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Material Safety Data Sheet

Phosphorus Pentasulfide

Section 1 - Product Identification

Synonyms : Diphosphorus Pentasulfide
Molecular Weight : 444.555 g/mol
Chemical Formula : P2S5
Company Identification : Tradeasia International Pte. Limited
Address : 133 Cecil Street # 12-03 Keck Seng Tower, Singapore
Tel: +65-6227 6365
Fax: +65-6225 6286
Email: contact@chemtradeasia.com
Recommended use of the chemical and restrictions on use
The product is used in:
- Fertilizer
- Baking Powder

Section 2 – Composition/Information on Ingredients

The product contains greater than 90 percent (%) Single Super Phosphate

Chemical Name	CAS No	Purity, %
Phosphorus Pentasulfide	1314-80-3	min. 95

Section 3 – Hazards Identification

3.1 Classification of the substance according to GHS
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)
3.2 Other hazards
Hazard statement
Flammable solid
May form combustible dust concentrations in air
In contact with water releases flammable gases which may ignite spontaneously
Harmful if swallowed
Harmful if inhaled
Swallowed
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Eye
Dry material may cause slight irritation to the eyes, skin, nose and throat.
Skin
Brush off loose particles from skin. Immerse in cool water/wrap with wet bandages
Inhaled
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Chronic Health Effects

No information is available

Section 4 – First-Aid Measures

4.1. Description of first aid mesaures

Skin contact

Immediate medical attention is required. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Ingestion

Do not induce vomiting. Call a physician or Poison Control Center immediately. Immediate medical attention is required. Remove from exposure, lie down. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person.

Inhalation

Move to fresh air. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give 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. If not breathing, give artificial respiration. Call a physician or Poison Control Center immediately.

Note to physicians

Treat symptomatically

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

Breathing difficulties. May cause pulmonary edema: Symptoms may be delayed

4.3. Indication of any immediate medical attention and special treatment needed

Breathing difficulties. May cause pulmonary edema: Symptoms may be delayed

Section 5 – Fire Fighting Measures

5.1. Suitable Extinguishing media

Cool closed containers exposed to fire with water spray. CO 2, dry chemical, dry sand, alcohol-resistant foam.

5.2. Specific hazards arising from the chemical

Flammable. Containers may explode when heated. Contact with water liberates toxic gas. May form explosive mixtures with air. Produce flammable gases on contact with water. Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes. Contact with water liberates toxic gas. Do not allow run-off from fire fighting to enter drains or water courses. Fine dust dispersed in air may ignite.

5.3. Special protective actions for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

5.4 Flash Point

Not applicable

Section 6 – Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Remove all sources of ignition. Take precautionary measures against static discharges. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and material for containment and cleaning up

Small Spill

Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Do not expose spill to water.

Large Spill

Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Do not expose spill to water.

Section 7 – Handling and Storage

7.1. Precautions for safe Handling

Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation. Keep away from open flames, hot surfaces and sources of ignition. Do not taste or swallow. Do not allow contact with water

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat and sources of ignition. Keep in properly labeled containers. Never allow product to get in contact with water during storage. Keep away from water.

7.3 Ventilation

Local exhaust or other ventilation that will reduce dust concentrations to less than the recommended Permissible Exposure Limit

Section 8 – Exposure Controls/Personal Protection

8.1. Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

8.2. Appropriate engineering controls

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

8.3. Individual protection measures, such as personal protective equipment (PPE)

Respiratory protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Eyes and hands protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Tightly fitting safety goggles. Face-shield.

Wear appropriate protective gloves and clothing to prevent skin exposure. impervious clothing. Chemical resistant apron. Boots. Impervious gloves

Section 9 – Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State Solid
Appearance Yellow
Odor Stench
Odor Threshold No information available
pH 1 10 g/L (20°C)
Melting Point/Range 286 - 290 °C / 546.8 - 554 °F
Boiling Point/Range 514 °C / 957.2 °F @ 760 mmHg
Flash Point > 100 °C / > 212 °F
Evaporation Rate Not applicable
Flammability (solid,gas) No information available
Flammability or explosive limits
Upper No data available
Lower No data available

Vapor Pressure 1 mmHg @ 300 °C
Vapor Density Not applicable
Specific Gravity 2.080
Solubility Insoluble in cold water
Partition coefficient; n-octanol/water No data available
Autoignition Temperature 282 °C / 539.6 °F
Decomposition Temperature No information available
Viscosity Not applicable
Molecular Formula P4 S10
Molecular Weight 444.48

Section 10 – Stability and Reactivity

10.1. Conditions Contribute to Instability
Hazardous Decomposition Products Hydrogen sulfide (H2S), Sulfur oxides, Oxides of phosphorus
Hazardous Polymerization Hazardous polymerization does not occur. Hazardous Reactions Contact with water liberates toxic gas.

10.2 Storage Incompatibility
NA

10.3 Conditions to Avoid
Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition. Avoid dust formation. Exposure to moist air or water. Exposure to air or moisture over prolonged periods. Exposure to moisture.

Section 11 – Toxicological Information

11.1. Information on toxicological effect
NA

11.1.1. Substances
Acute toxicity[2]

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Phosphorus pentasulfide	791 mg/kg (Rat) 389 mg/kg (Rat)	3160 mg/kg (Rabbit)	Not listed

Skin corrosion / irritation
May cause skin and eye irritation

Serious eye damage/ irritation
May cause skin and eye irritation

Respiratory or skin sensitization
No information available

Germcell mutagenicity
NA

Carcinogenicity
NA

Reproductive toxicity
No information available.

STOT-single exposure
Shall not be classified as a specific target organ toxicant (single exposure).

STOT-repeated exposure
Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration Hazard
Shall not be classified as presenting an aspiration hazard.

Section 12 – Ecological Information

12.1.Toxicity

Very toxic to aquatic organisms. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Phosphorus pentasulfide	Not listed	Not listed	Not listed	EC50 = 0.16 mg/L (48h)

12.2. Persistence and degradability

Persistence is unlikely based on information available. Soluble in water

12.3. Bioaccumulative potential

Data are not available.

12.4. Mobility in soil

Is not likely mobile in the environment. Will likely be mobile in the environment due to its water solubility.

12.5. Other adverse effects

Data are not available.

Section 13 – Disposal Considerations

13.1. Disposal methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

Section 14 – Transport Information

DOT

UN-No UN1340
Proper Shipping Name PHOSPHORUS PENTASULFIDE
Hazard Class 4.3
Subsidiary Hazard Class 1
Packing Group II

TDG

UN-No UN1340
Proper Shipping Name PHOSPHORUS PENTASULFIDE
Hazard Class 4.3
Subsidiary Hazard Class 4.1
Packing Group II

IATA

UN-No UN1340
Proper Shipping Name PHOSPHORUS PENTASULPHIDE
Hazard Class 4.3
Subsidiary Hazard Class 4.1
Packing Group II

IMDG/IMO

UN-No UN1340
Proper Shipping Name PHOSPHORUS PENTASULPHIDE
Hazard Class 4.3
Subsidiary Hazard Class 4.1
Packing Group II

Section 15 – Regulatory Information

15.1. Safety, health and environmental regulations

Not listed

Section 16 : Additional Information

16.1. Mainly changes made to the previous version of this Material Safety Data Sheet (MSDS):

• This MSDS complies with ISO 11014; the requirements of UN-GHS

Revision No	Revision content
05	• This SDS is updated in accordance with the GHS (Rev.6) (2015)-Guidance on the Compilation of Safety data Sheets.

16.2. List of abbreviation and acronyms used in this MSDS
SDS : Safety Data Sheets
Index N° : atomic number of the element most characteristic of the properties of the substance
CAS No : Chemical Abstracts Service number
EC No : EINECS Number : European Inventory of Existing Commercial Substances
Repr. Cat. 2 : Substance presumed human reproductive toxicant
Acute Oral Cat. 5 : Substance which is of relatively low acute oral toxicity.
GHS : Globally Harmonised System of Classification and Labelling
LD_{50} : Median Lethal Dose
LC_{50} : Lethal Concentration, 50%
N.A. : Not Applicable
OSHA : Occupational Safety & Health Administration
Cal OSHA : The State of California Division of Occupational Safety and Health (DOSH)
PEL : Permissible Exposure Limits
ACGIH : American Conference of Governmental Industrial Hygienists
TLV : Threshold Limit Value
Japanese MITI : Japanese Ministry of International Trade and Industry
EC_{50} : Half maximal effective concentration
UN : United Nations
U.S. EPA TSCA Inventory: Inventory of the chemical substances manufactured or processed in the United States according to Toxic Substances Control Act compiled and published under the autority of the Environmental Protection Agency
Canadian DSL: Canadian Domestic Substances List
16.3. List of relevant hazard statements and precautionary statements used in this MSDS
Hazard Statement
H361 d: Suspected of damaging the unborn child
H319: Causes serious eye irritation
H303: May be harmful if swallowed
Precautionary Statements
Prevention
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P281: Use personal protective equipment as required.
P264: Wash eyes thoroughly after handling.
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P308 + P313: If exposed or concerned: get medical advice/attention.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/attention.
Storage
P405: Store locked up.
Disposal

P501: Dispose of contents/container to in accordance with local regulations.

16.4. References

16.5. Disclaimer of Liability

The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its accuracy, reliability or completeness. The conditions or methods of handling, storage use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. It is the user's responsibility to satisfy himself as to the suitableness and completeness of such information for his own particular use.

This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable.