

SULPHURIC ACID (98% TECHNICAL GRADE)

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

SULPHURIC ACID (98% TECHNICAL GRADE)
Oil of Vitriol; Hydrogen Sulphate; Battery Acid (concentrated)
CAS: 7664-93-9

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Chemical intermediate for fertilisers (SSP/DAP), dyes, pigments and detergents; metal pickling and surface treatment; battery electrolyte manufacture; water and effluent treatment (pH adjustment); petroleum refining. For industrial/commercial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
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1.4 Emergency phone number:

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SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Skin Corr. 1A	Skin corrosion, Category 1A, H314
Eye Dam. 1	Serious eye damage, Category 1, H318
Met. Corr. 1	Corrosive to metals, Category 1, H290

2.2 GHS label elements, including precautionary statements:

GHS: Danger

Hazard statements:

Skin Corr. 1A: H314 – Causes severe skin burns and eye damage.
Eye Dam. 1: H318 – Causes serious eye damage.
Met. Corr. 1: H290 – May be corrosive to metals.

Precautionary statements:

P234: Keep only in original container.
P260: Do not breathe mist/vapours.
P264: Wash hands thoroughly after handling.
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): Remove/Take off immediately all contaminated clothing. Rinse skin with water/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.
P390: Absorb spillage to prevent material damage.
P406: Store in a corrosive resistant container with a resistant inner liner.
P501: Dispose of the contents/containers in accordance with regulations on hazardous waste or packaging and packaging waste, respectively.

2.3 Other hazards which do not result in classification:

Reacts violently and exothermically with water, generating heat and potential spattering/boiling – always add acid to water, never water to acid. This substance is not identified as a PBT or vPvB substance.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Sulphuric Acid, 98% Technical Grade (aqueous solution)
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 7664-93-9	Sulphuric Acid — Skin Corr. 1A: H314; Eye Dam. 1: H318; Met. Corr. 1: H290 – Danger	≥ 98% (balance water, technical grade per current specification sheet)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance immediately, showing the SDS of this product.

By inhalation:

Remove the person affected from the area of exposure, provide fresh air and keep at rest. If breathing is difficult, administer oxygen. In serious cases, immediate medical assistance is required.

By skin contact:

Immediately remove contaminated clothing and footwear (taking care not to delay rinsing). Flood the affected area with large quantities of running water for at least 15 – 20 minutes. Do not apply neutralising chemicals. Seek medical attention immediately.

By eye contact:
Immediately rinse eyes thoroughly with lukewarm water for at least 15 – 20 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek medical attention immediately with the SDS of the product.

By ingestion/aspiration:
Do NOT induce vomiting. Rinse the mouth with water if the person is conscious. Give small amounts of water to drink if able to swallow. Seek medical attention immediately.

4.2 Most important symptoms/effects, acute and delayed:
Severe burns to skin, eyes and mucous membranes on contact; inhalation of mist/vapour may cause severe irritation of the respiratory tract. Acute and delayed effects are further indicated in sections 2 and 11.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:
Treat as a chemical (acid) burn. No specific antidote; treat symptomatically under medical supervision.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:
Suitable: Dry chemical powder, carbon dioxide (CO₂), water spray/fog (for cooling exposed containers only), foam
Unsuitable: Direct water jet onto the acid itself (may cause violent spattering)

5.2 Specific hazards arising from the chemical:
Non-flammable but highly reactive. Contact with most common metals generates flammable/explosive hydrogen gas. Violent, exothermic reaction with water and with many organic materials, reducing agents and bases. Decomposition at high temperature may release toxic sulphur oxide fumes.

5.3 Special protective actions for fire-fighters:
Evacuate all non-essential personnel. Wear self-contained breathing apparatus and full acid-resistant protective clothing. Cool exposed containers with water spray from a safe distance; avoid direct water contact with spilled acid.

Additional provisions:
Contain fire-fighting run-off water, which will be acidic and may contain dissolved metals; prevent entry into drains and water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:
For non-emergency personnel:
Evacuate the area and keep out unprotected persons. Use personal protective equipment described in section 8. Ensure adequate ventilation.

For emergency responders:
Wear full acid-resistant protective equipment (suit, gloves, boots, face shield, self-contained breathing apparatus for large spills/vapour release). See section 8.

6.2 Environmental precautions:
Prevent entry into drains, water courses and soil. Contain the spill with inert absorbent material (e.g. sand, dry earth, vermiculite) – never use combustible organic absorbents. Notify the relevant pollution-control authority in case of significant environmental release.

6.3 Methods and materials for containment and cleaning up:
Dike/contain the spill. Carefully neutralise with soda ash, lime or sodium bicarbonate (added slowly, with caution for exothermic reaction and gas evolution), then absorb with inert material and place in a suitable container for disposal. Do not use metal containers for collection. Flush residual area with water only after the bulk of the acid has been removed/neutralised.

