

## MATERIAL SAFETY DATA SHEET

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Section 1 - Product and Company Information

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Product Name	PHOSPHORUS, POWDER, RED, 99% METALS BASIS
Product Number	209678
Brand	SIAL
Company	Sigma-Aldrich
Address	3050 Spruce Street SAINT LOUIS MO 63103 US
Technical Phone:	800-325-5832
Fax:	800-325-5052
Emergency Phone:	314-776-6555

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Section 2 - Composition/Information on Ingredient

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Substance Name	CAS #	SARA 313
PHOSPHORUS (RED, AMORPHOUS)	7723-14-0	Yes

Formula	P
RTECS Number:	TH3495000

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Section 3 - Hazards Identification

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## EMERGENCY OVERVIEW

Flammable (USA) Highly Flammable (EU).  
Explosive when mixed with oxidizing substances. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## HMIS RATING

HEALTH: 0  
FLAMMABILITY: 3  
REACTIVITY: 1

## NFPA RATING

HEALTH: 0  
FLAMMABILITY: 3  
REACTIVITY: 1

For additional information on toxicity, please refer to Section 11.

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Section 4 - First Aid Measures

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## ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

## INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

## DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

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### Section 5 - Fire Fighting Measures

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#### FLAMMABLE HAZARDS

Flammable Hazards: Yes

#### FLASH POINT

N/A

#### AUTOIGNITION TEMP

260 °C

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

#### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.  
Specific Hazard(s): Flammable solid. Emits toxic fumes under fire conditions.

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### Section 6 - Accidental Release Measures

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#### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition. Use nonsparking tools.

#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

#### METHODS FOR CLEANING UP

Avoid raising dust. Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

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### Section 7 - Handling and Storage

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#### HANDLING

User Exposure: Avoid contact with eyes, skin, and clothing. Avoid breathing dust. Avoid prolonged or repeated exposure.

#### STORAGE

Suitable: Keep container closed. Keep away from heat, sparks, and open flame.



Optical Rotation           N/A  
Miscellaneous Data        N/A  
Solubility                 N/A

N/A = not available

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## Section 10 - Stability and Reactivity

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### STABILITY

Stable: Stable.

Conditions to Avoid: Heat.

Materials to Avoid: Sulfur, Oxidizing agents Copper, Copper alloys, Oxygen, Avoid contact with alkaline hydroxides, Bases.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Thermal decomposition may produce toxic fumes of phosphorus oxides and/or phosphine.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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## Section 11 - Toxicological Information

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### ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion: May be harmful if swallowed.

### SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Stomach pains, vomiting, diarrhea. Depending on the intensity and duration of exposure, effects may vary from mild irritation to severe destruction of tissue.

### TOXICITY DATA

Oral

Rat

> 15,000 mg/kg

LD50

### IRRITATION DATA

Eyes

Rabbit

Remarks: No irritation effect

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## Section 12 - Ecological Information

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### ACUTE ECOTOXICITY TESTS

Test Type: LC50 Fish

Species: Lepomis macrochirus (Bluegill)

Time: 96 h

Value: 0.005 mg/l

Test Type: LC50 Fish

Species: Pimephales promelas (Fathead minnow)

Time: 96 h

Value: 0.020 - 0.2 mg/l

Test Type: LC50 Fish  
Species: Brachydanio rerio  
Time: 96 h  
Value: > 100 mg/l

Test Type: EC50 Daphnia  
Species: Daphnia magna  
Time: 48 h  
Value: 0.03 mg/l

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## Section 13 - Disposal Considerations

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### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

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## Section 14 - Transport Information

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### DOT

Proper Shipping Name: Phosphorus, amorphous  
UN#: 1338  
Class: 4.1  
Packing Group: Packing Group III  
Hazard Label: Flammable solid  
PIH: Not PIH

### IATA

Proper Shipping Name: Phosphorus, amorphous  
IATA UN Number: 1338  
Hazard Class: 4.1  
Packing Group: III

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## Section 15 - Regulatory Information

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### EU DIRECTIVES CLASSIFICATION

Symbol of Danger: F  
Indication of Danger: Highly Flammable.  
R: 11-16-52/53  
Risk Statements: Highly flammable. Explosive when mixed with oxidizing substances. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
S: 7-43-61  
Safety Statements: Keep container tightly closed. In case of fire, use water. Avoid release to the environment. Refer to special instructions/safety data sheets.

### US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable (USA) Highly Flammable (EU).  
Risk Statements: Explosive when mixed with oxidizing substances. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
Safety Statements: Keep container tightly closed. In case of fire, use water. Avoid release to the environment. Refer to special instructions/safety data sheets.

### UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes  
DEMINIMIS: 1 %

NOTES: This product is subject to SARA section 313 reporting requirements.

TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

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Section 16 - Other Information

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DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.