

Phosphoric Acid

Safety data sheet in the 16-section GHS format · CAS 7664-38-2

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1. Identification of the substance and of the supplier

Product name	Phosphoric Acid
Synonyms	orthophosphoric acid, H ₃ PO ₄ , food grade phosphoric acid
C.A.S. number	7664-38-2
Molecular formula	H ₃ PO ₄
Grade supplied	85% technical & food grade
Product group	Mineral & Organic Acids
Identified uses	Food & beverage, Metal treatment, Detergents, Fertiliser, Water treatment, Pharma
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. 1B — H314 (EU harmonised, CLP Annex VI index 015-011-00-6; the Annex VI entry carries specific concentration limits, and at 85% the classification is Skin Corr. 1B); Met. Corr. 1 — H290 (supplier self-classification, not in Annex VI). Dilute phosphoric acid solutions fall to skin and eye irritant categories under the same Annex VI entry, so a diluted product is classified differently

3. Composition / information on ingredients

Substance	Phosphoric Acid
C.A.S. number	7664-38-2
Molecular weight	98.00 g/mol
Composition	85% technical & food grade

4. First-aid measures

Eye contact	Rinse immediately with plenty of gently flowing water for at least 15 minutes, holding the eyelids apart; remove contact lenses if present and easy to do, and continue rinsing. Do not use a neutralising agent. Seek medical attention immediately and continue irrigation during transport.
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Skin contact	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing, then wash with soap and water. Do not apply chemical neutralising agents without medical advice (Chem-Lab SDS). The acid is viscous and clings to skin and clothing, so irrigate generously and check under watch straps, cuffs and footwear. Get medical attention immediately.
Inhalation	Move the casualty to fresh air and keep at rest in a half-upright position. If breathing is difficult, give oxygen; if breathing has stopped, give artificial respiration. Get medical attention. Mist from heated or sprayed acid irritates the nose, throat and lungs.
Ingestion	Do NOT induce vomiting. Do not give neutralising agents. Never give anything by mouth to an unconscious person. If conscious, rinse the mouth out with water. Get medical attention immediately.

5. Fire-fighting measures

Flash point	Not flammable (not applicable). Caution: attacks many metals with evolution of flammable hydrogen gas
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, including respiratory protection, before approaching. Eliminate ignition sources and prohibit smoking before approaching. Avoid raising dust, and never blow a spilled powder down with compressed air. Dry-collect — vacuum with a HEPA-filtered unit, or sweep gently without raising dust — into labelled, closable containers for disposal under section 13. A spill inside a vessel, tank, silo, container or pit is a confined-space job: test the atmosphere and work under permit. A fine powder makes a floor slippery, especially once wet, so treat every wetted surface as slippery until it has been washed and dried. Prevent entry to drains, surface water and groundwater. Do not return spilled material to the original container; a damaged bag should be overpacked into a labelled outer rather than decanted into an unmarked one.

7. Handling and storage

- This is the one to plan for properly: 85% phosphoric acid crystallises at around 21 °C. That is not a deep-winter number — nights drop below it across northern and western India from roughly November to February, and that is when a tanker sets. It stays liquid meanwhile because it supercools, then solidifies once something seeds it. Storage and lines need tracing or heating held around 25–30 °C through those months. If you cannot do that, 75% acid stays liquid far below zero and is the right specification instead. It is not a catalogue line but we can source it — tell us your storage and we will quote the strength that will actually unload.
- 316L stainless, FRP and HDPE are the usual materials. Use 316L rather than 304 — wet-process acid carries chloride and fluoride that will pit 304. Mild steel corrodes.
- Class 8 corrosive, but it does not fume the way hydrochloric and nitric do, which makes it easier to work around. Standard acid PPE and an accessible eyewash.

Storage: Store above 20 °C (Chem-Lab SDS) in a well-ventilated area, because 85% acid crystallises at about 21 °C — heated or insulated storage, or trace heating, is normal. Use 316L stainless steel, HDPE, PE- or rubber-lined steel, FRP or glass. Keep containers tightly closed and away from strong bases, reactive metals, oxidisers, azo compounds and epoxides,

and from food and feedstuffs. Bund the area and provide eyewash and safety shower.

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	Clear, colourless, odourless, syrupy viscous liquid; technical grade may be pale straw or faintly green-tinged
Physical state	Liquid (viscous). Note that 85% acid crystallises to a solid at about 21 C
Melting / freezing point	21 C — crystallisation point of the 85% acid (Alliance Chemical and Chem-Lab SDS). Pure anhydrous H ₃ PO ₄ melts at 42 C (ILO ICSC 1008)
Boiling point	158 C for the 85% acid (Alliance Chemical and Chem-Lab SDS). ILO ICSC 1008 notes that the pure acid decomposes at 213 C
Relative density	1.685-1.692 g/cm ³ at 20 C for 85% technical grade (Alliance Chemical SDS); Chem-Lab quotes 1.71 g/mL for 85% a.r.
Solubility in water	Miscible with water in all proportions; also soluble in ethanol
pH	1.5 (0.1 N aqueous solution — Alliance Chemical SDS); <1 as supplied at 85%
Flash point	Not flammable (not applicable). Caution: attacks many metals with evolution of flammable hydrogen gas
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	98.00 g/mol

10. Stability and reactivity

Incompatible materials	Strong bases and alkalis including caustic soda (violent exothermic neutralisation); aluminium, mild steel, galvanised steel, cast iron, copper and copper alloys (attack with hydrogen evolution); strong oxidisers; strong reducing agents; azo compounds and epoxides (ILO ICSC 1008 warns the substance polymerises violently under their influence); cyanides and sulphides (evolves toxic gas); hypochlorites and chlorides; aldehydes, ketones, phenols, esters and halogenated organics (decomposition); nitromethane; alcohols
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Conditions to avoid	Store above 20 C (Chem-Lab SDS) in a well-ventilated area, because 85% acid crystallises at about 21 C — heated or insulated storage, or trace heating, is normal. Use 316L stainless steel, HDPE, PE- or rubber-lined steel, FRP or glass. Keep containers tightly closed and away from strong bases, reactive metals, oxidisers, azo compounds and epoxides, and from food and feedstuffs. Bund the area and provide eyewash and safety shower.
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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 1805
Class	8 (Corrosive)
Packing group	III
Proper shipping name	PHOSPHORIC ACID SOLUTION

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: Packing Group III, not II — this is the single most common error on phosphoric acid paperwork, because the other mineral acids on this list are PG II. The hazard also differs: 85% phosphoric acid is Skin Corr. 1B, a step less severe than the 1A classification of sulphuric, nitric and caustic. A crystallised or solid phosphoric acid product ships under a different entry, UN 3453 PHOSPHORIC ACID, SOLID, Class 8, Packing Group III (quoted on ILO ICSC 1008, which describes the solid crystalline substance, not the 85% solution — do not take the melting point of 42 C or the 3453 UN number from that card for a liquid 85% product). 85% acid crystallises at around 21 C, which is reachable in an Indian winter or an air-conditioned store; crystallisation is reversible by gentle warming and does not indicate a quality problem. 'Orthophosphoric acid' is the same substance; do not confuse with polyphosphoric or superphosphoric acid. Technical and food grades differ in arsenic, heavy metal and fluoride limits, not in hazard or transport classification.

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://docs.alliancechemical.com/sds/phosphoric-acid-85-technical-grade;>
<https://doc.chem-lab.be/sds?client=bioblock&lang=EN&prodnr=CL000605;>
https://chemicalsafety.ilo.org/dyn/icsc/showcard.display?p_card_id=1008&p_version=2&p_lang=en