

## 1. Material Identification

**Product Name** : Lead phosphate

**Catalog Number** : io-2563

**CAS Number** : 7446-27-7

**Identified uses** : Laboratory chemicals, manufacture of chemical compounds

**Company** : IonZ

>> R&D Use only

## 2. Hazards Identification

### GHS Classification:

Flammable liquid ( category 2 )

Acute toxicity, oral (Category 3)

Acute toxicity, dermal (Category 3)

Acute toxicity, inhalation (Category 3)

Specific target organ toxicity, single exposure (Category 1)

### Pictogram(s)



### GHS Hazard Statements

>> H341: Suspected of causing genetic defects [Warning Germ cell mutagenicity]

>> H351: Suspected of causing cancer [Warning Carcinogenicity]

>> H360Df: May damage the unborn child; Suspected of damaging fertility [Danger Reproductive toxicity]

>> H373: May causes damage to organs through prolonged or repeated exposure [Warning Specific target organ toxicity, repeated exposure]

>> H410: Very toxic to aquatic life with long lasting effects [Warning Hazardous to the aquatic environment, long-term hazard]

### Precautionary Statement Codes

>> P203, P260, P273, P280, P318, P319, P391, P405, and P501

### Health Hazards:

>> Excerpt from ERG Guide 151 [Substances – Toxic (Non-Combustible)]:

>> Highly toxic, may be fatal if inhaled, ingested or absorbed through skin. Avoid any skin contact. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause environmental contamination. (ERG, 2024)

>> Excerpt from ERG Guide 151 [Substances – Toxic (Non-Combustible)]:

>> Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Containers may explode when heated. Runoff may pollute waterways. (ERG, 2024)

### 3. Composition/Information On Ingredients

**Chemical name** : Lead phosphate  
**CAS Number** : 7446-27-7  
**Molecular Formula** : O8P2Pb3  
**Molecular Weight** : 810.0000 g/mol

### 4. First Aid Measures

#### First Aid:

- >> Excerpt from ERG Guide 151 [Substances – Toxic (Non-Combustible)]:
- >> Refer to the "General First Aid" section. (ERG, 2024)

### 5. Fire Fighting Measures

- >> Excerpt from ERG Guide 151 [Substances – Toxic (Non-Combustible)]:
- >> SMALL FIRE: Dry chemical, CO2 or water spray.
- >> LARGE FIRE: Water spray, fog or regular foam. If it can be done safely, move undamaged containers away from the area around the fire. Dike runoff from fire control for later disposal. Avoid aiming straight or solid streams directly onto the product.
- >> FIRE INVOLVING TANKS, RAIL TANK CARS OR HIGHWAY TANKS: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks in direct contact with flames. For massive fire, use unmanned master stream devices or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2024)

### 6. Accidental Release Measures

#### Isolation and Evacuation:

Isolation and evacuation measures to take when a large amount of this chemical is accidentally released in an emergency.

- >> Excerpt from ERG Guide 151 [Substances – Toxic (Non-Combustible)]:
- >> IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- >> SPILL: Increase the immediate precautionary measure distance, in the downwind direction, as necessary.
- >> FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

### 7. Handling And Storage

#### Storage Conditions:

- >> Lead phosphate must be stored to avoid contact with oxidizers (such as perchlorates, peroxides, permanganates, chlorates, and nitrates) and chemically active metals (such as potassium, sodium, magnesium, and zinc) since violent reactions occur. A regulated, marked area should be established where this chemical is handled, used, or stored ...

### 8. Exposure Control/ Personal Protection

>> 0.05 [mg/m<sup>3</sup>], as Pb

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### Acceptable Daily Intakes:

An estimate of the amount of a chemical in food or drinking water that can be consumed daily over a lifetime without presenting an appreciable risk to health. It is usually expressed as milligrams of the substance per kilogram of body weight per day and applies to chemicals such as food additives, pesticide residues and veterinary drugs.

>> Tolerable intake of lead for preschool children should be less than the 3 mg/wk recommended provisionally for adults. ...  
/Inorganic lead/

### Exposure Control and Personal Protection

#### Exposure Summary

>> Biological Exposure Indices (BEI) [ACGIH] - Lead in blood = 200 ug/L (20 ug/100 ml); sampling time not critical; [ACGIH]

## 9. Physical And Chemical Properties

### Molecular Weight:

>> 8.1e+02

### Exact Mass:

>> 811.83461

### Physical Description:

>> Lead phosphate is a white powder.

### Color/Form:

>> White powder

### Melting Point:

>> 1,014 °C

### Solubility:

>> Insol in alcohol; sol in nitric acid, fixed alkali hydroxides

### Density:

>> 6.9 g/cu cm

### Decomposition:

>> When heated to decomp ... emits very toxic fumes of /lead and phosphorus oxides/.

### Refractive Index:

>> Indices of refraction: 2.048, 2.058 /Pyromorphite/

## 10. Stability And Reactivity

>> Insoluble in water, soluble in acids and alkalis.

## 11. Toxicological Information

### Evidence for Carcinogenicity:

Evidence that this chemical does or may cause cancer. The information here is collected from various sources by the Hazardous Substances Data Bank (HSDB).

- >> There is limited evidence in humans for the carcinogenicity of inorganic lead compounds. ... There is sufficient evidence in experimental animals for the carcinogenicity of inorganic lead compounds. There is sufficient evidence in experimental animals for the carcinogenicity of lead acetate, lead subacetate, lead chromate, and lead phosphate. There is inadequate evidence in experimental animals for the carcinogenicity of lead oxide and lead arsenate. ... There is inadequate evidence in experimental animals for the carcinogenicity of lead powder. Overall evaluation Inorganic lead compounds are probably carcinogenic to humans (Group 2A). /Inorganic lead compounds/

#### Adverse Effects:

An adverse effect is an undesired harmful effect resulting from a medical treatment or other intervention.

- >> Neurotoxin – Predominantly motor
- >> Nephrotoxin – The chemical is potentially toxic to the kidneys in the occupational setting.
- >> Hemolytic anemia – Decreased hemoglobin or number of red blood cells.
- >> Reproductive Toxin – A chemical that is toxic to the reproductive system, including defects in the progeny and injury to male or female reproductive function. Reproductive toxicity includes developmental effects. See Guidelines for Reproductive Toxicity Risk Assessment.
- >> IARC Carcinogen – Class 2: International Agency for Research on Cancer classifies chemicals as probable (2a), or possible (2b) human carcinogens.
- >> NTP Carcinogen – Reasonably anticipated to be a human carcinogen.
- >> ACGIH Carcinogen – Confirmed Animal.

#### Antidote and Emergency Treatment:

- >> Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Lead and related compounds/

#### Human Toxicity Excerpts:

- >> /SIGNS AND SYMPTOMS/ Lead phosphate can cause headache, irritability, reduced memory, and disturbed sleeping patterns. Lead enters the body by breathing and from contaminated food, beverages, or cigarettes. Lead poisoning can cause poor appetite, colic, upset stomach, headaches, irritability, muscle or joint cramps and weakness.

#### Non-Human Toxicity Excerpts:

- >> /LABORATORY ANIMALS: Chronic Exposure or Carcinogenicity/ A group of 270 albino rats (strain and sex unspecified) received weekly sc injections of 20 mg lead phosphate according to several dosage schedules; total doses ranged from 40–760 mg/rat during treatment periods of up to 16 mo. Forty untreated rats served as controls. Nineteen of 29 rats that survived for 10 or more mo from the start of treatment developed renal tumors; these rats had received total doses of 120–680 mg/rat. The tumors incl adenomas, papillomas, cystadenomas and 3 carcinomas of the renal cortex.

## 12. Ecological Information

#### Resident Soil (mg/kg)

- >> 8.20e+01

#### Industrial Soil (mg/kg)

- >> 3.80e+02

#### Resident Air (ug/m3)

- >> 2.30e-01

#### Industrial Air (ug/m3)

- >> 1.00e+00

#### Tapwater (ug/L)

- >> 9.10e+00

#### MCL (ug/L)

>> 5.00e+01

#### Oral Slope Factor (mg/kg-day)-1

>> 8.50e-03

#### Inhalation Unit Risk (ug/m3)-1

>> 1.2e-05

#### Volatile

>> Volatile

#### Mutagen

>> Mutagen

#### Fraction of Contaminant Absorbed in Gastrointestinal Tract

>> 1

### 13. Disposal Considerations

#### Disposal Methods

- >> Generators of waste (equal to or greater than 100 kg/mo) containing this contaminant, EPA hazardous waste number U145, D008, must conform with USEPA regulations in storage, transportation, treatment and disposal of waste.
- >> A poor candidate for incineration.
- >> PRECAUTIONS FOR "CARCINOGENS": There is no universal method of disposal that has been proved satisfactory for all carcinogenic compounds & specific methods of chem destruction ... published have not been tested on all kinds of carcinogen-containing waste. ... summary of avail methods & recommendations ... /given/ must be treated as guide only. /Chemical Carcinogens/
- >> PRECAUTIONS FOR "CARCINOGENS": ... Incineration may be only feasible method for disposal of contaminated laboratory waste from biological expt. However, not all incinerators are suitable for this purpose. The most efficient type ... is probably the gas-fired type, in which a first-stage combustion with a less than stoichiometric air:fuel ratio is followed by a second stage with excess air. Some ... are designed to accept ... aqueous & organic-solvent solutions, otherwise it is necessary ... to absorb soln onto suitable combustible material, such as sawdust. Alternatively, chem destruction may be used, esp when small quantities ... are to be destroyed in laboratory. /Chemical Carcinogens/
- >> For more Disposal Methods (Complete) data for LEAD PHOSPHATE (7 total), please visit the HSDB record page.

### 14. Transport Information

#### DOT

Lead phosphate

Reportable Quantity of 10 lb or 4

#### IATA

Lead phosphate

### 15. Regulatory Information

#### Federal Drinking Water Standards:

Federal drinking water standards (e.g. maximum containment level (MCL)) for this chemical. These standards are legally enforceable.

>> EPA 15 ug/L (Action Level) /Lead/

### State Drinking Water Standards:

State drinking water standards (e.g. maximum containment level (MCL)) for this chemical. These standards are legally enforceable.

>> (AZ) ARIZONA 50 ug/L /Lead/

### Clean Water Act Requirements:

The Clean Water Act (CWA) of 1972 establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Under CWA, the U.S. Environmental Protection Agency (EPA) developed the Toxic Pollutant List (40 CFR Part 401.15) and the Priority Pollutant List (40 CFR Part 423, Appendix A). These lists are to be used by EPA and States to develop the Effluent Guidelines regulations and ensure water quality criteria and standards.

>> Toxic pollutant designated pursuant to section 307(a)(1) of the Federal Water Pollution Control Act and is subject to effluent limitations. /Lead and compounds/

### Regulatory Information

#### The Australian Inventory of Industrial Chemicals

>> Chemical: Phosphoric acid, lead(2+) salt (2:3)

#### REACH Restricted Substance

>> Restricted substance: Trilead bis(orthophosphate)

>> EC: 231-205-5

#### New Zealand EPA Inventory of Chemical Status

>> Lead phosphate: Does not have an individual approval but may be used under an appropriate group standard

## 16. Other Information

### Toxic Combustion Products:

Toxic products (e.g., gases and vapors) produced from the combustion of this chemical.

>> Poisonous gases including lead and phosphorus oxides are produced in fire.

### Other Safety Information

#### Chemical Assessment

>> IMAP assessments – Selected lead-based pigments: Human health tier II assessment

"The information provided is believed to be accurate but is not comprehensive and should be used as a reference. It reflects our current knowledge and is intended for safety guidance related to the product. This document does not constitute a warranty of the product's properties. Ionz is not responsible for any damages resulting from handling or contact with the product incorrectly."