

**Safety data sheet as per COMMISSION REGULATION (EU) No 453/2010  
of 20 May 2010 amending Regulation (EC) No 1907/2006  
Product: Polyphosphoric acid (PPA)**



**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1 Product identifier**

**Trade name: Polyphosphoric acid (PPA)**

CAS No. : 8017-16-1

EC No. : 232-417-01

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

**Relevant identified uses:** Phosphorus pentoxide is common material and reagent in chemical industry.

- Phosphorus pentoxide is widely used in the industries of medicine, coating auxiliaries, printing and dyeing auxiliaries, anti-static additive, titanate coupling agent, phosphorus oxychloride.

**Sector of use:** SU 3 industrial uses

**Environmental release category:** Manufacture (ERC1) and formulations (ERC2)

**Uses identified against:** Food additive, medicinal products

**1.3 Details of the supplier of the safety data sheet: Manufacturer/Supplier:**

Prasol Chemicals Ltd.,

Prasol House, Plot No.A-17/2/3,

T.T.C. Indl. Area, Khairne M.I.D.C.,

Navi Mumbai - 400 710.

Maharashtra, India.

Tel: +91-22-27782555

Fax: +91-22-27782430

**Further information obtainable from:**

Mr. Dhaval Parikh

e-mail:sales@prasolchem.com; inquiry@prasolchem.com

**1.4 Information in case of emergency:**

Product safety department Tel: +91-22- 27782555; Fax:+91-22- 27782430

Other Comments (e.g. language(s) of the phone service): English

**SECTION 2: Hazards identification**

**2.1 Classification of the substance or mixture**

**2.1.1 Classification according to Regulation (EC) No 1272/2008(CLP)**



GHS05 corrosion

Met. Corr. 1 H290 May be corrosive to metals.

Skin Corr. 1B H314 Causes severe skin burns and eye damage

Skin Irrit. 2 Eye Irrit. 2 10-25%

**2.1.2 Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



C; Corrosive

R34: Causes burns

Xi, R36/38 Irritating to eyes and skin

**Information concerning particular hazards for human and environment:** Not applicable

**2.2 Label elements**

**Labeling according to Regulation (EC) No 1272/2008(CLP)**

The substance is classified and labeled according to the CLP regulation.

**Hazard pictograms**



GHS05

**Signal word** Danger

**Hazard-determining components of labeling:** Void

**Hazard statements**

H314 Causes severe skin burns and eye damage

H318 Causes serious eye damage

**Precautionary statements**

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PRASOL

P260 Do not breathe dust/fume/gas/mist/vapors/spray.  
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.  
P390: Absorb spillage to prevent material damage.  
P406 Store in corrosive resistant container with a resistant inner liner.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**2.3 Other hazards**

**Results of PBT and vPvB assessment:** Not determined

**SECTION 3: Composition/information on ingredients**

**Chemical characterization:**

CAS No.	Description
8017-16-1	Polyphosphoric acid (PPA)

**Identification number(s)**

**EC Number:** 232-417-01

**Additional information:**

**Molecular Formula:**  $H_n+2P_nO_{3n+1}$

**Molecular Weight:** not applicable

**SECTION 4: First aid measures**

**4.1 General information:**

Immediately remove any clothing soiled by the product.  
Consult a physician. Show this safety data sheet to the doctor in attendance.

**After inhalation:**

Inhalation produces damaging effects on the mucous membranes and upper respiratory tract. Symptoms may include irritation of the nose and throat, and labored breathing. May cause lung edema, a medical emergency.

**After skin contact:**

Corrosive. Contact can cause severe irritation, burns, redness, and pain. Burns usually penetrate the skin with sharply defined edges, and heal slowly with the formation of scar tissue.

**After eye contact:**

Corrosive. Fumes and airborne powder cause eye irritation. Contact with substance can cause severe eye burns and permanent damage.

**After swallowing:**

Corrosive. Releases heat on contact with moisture and will burn mucous surfaces. Sore throat, abdominal pain, nausea, vomiting, and diarrhea may result. Brown or yellow stains will be found around the mouth. Suffocation may occur from swelling of the tongue. Aspiration into the lungs can cause chemical pneumonitis. Ingestion of this material has caused human fatalities.

**4.2 Most important symptoms and effects, both acute and delayed**

**Eye contact:** Inflammation of the eye is characterized by redness, watering, and itching

**Skin contact:** Inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**4.3 Indication of any immediate medical attention and special treatment needed** No further relevant information available.

**Information for doctor:** Treat symptomatically and supportively

**SECTION 5: Firefighting measures**

**5.1 Suitable extinguishing agents:** Non-flammable product, Use suitable means to extinguish neighboring fires.

**For safety reasons unsuitable extinguishing agents:** Reacts violently with water

**5.2 Special hazards caused by the substance, its products of combustion or resulting gases:**

Thermal decomposition with formation of corrosive vapour and phosphorus oxides. Forms flammable and explosive hydrogen through corrosion of metals.

**5.3 Advice for firefighters:** Reacts violently with water. Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing. Acid

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resistant clothing.

**Additional information**

Collect contaminated fire-fighting water separately. It must not enter the sewage system..

**SECTION 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas.

**6.2 Measures for environmental protection:** Do not let product enter drains.

**6.3 Methods and material for containment and cleaning up:** Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment

See Section 13 for disposal information

**SECTION 7: Handling and storage**

**7.1 Precautions for safe handling:** Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage.

**Information about fire - and explosion protection:** Isolate from incompatible substances. Reacts violently with water.

**7.2 Conditions for safe storage, including any incompatibilities:** Store in corrosive resistant stainless steel container with a resistant in-liner. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

**Incompatible materials:** Water, Nitrates, Amines, Metals, strong bases

**Information about storage in one common storage facility:** Store away from flammable substances.

**Further information about storage conditions:** Store in dry conditions. Protect from humidity and water. Keep container tightly sealed.

**Packaging material:** Recommended: Stainless steel 316 L, lined steel, Polyethylene

To be avoided: Aluminium and copper alloys, Mild steel.

**7.3 Specific end use(s)** No further relevant information available.

**SECTION 8: Exposure controls/personal protection**

**Additional information about design of technical facilities:**

Use adequate ventilation to keep airborne concentrations low.

**8.1 Control parameters**

**Ingredients with limit values that require monitoring at the workplace:** not required

**8.2 Exposure controls**

**Personal protective equipment:**

**General protective and hygienic measures:** Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Avoid contact with the eyes and skin.

**Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device

**Protection of hands:** Acid resistant gloves (PVC, neoprene)

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

**Material of gloves:** Nitrile rubber, NBR

**Penetration time of glove material:** Break through time: >480 min

**For the permanent contact gloves made of the following materials are suitable:** Nitrile rubber, NBR

**As protection from splashes gloves made of the following materials are suitable:** Nitrile rubber, NBR

**Eye protection:** Safety goggles, Face-shield, Eye wash bottle with pure water

**Body protection:** Acid resistant clothing, anti acid boots.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

<b>Appearance</b>	: clear colorless liquid
<b>Odour</b>	: odorless
<b>Odour threshold</b>	: not applicable
<b>pH</b>	: <1
<b>Melting point/Melting range</b>	: 29-53°C
<b>Boiling point/Boiling range</b>	: 300-550°C
<b>Flash point</b>	: not applicable (inorganic substance)
<b>Evaporation rate</b>	: not applicable
<b>Flammability (solid, gaseous)</b>	: not applicable
<b>Upper/lower flammability or explosive limits</b>	: not applicable
<b>Vapour pressure at 20°C</b>	: not applicable
<b>Vapour density</b>	: not determined
<b>Density at 20°C</b>	: 1.9-2.1 g/cm <sup>3</sup>
<b>Solubility in / Miscibility with water</b>	: soluble
<b>Partition coefficient (n-octanol/water)</b>	: ~-0.2 log PoW
<b>Auto-ignition temperature</b>	: no data available
<b>Decomposition temperature</b>	: not determined
<b>Viscosity</b>	: 800-2800cps
<b>Explosive properties</b>	: none
<b>Oxidising properties</b>	: none

### 9.2 Other information

No further relevant information available

## SECTION 10: Stability and reactivity

**10.1 Reactivity** Reacts violently with bases to evolve heat.

**10.2 Chemical stability** Stable under recommended storage conditions, Forms flammable and explosive hydrogen through corrosion of metals.

**10.3 Possibility of hazardous reactions** Reacts violently with bases. When diluting, always add acid to water, never reverse

**10.4 Conditions to avoid** Heat, flames and sparks

**10.5 Incompatible materials:** Water, bases (Exothermic reaction), ferrous metal, Aluminium Contact with metals liberates hydrogen gas.

**10.6 Hazardous decomposition products:** Hydrogen, by reaction with metals, Phosphorous oxides formation at high temperature.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity:

No reliable study with this product is present.)

LD50 oral 2600mg/Kg (rat ) orthophosphoric acid

Phosphoric acid is classified as corrosive to the skin, therefore, no need to perform an acute dermal and an acute inhalation toxicity tests

**Skin corrosion/irritation:** Strong caustic effect on skin and mucous membranes.

**Serious eye damage/irritation:** Strong caustic effect.

**Respiratory or skin sensitization:** No sensitizing effects known..

**Germ cell mutagenicity:** non genotoxic

**Carcinogenicity:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity:** no data available

**STOT-single exposure:** For orthophosphoric acid NOAEL- 250 mg/kg bw/day (rat)

**STOT-repeated exposure:** no data available

**Aspiration hazard:** no data available

Contact with molten substance may cause severe burns to skin and eyes.

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**Additional toxicological information:**

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

**SECTION 12: Ecological information**

**12.1 Toxicity** No reliable study with this product is present.

Phosphoric acid toxicity is related to its acidic nature and, therefore, is more related to concentration than to dose.

**Aquatic toxicity:**

EC50	48h	>100 mg/L	Daphnia magna
EC50	72h	>100mg/L	algae

**12.2 Persistence and degradability**

**Biodegradation** the substance is inorganic; therefore no biodegradation tests are applicable

**12.3 Bio accumulative potential** not expected to bioaccumulate.

**12.4 Mobility in soil** This substance is highly water soluble and dissociating.

**12.5 Results of PBT and vPvB assessment** No assessment required for inorganic substance

**12.6 Other adverse effects** Polyphosphoric acid is of low toxicity to microorganisms, since in sewage treatment plants the microorganisms are essentially exposed to mainly H<sub>2</sub>PO<sub>4</sub><sup>-</sup> and HPO<sub>4</sub><sup>-</sup> ions, which are an essential nutrient for them, and not to parent polyphosphoric acid or to low pH values

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

**Product:** Must not be disposed together with household garbage. Do not allow product to reach sewage system.

**Contaminated packaging:**

Empty containers must be decontaminated before returning for recycling. Dispose of container and unused contents in accordance with federal, state and local requirements.

**Recommended cleansing agents:** Water, carefully, if necessary together with cleansing agents

**SECTION 14: Transport information**

<b>Land Transport (ADR/RID)</b>	<b>Marine Transport (IMDG)</b>	<b>Air Transport (ICAO/ IATA)</b>
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**14.1 UN/ID Number:** 3264

**14.2 UN proper shipping name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Polyphosphoric acids)

**14.3 Transport hazard class:** 8 Corrosive substances

**14.4 Packaging group:** III

**14.5 Environmental hazards:** not a marine pollutant

**14.6 Special precautions for the user:**

**EMS Number** : F-A,S-B

**14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** no data available

**SECTION 15: Regulatory information**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

This safety datasheet complies with the requirements of COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006

**Hazard pictograms** Please refer section 2

**Signal word** Warning

**Hazard statements** Please refer section 2

**Precautionary statements** Please refer section 2

**Labeling according to EU guidelines:**

**Code letter and hazard designation of product:** please refer Section 2

**Risk phrases:** please refer Section 2.

**15.2 Chemical safety assessment** A Chemical Safety Assessment has not been carried out and shall be available at the time of REACH registration

**Substances of very high concern (SVHC) according to REACH, Article 57** The substance is not listed as SVHC.

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**SECTION 16: Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Department issuing MSDS:**

Product safety department.

**Contact:**

Tel: +91-022-27782555

Fax: +91-022-27782430

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

CAS: Chemical Abstracts Service (division of the American Chemical Society)

EC50: Half minimal response concentration

EINECS: European Inventory of Existing Commercial Chemical Substances

GHS: Globally Harmonized System of Classification and Labeling of Chemicals

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

IMDG: International Maritime Code for Dangerous Goods

LC50: Lethal concentration, 50 percent LC100: Absolute lethal concentration

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

**Sources**

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

ECHA: [http://apps.echa.europa.eu/registered/data/dossiers/DISS-dffb4072-e49b-47ae-e044-00144f67d031/DISS-dffb4072-e49b-47ae-e044-00144f67d031\\_DISS-dffb4072-e49b-47ae-e044-00144f67d031.html](http://apps.echa.europa.eu/registered/data/dossiers/DISS-dffb4072-e49b-47ae-e044-00144f67d031/DISS-dffb4072-e49b-47ae-e044-00144f67d031_DISS-dffb4072-e49b-47ae-e044-00144f67d031.html)

Sigma Aldrich:

<http://www.sigmaaldrich.com/MSDS/MSDS/DisplayMSDSPage.do?country=IN&language=en&productNumber=208213&brand=SIAL&PageToGoToURL=http%3A%2F%2Fwww.sigmaaldrich.com%2Fcatalog%2Fproduct%2Fsi al%2F208213%3Flang%3Den>

ChemIDplus: <http://chem.sis.nlm.nih.gov/chemidplus/rn/8017-16-1>

HSDB: <http://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~jKho5s:1>

**Data compared to the previous version altered.**

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- Section 2: Hazard Identification
- Section 3: Composition/information on ingredients
- Section 4: First-aid measures.
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