – GHS)	S1/2 – Keep locked up and out of the reach of children S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice S30 – Never add water to this product S45 – In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)	Prevention precautionary statements	P280 Wear protective gloves and eye protection/face protection
		Response precautionary statements	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 P305+P351+P338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing P391 Collect spillage
		Storage precautionary statements	P405 Store locked up
		Disposal precautionary statements	P501 Dispose of contents/container in to u accordance with local/regional/national regulations

SECTION 16: OTHER INFORMATION

Training advice	Personnel handling the product need to be demonstrably with its hazardous properties, with health and environmental protection principles related to the product and first aid principles.
Recommended uses	THE PRODUCT IS RESTRICTED TO PROFESSIONAL USAGE. Ensure all national/local regulations are observed. Ensure operators understand the health hazard. This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws. Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted. Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose

List of telephone numbers of poison centres in the European Economic Area	
AUSTRIA (Vienna Wien)	+43 1 40 400 2222
BELGIUM (Brussels Bruxelles)	+32 70 245 245
BULGARIA (Sofia)	+359 2 9154 409 / +359 887 435 325
CZECH REPUBLIC (Prague Praha)	+42 2 2491 9293 or +42 2 2491 5402
DENMARK (Copenhagen)	+45 35 31 54 04
FINLAND (Helsinki)	+358 9 471 977
FRANCE (Paris)	+33 1 40 05 48 48
GERMANY (Berlin)	+49 30 450 653565
GREECE (Athens Athinai)	+30 10 779 3777
HUNGARY (Budapest)	+36 80 20 11 99
ICELAND (Reykjavik)	+354 525 111, +354 543 2222
IRELAND (Dublin)	+353 1 8379964
ITALY (Rome)	+39 06 305 4343
LATVIA (Riga)	+371 704 2468
LITHUANIA (Vilnius)	+370 2 36 20 52, +370 2 36 20 92
NETHERLANDS (Bilthoven)	+31 30 274 88 88
NORWAY (Oslo)	+47 22 591300
POLAND (Gdansk)	+48 58 301 65 16 or +48 58 349 2831
PORTUGAL (Lisbon Lisboa)	808 250 143 (for use only in Portugal), +351 21 330 3284
ROMANIA (Bucharest)	+40 21 230 8000;
SLOVAKIA (Bratislava)	+421 2 54 77 4 166
SLOVENIA (Ljubljana)	+ 386 41 650 500
SPAIN (Barcelona)	+34 93 227 98 33 or +34 93 227 54 00 bleep 190
SWEDEN (Stockholm)	+46 8 33 12 31 (International) 112 (National)
UNITED KINGDOM (London)	0870 243 2241

Key/Legend	
ACGIH	American Conference of Governmental Industrial Hygienists
ADNR	European Agreement concerning the International Carriage of Dangerous Goods by inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS	Chemical Abstract Service
EU	European Union
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
LC50	Lethal Concentration, concentration of a chemical which kills 50% of a sample population
LD50	Lethal Dose, dose of a chemical which kills 50% of a sample population
MDI	Methylene diphenyl diisocyanate
NFPA	National Fire Protection Association
NTP	National Toxicology Programme
OSHA	Occupational Safety and Health Administration
RID	International Rule for Transport of Dangerous Substances by Railway
TDI	Toluole diisocyanate
TLV	Threshold Limit Value
TWA	Time Weighted Averages

This information applies to the PRODUCT AS SUCH and conforming to specifications of „HIP- Petrohemija“ Pancevo.
In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear.
The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely. However the revision of some data is in progress. Users are advised of possible additional hazards when the product is used in applications for which it was not intended.
This sheet shall only be used and reproduced for prevention and security purposes.
The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive.
It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product.
It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product. (usage, storage, cleaning of containers, other processes) the totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.