

SAFETY DATA SHEET

Preparation Date: 8/1/2017

Revision Date: 8/1/2017

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: P1125
Product Name: PHOSPHORUS PENTOXIDE, REAGENT, ACS

Other means of identification

Synonyms: Diphosphorus pentoxide
 Phosphorus(V) oxide
 Phosphoric acid anhydride
 Phosphoric anhydride

CAS #: 1314-56-3
RTECS # TH3945000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Laboratory reagent. In fire extinguishing media. In organic synthesis. In flame-retardant products. Drying agent. Dehydrating agent.

Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000.

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300

Contact Person: Martin LaBenz (West Coast)

Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Acute toxicity - Inhalation (Dusts/Mists)	Category 2
Skin corrosion/irritation	Category 1 Sub-category A
Serious eye damage/eye irritation	Category 1

Label elements

Danger

Hazard statements

Fatal if inhaled
 Causes severe skin burns and eye damage



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Reacts with water to evolve heat

Precautionary Statements - Prevention

Do not breathe dust/fume/gas/mist/vapors/spray

Use only outdoors or in a well-ventilated area

Wear respiratory protection

Wash face, hands and any exposed skin thoroughly after handling

Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response

Immediately call a POISON CENTER or doctor/physician

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %
Phosphorus Pentoxide	1314-56-3	100

4. FIRST AID MEASURES

First aid measures

General Advice:

National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.

Skin Contact: Wash off immediately with soap and plenty of water. Remove all contaminated clothes and shoes. Continue flushing with plenty of water for at least 15 minutes. Immediate medical attention is required. Call a physician immediately.

Eye Contact: Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. Call a physician immediately.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

Symptoms Severe skin and eye irritation or burns. Causes digestive (gastrointestinal) tract irritation. May cause abdominal pain, nausea, vomiting, diarrhea. May cause gastrointestinal (digestive) tract burns. Can burn mouth, throat, and stomach. Irritating to respiratory system. May cause pulmonary edema. May cause coughing and shortness of breath.

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically.

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

Unsuitable Extinguishing Media: Water.

Specific hazards arising from the chemical

Hazardous Combustion Products: If it is involved in a fire the following can be released:
Oxides of phosphorus.

Specific hazards: It is not flammable. However, it can cause high local temperatures in contact with water and the heat generated may be enough to ignite other materials.

Special Protective Actions for Firefighters

Specific Methods: No information available.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Sweep up and shovel. Use appropriate tools to put the spilled solid in a suitable waste disposal container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Do not ingest. Do not breathe dust. Keep away from heat and sources of ignition. Protect from moisture. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Protect from moisture. Moisture sensitive. Store away from incompatible materials.

Incompatible Materials:

Water
Bases
Sodium hydroxide
Calcium hydroxide
Strong oxidizing agents
Ammonia
Alcohols
Strong acids
Metals

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	CAS-No.	OSHA	NIOSH	ACGIH	AIHA WHEEL
Phosphorus Pentoxide	1314-56-3	None	None	None	None

Canada

Components	CAS-No.	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Phosphorus Pentoxide	1314-56-3	None	None	None	None

Australia and Mexico

Components	CAS-No.	Australia	Mexico
Phosphorus Pentoxide	1314-56-3	None	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Goggles

Skin and body protection: Chemical resistant apron
Long sleeved clothing
Gloves

Respiratory protection: Effective dust mask. Use a dust respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds), inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent.

Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands and face before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:

Solid

Appearance:

Crystalline powder.

Color:

White.

Odor:

Slight. phosphorus-like.

Taste

No information available.

Formula:

P2O5

Molecular/Formula weight:

141.94

Flammability:

No information available

Flashpoint (°C/°F):

No information available.

Flash Point Tested according to:

Not available

Autoignition Temperature (°C/°F):

No information available

Lower Explosion Limit (%):

No information available

Upper Explosion Limit (%):

No information available

Melting point/range(°C/°F):

340 °C/644 °F

Decomposition temperature(°C/°F):

No information available

Boiling point/range(°C/°F):

Product code: P1125

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Sublimation Temp.: 360 °C/680 °F

Bulk density:
No information available

Density (g/cm³):
No information available

Specific gravity:
2.3-2.39

pH:
No information available

Vapor pressure @ 20°C (kPa):
No information available

Evaporation rate:
No information available

Vapor density:
4.9

VOC content (g/L):
No information available

Odor threshold (ppm):
No information available

Partition coefficient (n-octanol/water):
No information available

Viscosity:
No information available

Miscibility:
No information available

Solubility:
Insoluble in Acetone
Soluble in Sulfuric acid
Hydrolyzes in water

10. STABILITY AND REACTIVITY

Reactivity

Addition of Phosphorus Pentoxide to Propargyl alcohol causes the alcohol to burst into flames. It reacts violently with water to form Phosphoric acid

Exothermic hydrolysis by water to form Phosphoric acid

A violent explosion occurs if a solution of Perchloric acid in Chloroform is poured on Phosphorus Pentoxide

Chlorine Trifluoride produces a violent reaction without flame in the presences of Phosphorus Pentoxide

Calcium Hydroxide or Sodium Hydroxide reacts with Phosphorus Pentoxide extremely violently when initiated by local heating

The reaction of Sodium Carbonate and Phosphorus Pentoxide, ignited by local heating, can generate relatively high temperatures

Chemical stability

Stability: Moisture Sensitive. Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Incompatible materials. Exposure to water. Exposure to moisture.

Incompatible Materials: Water
Bases
Sodium hydroxide
Calcium hydroxide
Strong oxidizing agents
Ammonia
Alcohols
Strong acids
Metals

Hazardous decomposition products: When heated to decomposition it emits toxic fumes. Phosphorus oxides.

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product code: P1125

Product name: PHOSPHORUS
PENTOXIDE, REAGENT, ACS

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Principal Routes of Exposure:

Ingestion. Inhalation.

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document
Component Information

Phosphorus Pentoxide	
CAS-No.	1314-56-3

LD50/oral/rat = No information available
LD50/oral/mouse = No information available
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = 1217 mg/m³ Inhalation LC50 Rat 1 h
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = No information available

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = 1217 mg/m³ (1-hr)

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes severe irritation and burns.

Eye Contact: Causes severe irritation and burns. Can cause permanent blue-white opacities on the cornea when particles of the solid phosphorus pentoxide come into contact with the eyes.

Inhalation Causes respiratory tract (nose, throat, lung) irritation with coughing and shortness of breath. It may cause pulmonary edema. Symptoms may include burning sensation, coughing and sore throat.

Ingestion Causes digestive (gastrointestinal) tract irritation. Causes digestive or gastrointestinal tract burns. May cause abdominal pain, nausea, vomiting, diarrhea. Symptoms may include a burning sensation in the mouth, throat, and

stomach.

Aspiration hazard No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Prolonged or repeated inhalation may cause bronchitis with coughing, phlegm, and/or shortness of breath. Prolonged or repeated inhalation of phosphorus fumes may cause bronchitis, anemia, cachexia and mandibular necrosis ("phossy" or Lucifer's jaw").

Sensitization: No information available.

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic.

Components	CAS-No.	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Phosphorus Pentoxide	1314-56-3	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Target Organs: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available.

Mobility: No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	CAS-No.	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Phosphorus Pentoxide	1314-56-3	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1807
Proper Shipping Name: Phosphorus pentoxide
Hazard Class: 8
Subsidiary Class No information available
Packing group: II
Emergency Response Guide Number 137
Marine Pollutant No data available
DOT RQ (lbs): No information available
Special Provisions A7, IB8, IP2, IP4, N34, T3, TP33
Symbol(s): No information available
Description: UN1807, Phosphorus pentoxide, 8, II

TDG (Canada)

UN-No: UN1807
Proper Shipping Name: Phosphorus pentoxide
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant No Information available
Description: UN1807, Phosphorus pentoxide, 8, II

ADR

UN-No: UN1807
Proper Shipping Name: Phosphorus pentoxide
Hazard Class: 8
Packing Group: II
Subsidiary Risk: No information available
Description: UN1807, Phosphorus pentoxide, 8, II

IMO / IMDG

UN-No: UN1807
Proper Shipping Name: Phosphorus pentoxide
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant No information available
EMS: F-A
Description UN1807, Phosphorus pentoxide, 8, II

RID

UN-No: UN1807
Proper Shipping Name: Phosphorus pentoxide

Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Description: UN1807, Phosphorus pentoxide, 8, II

ICAO

UN-No: UN1807
Proper Shipping Name: Phosphorus pentoxide
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Description: UN1807, Phosphorus pentoxide, 8, II

IATA

UN-No: UN1807
Proper Shipping Name: Phosphorus pentoxide
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
ERG Code: 8W
Special Provisions No information available
Description: UN1807, Phosphorus pentoxide, 8, II

15. REGULATORY INFORMATION

International Inventories

Components	CAS-No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Phosphorus Pentoxide	1314-56-3	Present	Present KE-12129	Present	Present (1)-523	Present	Present	Present 215-236-1

U.S. Regulations

Phosphorus Pentoxide

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: SN 1517
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List Present
New York Release Reporting - List of Hazardous Substances:
 1 lb RQ

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	CAS-No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Phosphorus Pentoxide	1314-56-3	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CAS-No.	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis

Phosphorus Pentoxide	1314-56-3	None	None	None	None	None
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U.S. TSCA

Components	CAS-No.	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Phosphorus Pentoxide	1314-56-3	Not Applicable	Not Applicable

Canada

WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

Component
Phosphorus Pentoxide
1314-56-3 (100)

WHMIS 2015 Hazard Classification
Health Hazard Not Otherwise Classified - Category 1: Causes severe damage to the respiratory tract; Skin corrosion/irritation - Category 1: H314 Causes severe skin burns and eye damage.; Serious Eye Damage/Eye Irritation - Category 1: H318 Causes serious eye damage.

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

WHMIS 1988 Hazard Class

The classification of this product has not been validated yet

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
Phosphorus Pentoxide	1 %

Inventory

Components	CAS-No.	Canada (DSL)	Canada (NDSL)
Phosphorus Pentoxide	1314-56-3	Present	Not Listed

Components	CAS-No.	CEPA Schedule I - Toxic Substances
Phosphorus Pentoxide	1314-56-3	Not listed
Components	CAS-No.	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Phosphorus Pentoxide	1314-56-3	Not listed

EU Classification

EU GHS - SV - CLP 1272/2008

Components	CAS-No.	EU GHS - SV - CLP (1272/2008)
Phosphorus Pentoxide	1314-56-3	Skin corrosion/irritation - Skin Corr. 1A: H314 Causes severe skin burns and eye damage.015-010-00-0

EU - CLP (1272/2008)

R-phras(e)s

R35 - Causes severe burns.

Product code: P1125

Product name: PHOSPHORUS
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S -phrase(s)

S22 - Do not breathe dust.

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).

S 1/2 - Keep locked up and out of the reach of children.

Components	CAS-No.	Classification	Concentration Limits:	Safety Phrases
Phosphorus Pentoxide	1314-56-3	C; R35	No information	S1/2 S22 S26 S45

The product is classified in accordance with Annex VI to Directive 67/548/EEC**Indication of danger:**

C - Corrosive.

**16. OTHER INFORMATION**

Preparation Date: 8/1/2017
Revision Date: 8/1/2017
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet