Material Safety Data Sheet

Phosphoric Acid, 85%

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Particular	Details
Product Name	Phosphoric acid, 85%
Catalog Codes	SLP5569, SLP4555, SLP1732
CAS#	Mixture
RTECS	Not applicable
TSCA	TSCA 8(b) inventory: Phosphoric Acid; Water
CI#	Not available
Synonym	Phosphoric Acid 85%; Phosphoric Acid; Orthophosphoric acid
Chemical Formula	Not applicable

COMPANY IDENTIFICATION

Supplier: COSMO CHEMISTRY INDIA
2ND FLOOR, PLOT NO-62/63, SHIVA PARK SOCIETY,
B/H BARODA PRISTAGE, L.H. ROAD, VARACHHA,
SURAT, GUJARAT – 395006

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2. COMPOSITION AND INFORMATION ON INGREDIENTS

Composition

Name	CAS #	% by Weight
Phosphoric Acid	7664-38-2	85 – 88
Water	7732-18-5	12 – 15

Toxicological Data on Ingredients

Phosphoric Acid:

- ORAL (LD50): Acute: 1530 mg/kg [Rat].
- DERMAL (LD50): Acute: 2740 mg/kg [Rabbit].
- DUST (LC50): Acute: > 850 mg/m³, 1 hour [Rat].

3. HAZARDS IDENTIFICATION

Potential Acute Health Effects

Very hazardous in case of:

- Skin contact (irritant)
- Eye contact (irritant)
- Ingestion

Hazardous in case of:

- Skin contact (corrosive, permeator)
- Eye contact (corrosive)

Slightly hazardous in case of:

- Inhalation (lung sensitizer)

Acute Exposure Effects

- Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract.
- Skin contact may produce burns.
- Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath.
- Severe over-exposure can result in death.
- Inflammation of the eye is characterized by redness, watering and itching.
- Skin inflammation is characterized by itching, scaling, reddening or, occasionally, blistering.

Potential Chronic Health Effects

Parameter	Information
Carcinogenic Effects	Not available
Mutagenic Effects	Not available
Teratogenic Effects	Not available
Developmental Toxicity	Not available

Chronic Exposure Effects

The substance may be toxic to:

- Blood
- Liver

- Skin
- Eyes
- Bone marrow

Repeated or prolonged exposure to the substance can produce target organ damage.

Repeated or prolonged contact with spray mist may produce:

- Chronic eye irritation
- Severe skin irritation

Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

4. FIRST AID MEASURES

Eye Contact

- Check for and remove any contact lenses.
- In case of contact, immediately flush eyes with plenty of water for at least **15 minutes**.
- Cold water may be used.
- Get medical attention immediately.

Skin Contact

- In case of contact, immediately flush skin with plenty of water for at least **15 minutes** while removing contaminated clothing and shoes.
- Cover the irritated skin with an emollient.
- Cold water may be used.
- Wash clothing before reuse.
- Thoroughly clean shoes before reuse.
- Get medical attention immediately.

Serious Skin Contact

- Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream.
- Seek immediate medical attention.

Inhalation

- If inhaled, remove to fresh air.

- If not breathing, give artificial respiration.
- If breathing is difficult, give oxygen.
- Get medical attention immediately.

Serious Inhalation

- Evacuate the victim to a safe area as soon as possible.
- Loosen tight clothing such as a collar, tie, belt or waistband.
- If breathing is difficult, administer oxygen.
- If the victim is not breathing, perform mouth-to-mouth resuscitation.

WARNING:
It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive.

- Seek immediate medical attention.

Ingestion

- Do NOT induce vomiting unless directed to do so by medical personnel.
- Never give anything by mouth to an unconscious person.
- If large quantities of this material are swallowed, call a physician immediately.
- Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion

Not available.

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5. FIRE AND EXPLOSION DATA

Parameter	Details
Flammability of the Product	Non-flammable
Auto-Ignition Temperature	Not applicable
Flash Points	Not applicable
Flammable Limits	Not applicable
Products of Combustion	Not available

Fire Hazards in Presence of Various Substances

In presence of metals.

Explosion Hazards in Presence of Various Substances

Non-explosive in presence of:

- Open flames and sparks
- Shocks

Fire Fighting Media and Instructions

Not applicable.

Special Remarks on Fire Hazards

- Reacts with metals to liberate flammable hydrogen gas.
- Formation of flammable gases with:
    - Aldehydes
    - Cyanides
    - Mercaptins
    - Sulfides

Special Remarks on Explosion Hazards

Mixtures with nitromethane are explosive. *(Phosphoric Acid)*

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6. ACCIDENTAL RELEASE MEASURES

Small Spill

- Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
- If necessary, neutralize the residue with a dilute solution of sodium carbonate.

