

MSDS Number: **P4017** \* \* \* \* \* *Effective Date: 11/21/08* \* \* \* \* \* *Supersedes: 01/16/06*



## Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.  
222 Red School Lane  
Phillipsburg, NJ 08865



Mallinckrodt  
CHEMICALS



24 Hour Emergency Telephone: 908-859-2151  
CHEMTREC: 1-800-424-9300

National Response in Canada  
CANUTEC: 613-996-6666

Outside U.S. and Canada  
Chemtec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

# PHOSPHORUS AMORPHOUS

## 1. Product Identification

**Synonyms:** Red Phosphorus; Phosphorus Amorphous Red

**CAS No.:** 7723-14-0

**Molecular Weight:** 30.97

**Chemical Formula:** P

**Product Codes:**

J.T. Baker: 9358

Mallinckrodt: 6620

## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Phosphorus	7723-14-0	90 - 100%	Yes

## 3. Hazards Identification

Emergency Overview

**WARNING! FLAMMABLE SOLID. MAY IGNITE FROM FRICTION OR ROUGH HANDLING. CAUSES EYE IRRITATION. MAY BE HARMFUL IF SWALLOWED OR INHALED.**

**SAF-T-DATA<sup>(tm)</sup>** Ratings (Provided here for your convenience)

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Health Rating: 3 - Severe (Life)

Flammability Rating: 3 - Severe (Flammable)

Reactivity Rating: 2 - Moderate

Contact Rating: 3 - Severe

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD;  
PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

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### **Potential Health Effects**

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#### **Inhalation:**

Not considered highly toxic but acute exposure may cause coughing, bronchitis, possible liver or kidney impairment if contaminated with yellow phosphorus.

#### **Ingestion:**

Red phosphorus is not readily absorbed and, in pure form, is considered non-poisonous. However, possible contamination with the yellow form must be considered, and symptoms such as nausea, vomiting, abdominal pain or garlic odor on breath will indicate poisoning by the latter. The estimated lethal adult human dose for white phosphorus is 50 - 100 mg.

#### **Skin Contact:**

Red phosphorous is not harmful to skin. If contaminated with white phosphorus, however, contact may cause deep, slow healing burns.

#### **Eye Contact:**

Red phosphorus causes eye irritation. If contaminated with yellow phosphorus, eye contact can cause severe irritation and burns.

#### **Chronic Exposure:**

Chronic ingestion or inhalation may induce systemic phosphorous poisoning. Liver damage, kidney damage, jaw/tooth abnormalities, blood disorders and cardiovascular effects can result.

#### **Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders or eye problems, jaw/tooth abnormalities, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

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## **4. First Aid Measures**

#### **Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

#### **Ingestion:**

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give

anything by mouth to an unconscious person. Get medical attention immediately. Get medical attention.

**Skin Contact:**

Wash exposed area with soap and water. Get medical advice if irritation develops.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

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## 5. Fire Fighting Measures

**Fire:**

Autoignition temperature: 260C (500F)

Flammable solid. May ignite from friction or rough handling.

**Explosion:**

May form explosive mixtures with oxidizing materials. Sensitive to static discharge.

**Fire Extinguishing Media:**

Water flooding followed by covering with wet sand, clay, ground limestone until clean-up.

**Special Information:**

Burning phosphorus produces irritating but not highly toxic oxides. Flame-retardant full protective clothing and full breathing apparatus should be worn with phosphorus fires. The red form can convert to the more readily-flammable yellow form at high temperatures.

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## 6. Accidental Release Measures

Moisten the spilled phosphorus as a precaution and keep it under wet sand or the like until it can be collected and placed in a closed container for recovery or disposal. Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Protect from light. Avoid dust formation and control ignition sources. Employ grounding, venting and explosion relief provisions in accord with accepted engineering practices in any process capable of generating dust and/or static electricity. Empty only into inert or non-flammable atmosphere. Emptying contents into a non-inert atmosphere where flammable vapors may

be present could cause a flash fire or explosion due to electrostatic discharge. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

None established.

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear protective gloves and clean body-covering clothing.

### **Eye Protection:**

Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

### **Other Control Measures:**

Presence of yellow phosphorous as an impurity will change necessary protective equipment.

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## 9. Physical and Chemical Properties

### **Appearance:**

Red to violet powder.

### **Odor:**

Odorless.

### **Solubility:**

Insoluble in water.

### **Specific Gravity:**

2.34 @ 20C/4C

### **pH:**

No information found.

### **% Volatiles by volume @ 21C (70F):**

0

### **Boiling Point:**

No information found.

### **Melting Point:**

No information found.

**Vapor Density (Air=1):**

No information found.

**Vapor Pressure (mm Hg):**

No information found.

**Evaporation Rate (BuAc=1):**

No information found.

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## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

White phosphorous, oxides of phosphorous, phosphine, and phosphoric acid (if water is present) may be released if this material is heated to decomposition.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Halogens, halides, sulfur, oxidizing materials and alkalis (forms phosphine).

**Conditions to Avoid:**

Heat, flame, ignition sources, shock, friction, incompatibles.

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## 11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.

-----\Cancer Lists\-----			
Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
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Phosphorus (7723-14-0)	No	No	None

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## 12. Ecological Information

**Environmental Fate:**

No information found.

**Environmental Toxicity:**

The substance is harmful to aquatic organisms May cause long-term adverse effects in the aquatic environment.

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 14. Transport Information

### Domestic (Land, D.O.T.)

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**Proper Shipping Name:** RQ, PHOSPHORUS, AMORPHOUS

**Hazard Class:** 4.1

**UN/NA:** UN1338

**Packing Group:** III

**Information reported for product/size:** 500G

### International (Water, I.M.O.)

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**Proper Shipping Name:** PHOSPHORUS, AMORPHOUS

**Hazard Class:** 4.1

**UN/NA:** UN1338

**Packing Group:** III

**Information reported for product/size:** 500G

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## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----  
Ingredient TSCA EC Japan Australia

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Phosphorus (7723-14-0) Yes Yes No Yes

-----\Chemical Inventory Status - Part 2\-----  
Ingredient Korea --Canada-- DSL NDSL Phil.

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Phosphorus (7723-14-0) Yes Yes No Yes

-----\Federal, State & International Regulations - Part 1\-----  
Ingredient -SARA 302- -SARA 313-  
RQ TPQ List Chemical Catg.  
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Phosphorus (7723-14-0) 1 100 Yes No

-----\Federal, State & International Regulations - Part 2\-----  
Ingredient -RCRA- -TSCA-  
CERCLA 261.33 8(d)

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Phosphorus (7723-14-0)	1	No	Yes

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: Yes  
SARA 311/312: Acute: Yes      Chronic: Yes      Fire: Yes      Pressure: No  
Reactivity: No      (Pure / Solid)

**Australian Hazchem Code:** 2WE

**Poison Schedule:** S7

**WHMIS:**

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

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## 16. Other Information

**NFPA Ratings:** Health: 1 Flammability: 1 Reactivity: 1

**Label Hazard Warning:**

WARNING! FLAMMABLE SOLID. MAY IGNITE FROM FRICTION OR ROUGH HANDLING. CAUSES EYE IRRITATION. MAY BE HARMFUL IF SWALLOWED OR INHALED.

**Label Precautions:**

Keep away from heat, sparks and flame.

Avoid breathing dust.

Avoid contact with eyes.

Keep container closed.

Use with adequate ventilation.

Wash thoroughly after handling.

**Label First Aid:**

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. In all cases, get medical attention.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

No Changes.

**Disclaimer:**

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**Prepared by:** Environmental Health & Safety  
Phone Number: (314) 654-1600 (U.S.A.)