SAFETY DATA SHEET

PHOSPHORIC ACID (85%, INDUSTRIAL GRADE)

CAS No.: 7664-38-2

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

PHOSPHORIC ACID (85%, INDUSTRIAL GRADE)
Ortho-Phosphoric Acid; Phosphoric Syrup
CAS: 7664-38-2

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Chemical intermediate, catalyst auxiliary, metal surface treatment/rust removal, fertilizer and industrial process applications. For industrial user only.

Uses advised against: Not for food, drug or household use. All uses not specified in this section or in section 7.3.

Supplier's details

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

Emergency phone number

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

2. HAZARDS IDENTIFICATION

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. 1B	Skin corrosion, Category 1B, H314
Eye Dam. 1	Serious eye damage, Category 1, H318

GHS label elements, including precautionary statements

GHS: Danger

Hazard statements

H314: Causes severe skin burns and eye damage.

Precautionary statements

P260: Do not breathe mist, vapors, spray.
P264: Wash exposed skin 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.
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.
P405: Store locked up.
P501: Dispose of contents/container to comply with local, state and federal regulations.

Other hazards which do not result in classification

None.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: ortho-Phosphoric Acid (H3PO4), 85% w/w aqueous solution

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 7664-38-2	Phosphoric Acid – Skin Corr. 1B: H314; Eye Dam. 1: H318 – Danger	85% (w/w) in water

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

Mixtures

Non-applicable (single substance in aqueous solution)

4. FIRST AID MEASURES

Description of necessary first-aid measures

Check the vital functions. Depending on the victim's condition: consult doctor/hospital immediately, showing the SDS of this product.

By inhalation

Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

By skin contact

Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing; do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. If burned surface > 10%: take victim to hospital.

By eye contact

Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist.

By ingestion/aspiration

Rinse mouth with water. Give lots of water to drink immediately. Do not induce vomiting. Do not give activated charcoal. Immediately consult a doctor/medical service; ingestion of large quantities requires immediate hospitalization.

Most important symptoms/effects, acute and delayed

Coughing, dry/sore throat, irritation of the respiratory tract (inhalation); caustic burns/corrosion of the skin; corrosion of eye tissue; burns to gastric/intestinal mucosa, nausea, abdominal pain, blood in vomit (ingestion). On continuous/repeated exposure: dry skin, red skin.

Indication of immediate medical attention and special treatment needed, if necessary

No additional information available.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Adapt extinguishing media to the surrounding fire.
Unsuitable: No unsuitable extinguishing media known.

Specific hazards arising from the chemical

Non-combustible (direct fire hazard). Decomposes on exposure to temperature rise, releasing toxic and corrosive gases/vapours (phosphorus oxides). Reacts with some metals on heating, releasing highly flammable hydrogen gas. Violent exothermic reaction with bases; violent to explosive reaction with strong oxidizers/reducers.

Special protective actions for fire-fighters

Cool tanks/drums with water spray or remove them to safety. Dilute toxic gases with water spray; use water moderately and collect/contain fire-fighting water where possible. Heat/fire exposure: use compressed air/oxygen apparatus.

Additional provisions

Exposure to fire/heat: keep upwind, consider evacuation, seal off low-lying areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Wear gloves, face-shield and corrosion-proof suit. Prevent dust cloud formation; no naked flames. Mark the danger area; large spills/confined spaces may require evacuation.

For emergency responders

Equip cleanup crew with proper protection. Ventilate the area.

Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

Methods and materials for containment and cleaning up

Contain released substance, pump into suitable containers (stainless steel, polyethylene or glass). Plug the leak, dam up the spill. Carefully collect spill/leftovers and take to a competent authority. Wash clothing and equipment after handling.

Reference to other sections

See section 8, Exposure controls and personal protection.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use

Remove contaminated clothing immediately. Keep the substance free from contamination. Do not discharge waste into the drain. Keep away from naked flames/heat. Observe strict hygiene.

B. Technical recommendations for the prevention of fires and explosions

Keep container tightly closed. Measure air concentration regularly. Carry operations in the open/under local exhaust ventilation or with respiratory protection.

C. Technical recommendations on general occupational hygiene

Wash exposed skin thoroughly after handling. Wash contaminated clothing before reuse. Do not eat, drink or smoke during use.

D. Technical recommendations to prevent environmental risks

Prevent soil and water pollution; do not discharge into drains.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Storage temperature	> 20°C (keep only in original container)
Suitable packaging materials	Stainless steel, polyethylene, glass
Materials to avoid	Steel, aluminium, iron

B. General conditions for storage

Store in a cool, well-ventilated place away from incompatible materials, sources of ignition and direct sunlight. Keep container closed when not in use, locked up, with restricted access.

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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Identification	Occupational Exposure Limit Type	Value
Phosphoric Acid, 85% w/w CAS: 7664-38-2	OSHA PEL (TWA)	1 mg/m³
	NIOSH REL (TWA / STEL)	1 mg/m³ / 3 mg/m³
	US IDLH	1000 mg/m³

Appropriate engineering controls

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide local exhaust or general room ventilation.

B. Respiratory protection

Where dust/mist is produced, use a dust mask with filter type P3.

C. Specific protection for the hands

Gloves giving excellent resistance: butyl rubber, natural rubber, neoprene, nitrile rubber, polyethylene, viton, PVC. Poor resistance: PVA.