6.4 Reference to other sections:
See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:
A. General precautions for safe use:
Always add acid slowly to water when diluting – never add water to concentrated acid. Avoid contact with skin, eyes and clothing. Avoid inhalation of mist/vapour. Keep away from reactive materials (section 10.5).

B. Technical recommendations for the prevention of fires and explosions:
Use only acid-resistant, non-reactive construction materials (e.g. lined steel, HDPE) for tanks, pipework and fittings. Provide a containment bund around storage tanks and transfer installations. Avoid contact with common metals, which may generate flammable hydrogen gas.

C. Technical recommendations on general occupational hygiene:
Do not eat, drink or smoke while handling. Wash hands and exposed skin thoroughly after handling, before eating/drinking.

D. Technical recommendations to prevent environmental risks:
Provide bunded, corrosion-resistant storage and transfer areas. Avoid atmospheric emission of acid mist. Apply major-accident prevention rules for industrial bulk storage (consult an expert).

7.2 Conditions for safe storage, including any incompatibilities:
A. Specific storage requirements:

Minimum Temp.	Above freezing point of the solution (≈ 10°C for 98% grade)
Maximum Temp.	40°C
Recommended shelf life	Indefinite in sealed, corrosion-resistant containers under proper storage conditions

B. General conditions for storage:
Store in tightly closed, acid-resistant (e.g. HDPE-lined steel, glass-lined) containers, away from metals, combustible/organic materials, bases and reducing agents. Provide secondary containment (bund). For additional information see subsection 10.5.

7.3 Specific end use(s):
Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:
Substances whose occupational exposure limits have to be assessed in the workplace, per the Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987):

Identification	Occupational Exposure Limit Type	Value
Sulphuric Acid CAS: 7664-93-9	Time Weighted average concentration (8 hrs) – thoracic fraction	1 mg/m³
	Short-term exposure limit (15 min)	2 mg/m³

8.2 Appropriate engineering controls:
Use local exhaust ventilation/fume extraction near points of mist generation (e.g. tank venting, transfer points) to keep airborne concentration below occupational exposure limits, in addition to individual PPE.

B. Respiratory protection:
Acid-gas/mist filter respirator for routine tasks; self-contained breathing apparatus for emergency response or where concentrations are unknown/high.

C. Specific protection for the hands:
Acid-resistant gloves (e.g. neoprene, butyl rubber, PVC) of adequate thickness. Replace at any sign of degradation.

D. Eye and face protection:
Chemical splash goggles and a full face shield for tasks with splash risk.

E. Bodily protection:
Acid-resistant apron/suit and boots. Replace at any sign of deterioration.

F. Additional emergency measures:
Emergency shower (ANSI Z358-1, ISO 3864-1:2011, ISO 3864-4:2011) and eyewash stations (DIN 12 899, ISO 3864-1:2011, ISO 3864-4:2011) must be readily available near handling areas.

Environmental exposure controls:
Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Liquid
Appearance	Oily liquid
Color	Colorless to slightly yellow/brown (technical grade)
Odor	Odourless (slightly pungent on heating)
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	≈ 337°C (98% grade)
Vapour pressure at 20°C	< 0.001 kPa (negligible)
Evaporation rate at 20°C	Not relevant *
Product Description	
Density / Relative density at 20°C	1.84 g/cm³
Dynamic viscosity at 20°C	≈ 24 – 26 mPa·s (typical value – refer to current specification sheet)
Concentration	98% w/w (technical grade)
pH	< 1 (strongly acidic, concentrated)
Partition coefficient n-octanol/water	Not relevant (inorganic acid)
Solubility in water at 20°C	Miscible in all proportions (highly exothermic)
Melting point/freezing point	≈ 10°C (98% grade)
Flammability	
Flash Point	Non-applicable (non-flammable liquid)
Flammability (solid, gas)	Not relevant *
Autoignition temperature	Not relevant *
Lower / Upper flammability limit	Not relevant *

** Not relevant due to the nature of the product, not providing information on the properties of its hazards.*

9.2 Other information:

Explosive properties	Not relevant *
Oxidising properties	Not classified as an oxidiser; strong dehydrating/oxidising action on contact with organic materials
Corrosive to metals	H290 – May be corrosive to metals
Heat of dilution	Highly exothermic on dilution with water

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:
Reacts violently and exothermically with water. Reacts with most common metals to generate flammable hydrogen gas. Strongly reactive/corrosive towards bases, reducing agents and many organic materials; may cause fire or violent reaction on contact with combustible/organic substances.