Large Spill

- Corrosive liquid.
- Poisonous liquid.
- Stop leak if without risk.
- Absorb with **DRY earth, sand or other non-combustible material.**
- Do not get water inside container.
- Do not touch spilled material.
- Use water spray curtain to divert vapor drift.
- Use water spray to reduce vapors.
- Prevent entry into sewers, basements or confined areas; dike if needed.

- Call for assistance on disposal.
- Neutralize the residue with a dilute solution of sodium carbonate.

Be careful that the product is not present at a concentration level above TLV.

Check TLV on the MSDS and with local authorities.

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7. HANDLING AND STORAGE

Precautions

- Do not ingest.
- Do not breathe gas/fumes/vapor/spray.
- Never add water to this product.
- In case of insufficient ventilation, wear suitable respiratory equipment.
- If ingested, seek medical advice immediately and show the container or the label.
- Avoid contact with skin and eyes.
- Keep away from incompatibles such as:
    - Oxidizing agents
    - Combustible materials
    - Metals
    - Alkalis
- May corrode metallic surfaces.
- Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.

Storage

- Keep container tightly closed.
- Keep container in a cool, well-ventilated area.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Ensure that eyewash stations and safety showers are proximal to the workstation location.

Personal Protection

- Face shield

- Full suit
- Vapor respirator
- Be sure to use an approved/certified respirator or equivalent.
- Gloves
- Boots

Personal Protection in Case of a Large Spill

- Splash goggles
- Full suit
- Vapor respirator
- Boots
- Gloves

A self-contained breathing apparatus should be used to avoid inhalation of the product.

Suggested protective clothing might not be sufficient; consult a specialist **BEFORE** handling this product.

Exposure Limits

Phosphoric Acid

Parameter	Exposure Limit
ACGIH (TLV) – United States	TWA: 1 mg/m³, STEL: 3 mg/m³
OSHA (PEL) – United States	TWA: 1 mg/m³, STEL: 3 mg/m³
NIOSH	TWA: 1 mg/m³, STEL: 3 mg/m³
Mexico	TWA: 1 mg/m³, STEL: 3 mg/m³

Consult local authorities for acceptable exposure limits.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Specification
Physical State and Appearance	Liquid (Syrupy liquid, Viscous liquid)
Odor	Odorless
Taste	Acid

Property	Specification
Molecular Weight	Not applicable
Color	Clear Colorless
pH (1% solution/water)	Acidic
Boiling Point	158°C (316.4°F)
Melting Point	21°C (69.8°F)
Critical Temperature	Not available
Specific Gravity	1.685 @ 25°C (Water = 1)
Vapor Pressure	0.3 kPa (@ 20°C)
Vapor Density	3.4 (Air = 1)
Volatility	Not available
Odor Threshold	Not available
Water/Oil Distribution Coefficient	Not available
Ionicity (in Water)	Not available
Dispersion Properties	See solubility in water
Solubility	Easily soluble in hot water. Soluble in cold water.

10. STABILITY AND REACTIVITY DATA

Parameter	Details
Stability	The product is stable
Instability Temperature	Not available
Conditions of Instability	Incompatible materials

Incompatibility with Various Substances

Reactive with:

- Oxidizing agents
- Combustible materials
- Metals
- Alkalis

Corrosivity

- Extremely corrosive in presence of copper.
- Extremely corrosive in presence of stainless steel (304).
- Extremely corrosive in presence of stainless steel (316).
- Highly corrosive in presence of aluminum.
- Non-corrosive in presence of glass.

Special Remarks on Reactivity

- Reacts with metals to liberate flammable hydrogen gas.
- Incompatible with sodium tetrahydroborate producing a violent exothermic reaction.
- Heat generated with:
    - Alcohols
    - Glycols
    - Aldehydes
    - Amides
    - Amines
    - Azo-compounds
    - Carbamates
    - Caustics
    - Esters
    - Ketones
    - Phenols and cresols
    - Organophosphates
    - Epoxides
    - Combustible materials
    - Unsaturated halides
    - Organic peroxides
- Formation of flammable gases with:
    - Aldehydes
    - Cyanides
    - Mercaptins
    - Sulfides

- Formation of toxic fumes with:
  - Cyanides
  - Fluorides
  - Halogenated organics
  - Sulfides
  - Organic peroxides
- Do not mix with solutions containing bleach or ammonia.
- Incompatible with nitromethane.
- Incompatible with chlorides + stainless steel.

Special Remarks on Corrosivity

- Minor corrosive effect on bronze.
- Severe corrosive effect on brass.
- Corrosive to ferrous metals and alloys.

Polymerization

Will not occur.

11. TOXICOLOGICAL INFORMATION

Routes of Entry

- Absorbed through skin
- Dermal contact
- Eye contact
- Inhalation
- Ingestion

Toxicity to Animals

Parameter	Value
Acute Oral Toxicity (LD50)	1530 mg/kg [Rat]
Acute Dermal Toxicity (LD50)	2740 mg/kg [Rabbit]

Toxic Effects on Humans

May cause damage to the following organs:

- Blood
- Liver
- Skin
- Eyes
- Bone marrow

Other Toxic Effects on Humans

- Extremely hazardous in case of inhalation (lung corrosive).
- Very hazardous in case of:
    - Skin contact (irritant)
    - Ingestion
- Hazardous in case of:
    - Skin contact (corrosive, permeator)
    - Eye contact (corrosive)

Special Remarks on Toxicity to Animals

Not available.

Special Remarks on Chronic Effects on Humans

Not available.

Special Remarks on Other Toxic Effects on Humans

Acute Potential Health Effects

Skin

- Corrosive and causes severe skin irritation.
- Can cause severe skin burns.
- May affect behavior (somnolence or excitement) if absorbed through skin.

Eyes

- Corrosive.
- Liquid or vapor causes severe eye irritation.
- Can cause severe eye burns leading to permanent corneal damage or chemical conjunctivitis.

Ingestion

- May be harmful if swallowed.
- Causes irritation and burns of the gastrointestinal (digestive) tract.
- Causes:
    - Severe pain
    - Nausea
    - Vomiting
    - Diarrhea
    - Hematemesis
    - Gastrointestinal hemorrhaging
    - Shock
- May cause corrosion and permanent tissue destruction of the esophagus and digestive tract.
- May affect:
    - Behavior
    - Urinary system
    - Liver (hepatocellular damage, hepatic enzymes increased)
    - Blood (blood dyscrasia)

May also affect other body systems upon severe exposure.

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12. ECOLOGICAL INFORMATION

Parameter	Information
Ecotoxicity	Not available
BOD5 and COD	Not available

Products of Biodegradation

Possibly hazardous short-term degradation products are not likely. However, long-term degradation products may arise.

Toxicity of the Products of Biodegradation

The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation

Not available.

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13. DISPOSAL CONSIDERATIONS

Waste Disposal

Waste must be disposed of in accordance with:

- Federal environmental control regulations
- State environmental control regulations
- Local environmental control regulations

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14. TRANSPORT INFORMATION

Parameter	Details
DOT Classification	Class 8: Corrosive Material
Identification	Phosphoric Acid (Phosphoric Acid)
UN Number	1805
Packing Group (PG)	III
Special Provisions for Transport	Not available

15. OTHER REGULATORY INFORMATION

Federal and State Regulations

- Connecticut Hazardous Material Survey: **Phosphoric Acid**
- Illinois Toxic Substances Disclosure to Employee Act: **Phosphoric Acid**
- Illinois Chemical Safety Act: **Phosphoric Acid**
- New York Release Reporting List: **Phosphoric Acid**
- Rhode Island RTK Hazardous Substances: **Phosphoric Acid**
- Pennsylvania RTK: **Phosphoric Acid**
- Minnesota: **Phosphoric Acid**
- Massachusetts RTK: **Phosphoric Acid**
- Massachusetts Spill List: **Phosphoric Acid**
- New Jersey: **Phosphoric Acid**
- New Jersey Spill List: **Phosphoric Acid**
- Louisiana Spill Reporting: **Phosphoric Acid**
- California Director's List of Hazardous Substances: **Phosphoric Acid**
- TSCA 8(b) Inventory: **Phosphoric Acid; Water**
- SARA 313 Toxic Chemical Notification and Release Reporting: **Phosphoric Acid**
- CERCLA Hazardous Substances: **Phosphoric Acid – 5000 lbs. (2268 kg)**

Other Regulations

OSHA

Hazardous by definition of Hazard Communication Standard (**29 CFR 1910.1200**).

Other Classifications

WHMIS (Canada)

CLASS E: Corrosive Liquid.

DSCL (EEC)

- **R34** – Causes burns.
- **S26** – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- **S45** – In case of accident or if you feel unwell, seek medical advice immediately *(show the label where possible).*

HMIS (U.S.A.)

Parameter	Rating
Health Hazard	3
Fire Hazard	0
Reactivity	0

Personal Protection

- Gloves
- Full suit
- Vapor respirator
- Be sure to use an approved/certified respirator or equivalent.
- Wear appropriate respirator when ventilation is inadequate.
- Face shield.

National Fire Protection Association (U.S.A.)

Parameter	Rating
Health	3
Flammability	0

Parameter	Rating
Reactivity	0

Specific Hazard

Not specified.

Protective Equipment

- Gloves
- Full suit
- Vapor respirator
- Be sure to use an approved/certified respirator or equivalent.
- Wear appropriate respirator when ventilation is inadequate.
- Face shield.

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16. OTHER INFORMATION

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