

Sulphuric Acid

Safety data sheet in the 16-section GHS format · CAS 7664-93-9

Velora Chemicals Private Limited
Ahmedabad, Gujarat, India
+91 99255 22674 · info@velorachemicals.com

1. Identification of the substance and of the supplier

Product name	Sulphuric Acid
Synonyms	sulfuric acid, oil of vitriol, battery acid, H ₂ SO ₄
C.A.S. number	7664-93-9
Molecular formula	H ₂ SO ₄
Grade supplied	98% commercial / battery grade / 33% – 70% dilutions
Product group	Mineral & Organic Acids
Identified uses	Fertiliser, Steel & metals, Detergents & surfactants, Effluent treatment, Batteries, Dyes & intermediates
Supplier	Velora Chemicals Private Limited
Emergency contact	Medical, fire or spill emergency — call the emergency services first: 112 (all-India), 101 fire, 108 ambulance. Velora Chemicals Private Limited does not at present operate a 24-hour chemical emergency advice line, and this sheet does not pretend otherwise. Every consignment despatched by road carries an emergency information panel under rule 134 of the Central Motor Vehicles Rules 1989 bearing a number from which expert advice on this material can be obtained, and the producer's safety data sheet issued with the consignment carries the producer's own 24-hour number where one is operated. For product, grade and documentation queries in business hours: +91 99255 22674.

2. Hazards identification

GHS signal word	Danger
Hazard classification	Skin Corr. 1A — H314 (EU harmonised, CLP Annex VI index 016-020-00-8; the Annex VI specific concentration limit places 15% and above into Skin Corr. 1A, so 98% is 1A); Met. Corr. 1 — H290 (supplier self-classification, not in Annex VI). Non-EU sheets and ILO ICSC 0362 additionally self-classify acute inhalation toxicity (H330/H331) for the mist, and Japanese NITE data add H318, H370 and H372 — none of these are part of the EU harmonised entry. Separately, IARC classifies occupational exposure to strong inorganic acid mists containing sulphuric acid as a Group 1 human carcinogen — this applies to the mist, not to the liquid itself, and is not a CLP harmonised carcinogenicity classification for the substance

3. Composition / information on ingredients

Substance	Sulphuric Acid
C.A.S. number	7664-93-9
Molecular weight	98.08 g/mol
Composition	98% commercial / battery grade / 33% – 70% dilutions

4. First-aid measures

Eye contact	Immediately flush the eye with plenty of gently flowing water for at least 15-20 minutes, holding the eyelids wide apart; remove contact lenses if easy to do and continue rinsing. Do not use any neutralising agent. Obtain immediate ophthalmological attention and continue irrigation en route to hospital.
Skin contact	First rinse with plenty of water for at least 15 minutes, THEN remove contaminated clothing and rinse the skin again (ILO ICSC 0362 — this order matters, because pulling clothing off dry drags concentrated acid across the skin). Do not apply chemical neutralising agents without medical advice. Get medical attention immediately; concentrated sulphuric acid causes deep, full-thickness burns.
Inhalation	Remove the casualty to fresh air and keep at rest in a half-upright position. Give oxygen if breathing is difficult; artificial respiration may be needed. Acid mist can cause delayed pulmonary oedema, so refer immediately for medical attention and observation even if the person seems to recover.
Ingestion	Rinse the mouth with water. Give NOTHING to drink and do NOT induce vomiting (ILO ICSC 0362). Do not attempt neutralisation with sodium bicarbonate or other alkalis — the reaction evolves gas and heat in a perforated or burned oesophagus. Give nothing by mouth to an unconscious person. Call a poison centre and obtain immediate medical attention. (Note: some supplier SDSs advise giving large amounts of water; the ILO ICSC position of 'give nothing to drink' is the more conservative instruction and is what this sheet follows.)

5. Fire-fighting measures

Flash point	Not flammable (not applicable). Caution: the acid liberates flammable hydrogen gas on contact with many metals, and is a powerful dehydrating agent that can char and ignite organic material
Suitable extinguishing media	Water fog, foam, dry chemical powder or carbon dioxide, chosen to suit the surrounding fire. The substance itself does not contribute fuel.
Unsuitable extinguishing media	Do not use a high-pressure water jet: it will spread the material and the fire.
Special hazards arising from the substance	Hazardous gases and decomposition products may be formed in a fire, from this substance or from its packaging and the materials stored with it. Packaging and pallets are themselves a substantial fire load. That is true even though the contents do not contribute fuel.
Advice for fire-fighters	Fire-fighters must wear self-contained breathing apparatus and full protective clothing. Keep unnecessary personnel away and upwind. Prevent firefighting run-off from entering drains, surface water or groundwater.

6. Accidental release measures

Keep unnecessary personnel away and upwind, and ventilate. Wear the protective equipment in section 8 before approaching. Stop the leak if it is safe to do so, then bund or dike the spill and prevent entry to drains, surface water and groundwater. Absorb with an inert absorbent and collect into labelled, closable containers for disposal under section 13. Do not return spilled material to the original container.

7. Handling and storage

- Carbon steel is standard for 93% acid and above, at ambient temperature and low flow velocity, because the acid passivates the surface. Dilute acid is the opposite and attacks steel aggressively, so dilutions need lined or plastic storage. Getting this wrong is the single most common storage mistake we see, so tell us the strength you are storing and in what. Keep water out — any ingress locally dilutes the acid, destroys the passive film and starts rapid corrosion at that spot.
- Even passivated, concentrated acid slowly attacks carbon steel and the reaction produces hydrogen, which collects in the tank vapour space. Sulphuric storage tanks must be vented, and no hot work — welding, cutting, grinding — goes near one until it has been gas-freed and tested. This is a repeatedly fatal scenario, not a theoretical one.

- Always add acid to water when diluting, never the reverse. The heat released is substantial and adding water to concentrated acid can flash and throw acid out of the vessel.
- 98% acid crystallises just above freezing, at roughly 0–3 °C, so a January delivery into northern India can set solid in the line. 93–94% acid stays liquid far below that and is the right winter specification if your process can take it. It is not a catalogue line but we can source it — ask before you order for a cold-weather movement.
- Class 8 corrosive, moved under hazardous-goods rules with a TREM card and trained driver. Unloading crews need full acid PPE and a working safety shower.

Storage: Store in a cool, dry, well-ventilated, bunded area in closed containers of 316L stainless steel, rubber- or PTFE-lined carbon steel, or suitable HDPE/FRP for the concentration. Keep strictly segregated from water sources, bases, metals, organics, combustibles, oxidisers, chlorates, cyanides and sulphides, and from food and feedstuffs. Protect containers from physical damage and from water ingress through vents. Provide eyewash, safety shower and spill neutralisation (soda ash or lime) at the point of use.

8. Exposure controls / personal protection

Engineering controls. Enclose every transfer, tipping, bag-slitting and sampling point and fit local exhaust extraction at each, and keep airborne concentrations below the limit in force at the place of use. Provide an eyewash within reach of the working position, and a safety shower wherever the material is classified corrosive or irritant or is handled in quantity. Do not eat, drink or smoke in the handling area; wash before breaks. Where no limit is stated above, occupational exposure limits vary by jurisdiction: check the limit in force at the place of use and the producer's sheet for the grade supplied, and record which value your assessment adopted. Select eye, skin and respiratory protection on the strength of a measured or modelled exposure assessment, not on this sheet alone.

9. Physical and chemical properties

Appearance	Odourless, colourless to pale yellow or brownish, oily, dense, hygroscopic liquid (commercial 98% is often straw-coloured from traces of iron and organics)
Physical state	Liquid
Melting / freezing point	Approx. 3 C for 98% acid (Mallinckrodt SDS, 90-100% grade). ILO ICSC 0362 quotes 10 C for concentrated acid (>51% and <100%); pure 100% H ₂ SO ₄ melts at about 10.4 C. Freezing point is very sensitive to exact strength
Boiling point	Approx. 337 C (Mallinckrodt SDS); ILO ICSC 0362 states it decomposes at 340 C, evolving SO ₃ and sulphur oxides
Relative density	1.84 g/cm ³ at 20 C (relative density 1.8 per ILO ICSC 0362)
Solubility in water	Miscible with water in all proportions; dilution is extremely exothermic and can flash-boil the water
pH	<1 (as supplied, 98%); 0.3 in 1 N aqueous solution (Mallinckrodt SDS)
Flash point	Not flammable (not applicable). Caution: the acid liberates flammable hydrogen gas on contact with many metals, and is a powerful dehydrating agent that can char and ignite organic material
Auto-ignition / ignition temperature	Not available
Explosive / dust-explosion properties	Not available
Vapour pressure	Not available
Vapour density	Not available
Partition coefficient (log Pow)	Not available
Particle characteristics	Not available

Molecular weight	98.08 g/mol
-------------------------	-------------

10. Stability and reactivity

Incompatible materials	Water (violent exotherm — always add acid to water, never water to acid); bases and alkalis including caustic soda and ammonia (violent neutralisation); metals such as iron, steel, zinc, aluminium, copper (liberates flammable hydrogen); organic materials, wood, paper, cotton, rags and other combustibles (charring and possible ignition); reducing agents; strong oxidisers; chlorates and perchlorates; permanganates; cyanides and sulphides (evolves HCN and H ₂ S); carbides; picrates; nitromethane; alcohols; amines; glycols; cellulosic materials
-------------------------------	---