10.2 Chemical stability:
Chemically stable under the indicated conditions of storage, handling and use. Highly hygroscopic.

10.3 Possibility of hazardous reactions:
Contact with metals may generate explosive hydrogen gas in confined spaces. Contact with strong bases or active metals can cause a violent, highly exothermic reaction. Contact with many organic compounds may cause charring, fire or explosion.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Hygroscopic – absorbs atmospheric moisture	Avoid uncontrolled heating	Not applicable	Avoid uncontrolled contact with water (violent exotherm)

10.5 Incompatible materials:

Water	Metals	Bases	Combustible/Organic Materials	Reducing Agents / Oxidisers
Violent exothermic reaction – always add acid to water	Generates flammable hydrogen gas	Violent neutralisation reaction, heat generation	May cause charring, fire or explosion	Avoid direct contact

10.6 Hazardous decomposition products:
On strong heating, releases toxic sulphur oxide (SO₂/SO₃) fumes.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:
In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect):
Causes severe, potentially fatal, chemical burns to the mouth, throat, oesophagus and stomach. May cause abdominal pain, vomiting (possibly bloody) and collapse.

B. Inhalation (acute effect):
Inhalation of mist/vapour causes severe irritation of the nose, throat and respiratory tract; high concentrations may cause pulmonary oedema.

C. Contact with skin and eyes (acute effect):
Causes severe skin burns (H314) and serious, potentially irreversible eye damage (H318) on contact.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):
Strong inorganic acid mists containing sulphuric acid are classified by IARC as Group 1 (carcinogenic to humans) specifically in the context of occupational mist inhalation exposure; this classification does not apply to the bulk liquid under normal handling with adequate ventilation and PPE as described in section 8. Classification criteria for mutagenicity and reproductive toxicity of the substance itself are not met based on available data.

E. Sensitizing effects:

Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure:

Severe irritation/corrosive damage to the respiratory tract on inhalation of mist, as described above.

G. Specific target organ toxicity (STOT) – repeated exposure:

Repeated/prolonged inhalation of mist may cause chronic irritation and damage to the respiratory tract and erosion of dental enamel.

H. Aspiration hazard:

Classification criteria are not met based on available data.

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Sulphuric Acid CAS: 7664-93-9	LD50 oral: 2,140 mg/kg	Rat
	LC50 inhalation (mist): 510 mg/m³ (2h)	Rat

SECTION 12: ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment under GHS criteria; however, uncontrolled discharge will cause a severe local pH shift that is harmful to aquatic life.

12.1 Toxicity:

Acute Toxicity	Species	Genus
LC50: 82 mg/L (96h) (typical value – refer to current specification sheet)	Non-applicable	Fish
EC50: 29 mg/L (48h) (typical value – refer to current specification sheet)	Non-applicable	Crustacean

12.2 Persistence and degradability:

Non-applicable (inorganic acid); fully dissociates and neutralises in the aquatic environment, affecting local pH.

12.3 Bioaccumulative potential:

Non-applicable (inorganic acid, does not bioaccumulate).

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	No	Dissociates/neutralises – affects local soil pH

12.5 Results of PBT and vPvB assessment:

Non-applicable

12.6 Other adverse effects:

Uncontrolled release can cause significant local acidification of soil and water, harming flora and fauna.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Carefully neutralise with an alkaline material (e.g. lime, soda ash) under controlled conditions (exothermic reaction) before disposal, in accordance with local/national hazardous-waste regulations. For packaging: avoid treatments as far as possible – use dedicated, acid-resistant containers; do not rinse dedicated containers into general drains.

Refer to national and local regulations on hazardous waste management.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	UN1830
14.2 UN proper shipping name	SULPHURIC ACID (with more than 51% acid)
14.3 Transport hazard class(es)	8
14.4 Packing group	II
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22):

14.1 UN number	UN1830
14.2 UN proper shipping name	SULPHURIC ACID (with more than 51% acid)
14.3 Transport hazard class(es)	8
14.4 Packing group	II
14.5 Marine pollutant	No
14.6 Special precautions for user	EmS Codes: F-A, S-B Limited quantities: 1 L
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	UN1830
14.2 UN proper shipping name	SULPHURIC ACID (with more than 51% acid)
14.3 Transport hazard class(es)	8
14.4 Packing group	II
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation:

Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
Public Liability Insurance Act, 1991

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

- H290: May be corrosive to metals.
- H314: Causes severe skin burns and eye damage.
- H318: Causes serious eye damage.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training:

Training in the safe handling of corrosive acids, use of PPE, emergency shower/eyewash procedures and spill response is strongly recommended for staff using this product.

Principal bibliographical sources:

Published GHS classification and physicochemical reference data for this substance.

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | IARC: International Agency for Research on Cancer

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET