PRASOL CHEMICALS LIMITED
Material Safety Data Sheet
Product: Phosphorous pentoxide

1 Identification of the substance/mixture and of the company/undertaking

Product details
Trade name: Phosphorous pentoxide
CAS No.: 1314-56-3
EC No.: 215-236-1
Pre-Registration number 05-2114672531-50-0000

Application of the substance / the preparation
- Phosphorus pentoxide is usual 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.

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

Information in case of emergency:
Contact details of European importer:
Emergency telephone number:
Telephone number of EU importer:
Opening hours:
Other Comments (e.g. language(s) of the phone service): English

2 Hazards identification

Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

GHS05 corrosion

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

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

C; Corrosive

R35: Causes severe burns

Information concerning particular hazards for human and environment: Not applicable

Label elements
Labeling according to Regulation (EC) No 1272/2008

Hazard pictograms

GHS05

Signal word Danger

Hazard-determining components of labeling: Void

Hazard statements
H314 Causes severe skin burns and eye damage

Precautionary statements
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.
P310 Immediately call a POISON CENTER or doctor/physician.
P405 Store locked up
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Labeling according to EU guidelines:
The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

Code letter and hazard designation of product:

C Corrosive

Risk phrases:
35 Causes severe burns.

Safety phrases:
1/2 Keep locked up and out of the reach of children.
22 Do not breathe dust.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where

3  Chemical characterization:

Chemical characterization:
CAS No. Description
1314-56-3 Phosphorus pentoxide
Identification number(s)
EINECS Number: 215-236-1
Index number: 015-010-00-0
Additional information:
Molecular Formula: O5P2
Molecular Weight: 141.94

4  First aid measures

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.

Information for doctor: Treat symptomatically and supportively.
The following symptoms may occur:
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.

5  Firefighting measures

Revision: 14-01
Issue Date: 05.05.2014
Suitable extinguishing agents: CO2, Dry powder, sand.
For safety reasons unsuitable extinguishing agents: Foam, Water
Special hazards caused by the substance, its products of combustion or resulting gases:
Fumes from fire are hazardous. Phosphorus (V) oxide may emit toxic fumes if involved in a fire.
Protective equipment:
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe
distance or by wearing suitable protective clothing.
Additional information
Collect contaminated fire-fighting water separately. It must not enter the sewage system.

6 Accidental release measures

Person-related safety precautions:
Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.
Evacuate personnel to safe areas.
Measures for environmental protection: Do not let product enter drains.
Measures for cleaning/collecting:
Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.
Additional information:
Refer to section 8 and 13 for additional information on personal protection equipment and disposal methods

7 Handling and storage

Handling:
Information 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.
Storage:
Requirements to be met by storerooms and receptacles:
Mild steel is the preferred material of construction of process equipment, storage or shipping containers when the
product is kept dry.
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.
Specific applications
- Phosphorus pentoxide is usual 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.

8 Exposure controls/personal protection

Additional information about design of technical facilities:
Use adequate ventilation to keep airborne concentrations low.
Ingredients with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>1314-56-3</th>
<th>Phosphorus pentoxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOELV (EU)</td>
<td>1 mg/m³</td>
</tr>
</tbody>
</table>

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:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

**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:**

Tightly sealed goggles

**Body protection:** Protective work clothing.

### 9 Physical and chemical properties

**General Information**

**Appearance:**
- Form: Solid
- Color: White
- Odor: Pungent, sharp, irritating odor

**Change in condition**
- Melting point/Melting range: 340-360°C
- Boiling point/Boiling range: 360°C

**Flammability (solid, gaseous):**
- Product is not flammable

**Danger of explosion:**
- Product does not present an explosion hazard

**Vapor pressure at 20°C:** 0.1 hPa

**Density at 20°C:** 2.39 g/cm³

**Solubility in / Miscibility with water:** Exothermic reaction with water

### 10 Stability and reactivity

**Thermal decomposition / conditions to be avoided:**
React violently with water to evolve heat, dangerous fire risk. Absorbs moisture from air with avidity, forming meta-poly or orthophosphoric acid depending upon condition of absorption.

**Materials to be avoided:**
- Metals, bases, ammonia, calcium oxide, chlorine trifluoride, oxygen difluoride, sodium carbonate, sodium hydroxide, potassium, sodium, sulfides (inorganic, e.g. ferric sulfide, lead sulfide, sodium sulfide), may react with copper, rubber, and plastic, bromine pentafluoride, perchloric acid, iodides.

**Dangerous reactions**
- Oxides of phosphorus, phosphorous fumes with the appropriate conditions it undergoes hazardous reactions with formic acid inorganic bases; iodides; methyl hydroperoxide; 3-propynol. Calcium oxide or sodium hydroxide reacts with phosphorus pentoxide extremely violently when initiated by local heating.

**Dangerous decomposition products:**
- Metal oxide fume. Oxides of phosphorus, phosphorous fumes. When heated to decomposition it emits toxic fumes of phosphoxides.

### 11 Toxicological information

**Acute toxicity:**

| LD/LC50 values relevant for classification | }
Inhalative LC50

1217 mg/cu m/1 hr (rat)
1689 mg/cu m/1 hr (rabbit)
271 mg/cu m/1 hr (mouse)

**Primary irritant effect:**
**on the skin:** Strong caustic effect on skin and mucous membranes.
**on the eye:** Strong caustic effect.
**Sensitization:** Sensitization possible through skin contact.

**Subacute to chronic toxicity:**
- Inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns, or death.
- Fire will produce irritating, corrosive and/or toxic gases.
- Reaction with water may generate much heat which will increase the concentration of fumes in the air.
- Contact with molten substance may cause severe burns to skin and eyes.

**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.

---

**12 Ecological information**

**Additional ecological information:**

**General notes:**
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Must not reach sewage water or drainage ditch undiluted or un-neutralized.

**Results of PBT and vPvB assessment**
To be provided after the REACH registration

---

**13 Disposal considerations**

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

**Un cleaned packaging:**
**Recommendation:** Empty containers must be decontaminated before returning for recycling as the containers of this material may be hazardous when empty since they retain product residues (dust, solids). Dispose of container and unused contents in accordance with federal, state and local requirements.

---

**14 Transport information**

**Land transport ADR/RID (cross-border)**

**ADR/RID class:** 8 Corrosive substances.
**Danger code (Kemler):** 80
**UN-Number:** 1807
**Packaging group:** II
**Hazard label:** 8
**Description of goods:** 1807 PHOSPHORUS PENTOXIDE
**Tunnel restriction code:** E

**Maritime transport IMDG:**

**IMDG Class:** 8
**UN Number:** 1807
Label 8
Packaging group: II
EMS Number: F-A,S-B
Marine pollutant: No
Segregation groups Acids
Proper shipping name: PHOSPHORUS PENTOXIDE

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 8
UN/ID Number: 1807
Label 8
Packaging group: II
Proper shipping name: PHOSPHORUS PENTOXIDE

UN "Model Regulation": UN1807, PHOSPHORUS PENTOXIDE, 8, II

15 Regulatory information

Labeling according to Regulation (EC) No 1272/2008
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.
Chemical safety assessment A Chemical Safety Assessment has not been carried out and shall be available at the time of REACH registration
National regulations:
Other regulations, limitations and prohibitive regulations
Substances of very high concern (SVHC) according to REACH, Article 57
The substance is not listed as SVHC.

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)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
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)
GHS: Globally Harmonized System of Classification and Labeling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PRASOL CHEMICALS LIMITED
Material Safety Data Sheet
Product: Phosphorous pentoxide

Sources
Sciencelab MSDS http://www.sciencelab.com/xMSDS-Phosphorus_pentoxide-9927395
Chem ox MSDS http://msds.chem.ox.ac.uk/PH/phosphorus_pentoxide.html
Avogadro MSDS http://avogadro.chem.iastate.edu/MSDS/P2O5.htm
Fisher MSDS https://fisherimage.fishersci.com/msds/98838.htm
Caledonlabs MSDS http://www.caledonlabs.com/upload/msds/5560-1e.pdf
Chemcas http://www.chemcas.com/material/cas/archive/1314-56-3_v1.asp
Thermphos http://www.thermphos.com/Home/Products/PandP%20Derivatives/P2O5.aspx
Carolina MSDS http://www.carolina.com/category/teacher+resources/material+data+safety+sheets+(msds)/msds+p-r+phosphorus+pentoxide.do
Wku MSDS http://www.wku.edu/msds/docs/2879.pdf
MSDS haz http://www.msdshaz.com/MSDS/A/ARCHIVE/WCD00007/WCD00714.HTM
ohiolink http://etd.ohiolink.edu/sendpdf.cgi/Porter%20Scott%20Andrew.pdf?miami1218577319
Cameochemicals http://cameochemicals.noaa.gov/chemical/4233
Emdchemicals www.emdchemicals.com/.../ViewProductDocuments-File?
Jibaker MSDS http://www.jibaker.com/msds/englishhtml/P4116.htm
Thermphos MSDS http://www.thermphos.com/en/Products/PandP%20Derivatives/P2O5/-/media/Pdf/msds/P_and_P_derivatives/ P2O5_V1.0_EN%20pdf.ashx

Data compared to the previous version altered.
• Section 1: Identification of the substance/mixture and of the company/undertaking
• Section 2: Hazard Identification
• Section 3: Composition/information on ingredients
• Section 4: First-aid measures.
• Section 5: Fire-fighting measures
• Section 6: Accidental Release measures
• Section 7: Handling and storage.
• Section 8: Exposure Controls/Personal protection.
• Section 9: Physical and Chemical properties.
• Section 10: Stability and Reactivity.
• Section 11: Toxicological Information.
• Section 12: Ecological Information.
• Section 13: Disposal consideration
• Section 14: Transport information
• Section 15: Regulatory information