D. Eye and face protection

Face shield; protective goggles where dust is produced.

E. Bodily protection

Corrosion-proof clothing; head/neck protection where dust is produced.

F. Additional emergency measures

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Environmental exposure controls

Prevent soil and water pollution; avoid release to the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Liquid
Appearance	Clear, colorless liquid
Color	Colourless
Odor	Odorless
Odour threshold	No data available
Volatility	
Boiling point at atmospheric pressure	158°C
Vapour pressure at 20°C	2.2 hPa
Evaporation rate	No data available
Product Description	
Relative density	1.7 (1685 kg/m³)
Molecular mass	98 g/mol
pH	No data available (strongly acidic)
Vapour density	No data available
Partition coefficient n-octanol/water	No data available
Solubility in water	Complete; also soluble in ethanol
Decomposition temperature	No data available
Melting point/freezing point	21°C
Flammability	
Flash Point	Not applicable
Flammability (solid, gas)	Non-flammable
Autoignition temperature	Not applicable
Lower / Upper flammability limit	No data available

Other information

Explosive properties	Not applicable
Oxidising properties	None
VOC content	Not applicable
Other properties	Substance has acid reaction

10. STABILITY AND REACTIVITY

Reactivity

Reacts exothermically with water (moisture). Decomposes on exposure to temperature rise, releasing toxic and corrosive gases/vapours (phosphorus oxides). Reacts with some metals on heating, releasing highly flammable hydrogen gas. Violent exothermic reaction with bases; violent to explosive reaction with strong oxidizers and strong reducers.

Chemical stability

Stable under normal conditions.

Possibility of hazardous reactions

Not established.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Extremely high or low temperatures	Direct sunlight	Avoid contact with water (exothermic)

Incompatible materials

Strong acids, strong bases, metals, reducing agents.

Hazardous decomposition products

Phosphorus oxides, carbon monoxide, carbon dioxide; thermal decomposition generates corrosive vapors.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Likely routes of exposure: skin and eye contact. In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result:

A. Ingestion (acute effect)

Burns to the gastric/intestinal mucosa. Nausea, abdominal pain, blood in vomit. After absorption of large quantities: shock. Acute toxicity: not classified.

B. Inhalation (acute effect)

Coughing, dry/sore throat, irritation of the respiratory tract and nasal mucous membranes. Following symptoms may appear later: respiratory difficulties, risk of lung edema.

C. Contact with skin and eyes (acute effect)

Causes severe skin burns (Skin Corr. 1B) and serious eye damage (Eye Dam. 1).

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)

Germ cell mutagenicity: not classified. Carcinogenicity: not classified. Reproductive toxicity: not classified; classification criteria not met based on available data.

E. Sensitizing effects

Respiratory or skin sensitization: not classified.

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

Not classified.

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

Not classified.

H. Aspiration hazard

Not classified.

Product-specific toxicological information

Identification	Acute Toxicity	Genus
Phosphoric Acid, 85% w/w CAS: 7664-38-2	Acute toxicity not classified; LC50 fish 138 mg/l	–

12. ECOLOGICAL INFORMATION

Mild water pollutant; may cause eutrophication.

Toxicity

Acute Toxicity	Species	Genus
LC50: 138 mg/l	Not specified	Fish

Not classified as dangerous for the ozone layer. Toxic to plankton; slightly harmful to bacteria and aquatic organisms; causes pH shift.

Persistence and degradability

Biodegradability: not applicable. No test data on mobility of the components available.

Bioaccumulative potential

Not bioaccumulative.

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
No additional information available	No additional information available	No data	No data

Results of PBT and vPvB assessment

Not established.

Other adverse effects

Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed with other waste. Recycle/reuse where possible; remove for physico-chemical/biological treatment.

Refer to national and local regulations on waste management.

14. TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR/RID)

14.1 UN number	UN1805
14.2 UN proper shipping name	PHOSPHORIC ACID SOLUTION
14.3 Transport hazard class(es)	8 (Corrosive material)
14.4 Packing group	III
14.5 Environmental hazard	No
14.6 Special precautions for user	Steel packaging must be corrosion-resistant or protected against corrosion; aluminium construction materials not authorized
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not applicable

Transport of dangerous goods by sea (IMDG)

14.1 UN number	UN1805
14.2 UN proper shipping name	PHOSPHORIC ACID SOLUTION
14.3 Transport hazard class(es)	8 (Corrosive material)
14.4 Packing group	III
14.5 Marine pollutant	No
14.6 Special precautions for user	Stow away from incompatible materials
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not applicable

Transport of dangerous goods by air (IATA/ICAO)

14.1 UN number	UN1805
14.2 UN proper shipping name	PHOSPHORIC ACID SOLUTION
14.3 Transport hazard class(es)	8 (Corrosive material)
14.4 Packing group	III
14.5 Environmental hazard	No
14.6 Special precautions for user	Passenger aircraft quantity limit 5 L; cargo aircraft only 60 L
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not applicable

15. REGULATORY INFORMATION

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

This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm. 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

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

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

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources

Supplier reference SDS for Phosphoric Acid 85% w/w (CAS 7664-38-2); publicly available GHS classification guidance.

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 | IDLH: Immediately Dangerous to Life or Health | NIOSH: National Institute for Occupational Safety and Health | OSHA: Occupational Safety and Health Administration | LC50: Lethal Concentration 50

Disclaimer: 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.

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