Conditions to avoid	Store in a cool, dry, well-ventilated, bunded area in closed containers of 316L stainless steel, rubber- or PTFE-lined carbon steel, or suitable HDPE/FRP for the concentration. Keep strictly segregated from water sources, bases, metals, organics, combustibles, oxidisers, chlorates, cyanides and sulphides, and from food and feedstuffs. Protect containers from physical damage and from water ingress through vents. Provide eyewash, safety shower and spill neutralisation (soda ash or lime) at the point of use.
----------------------------	--

11. Toxicological information

The health hazards classified for this substance are listed in section 2, and the corresponding first-aid measures in section 4. Numerical toxicological endpoints are not reproduced here: refer to the producer's safety data sheet for the grade supplied, and to the ECHA and PubChem entries for the substance.

12. Ecological information

Where section 2 or section 14 classifies this substance as hazardous to the aquatic environment, prevent any release to drains, surface water or groundwater and treat aqueous effluent before discharge. Otherwise, refer to the producer's sheet.

13. Disposal considerations

Dispose of the substance and its container through an authorised facility under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 where the waste is scheduled under those Rules, and otherwise as non-hazardous industrial waste, in each case under the conditions of the State Pollution Control Board consent in force at the site. Whether a particular waste stream is scheduled depends on the substance and on what it has been mixed with, so classify the waste before consigning it. Do not reuse empty containers for any other purpose.

14. Transport information

UN number	UN 1830
------------------	---------

Class	8 (Corrosive)
--------------	---------------

Packing group	II
----------------------	----

Proper shipping name	SULPHURIC ACID with more than 51% acid
-----------------------------	--

15. Regulatory information

Supply in India is subject to the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 where the substance is scheduled, and to any product-specific licensing named on the product page. Classification and labelling follow the GHS as adopted in the jurisdiction of use.

Note: The UN entry changes with strength and service history: more than 51% acid is UN 1830 (Class 8, PG II); not more than 51% acid is UN 2796 SULPHURIC ACID with not more than 51% acid, or BATTERY FLUID, ACID (Class 8, PG II); spent or used acid is UN 1832 SULPHURIC ACID, SPENT; fuming acid/oleum is UN 1831 SULPHURIC ACID, FUMING, which carries a 6.1 subsidiary hazard and PG I. Do not use the UN 1830 entry for oleum. The freezing point of 98% acid is only about 3 C, so drums and lines can solidify in northern Indian winters — 93-94% acid is often supplied where freezing is a concern. Always add acid to water when diluting. The commonly quoted 'boiling point 338 C' is really the onset of decomposition, and heated concentrated acid evolves SO₃ mist that is far more hazardous by inhalation than the cold liquid.

16. Other information

Version	1.0
Date of issue	07 October 2026
Supersedes	No previous version
Regulatory basis as at the date of issue	EU CLP Regulation 1272/2008 as amended, including Annex VI harmonised classifications; UN Model Regulations and the IMDG Code Amendment 42-24, mandatory from 1 January 2026; ADR 2025; and, in India, the Manufacture, Storage and Import of Hazardous Chemical Rules 1989 and the Central Motor Vehicles Rules 1989.

How this sheet was compiled and what governs. This sheet was prepared by Velora Chemicals Private Limited as the supplier, from PubChem, the ECHA CLP inventory including Annex VI harmonised classifications, ILO International Chemical Safety Cards and published producer safety data sheets. Values that could not be confirmed from those sources are shown as "Not available" rather than estimated. **The producer's safety data sheet for the specific grade and lot supplied is the governing document** and is issued with the consignment; where the two differ, the producer's sheet prevails. This sheet carries no warranty of the properties of any particular batch. Velora Chemicals Private Limited is a bulk supplier and trader, not a manufacturer.

Sources consulted: https://chemicalsafety.ilo.org/dyn/icsc/showcard.display?p_card_id=0362&p_version=2&p_lang=en;
<https://doc.chem-lab.be/sds?client=bioblock&lang=EN&prodnr=CL002637>;
<https://www.physics.purdue.edu/primelab/safety/MSDS/SDS/sulfuric%20acid%20-%20Mallinckrodt.pdf>;
https://pubchem.ncbi.nlm.nih.gov/rest/pug_view/data/compound/1118/JSON?heading=GHS+Classification