

PHOSPHORUS, WHITE

PPW

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Yellow phosphorus	Waxy solid Light yellow Garlic odor
Fumes and burns in air, sinks in water.	
<p>Evacuate. Keep people away. AVOID CONTACT WITH SOLID. Wear rubber overclothing (including gloves). Shut off ignition sources and call fire department. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	<p>FLAMMABLE. May ignite on contact with air. POISONOUS, IRRITATING GASES ARE PRODUCED IN FIRE. Wear rubber overclothing (including gloves). Flood discharge area with water. Cool exposed containers with water. Continue cooling after fire has been extinguished.</p>
Exposure	<p>CALL FOR MEDICAL AID.</p> <p>SOLID Will burn skin and eyes. If swallowed, will cause nausea, vomiting or loss of consciousness. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS WITH NO CONVULSIONS, have victim drink water or milk. DO NOT INDUCE VOMITING.</p>
Water Pollution	<p>HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.</p>

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Collection Systems: Dredge
Do not burn

2. CHEMICAL DESIGNATIONS

- 2.1 **CG Compatibility Group:** 0; Unassigned cargoes
2.2 **Formula:** P
2.3 **IMO/UN Designation:** 4.2/1381
2.4 **DOT ID No.:** 1381
2.5 **CAS Registry No.:** 7723-14-0
2.6 **NAERG Guide No.:** 136
2.7 **Standard Industrial Trade Classification:** 5222

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Heavy rubber gloves and goggles or face shield.
3.2 **Symptoms Following Exposure:** Solid or liquid causes severe burns of skin. If ingested, causes nausea, vomiting, jaundice, low blood pressure, depression, delirium, coma, death. Symptoms after ingestion may be delayed for from a few hours to 3 days.
3.3 **Treatment of Exposure:** INGESTION: if ingested, do NOT induce vomiting; call a doctor at once. SKIN OR EYE CONTACT: immediately flush with plenty of water for at least 15 min.; keep skin area wet until medical attention is obtained.
3.4 **TLV-TWA:** Not listed.
3.5 **TLV-STEL:** Not listed.
3.6 **TLV-Ceiling:** Not listed.
3.7 **Toxicity by Ingestion:** Grade 4; LD₅₀ below 50 mg/kg
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** Severe attack of liver and bones.
3.10 **Vapor (Gas) Irritant Characteristics:** Nonvolatile
3.11 **Liquid or Solid Characteristics:** Severe skin irritant. Causes second-and third-degree burns on short contact, and is very injurious to the eyes.
3.12 **Odor Threshold:** Currently not available
3.13 **IDLH Value:** Not listed.
3.14 **OSHA PEL-TWA:** Not listed.
3.15 **OSHA PEL-STEL:** Not listed.
3.16 **OSHA PEL-Ceiling:** Not listed.
3.17 **EPA AEGL:** Not listed

4. FIRE HAZARDS

- 4.1 **Flash Point:** Ignites spontaneously in air.
4.2 **Flammable Limits in Air:** Not pertinent
4.3 **Fire Extinguishing Agents:** Water
4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
4.5 **Special Hazards of Combustion Products:** Fumes from burning phosphorus are highly irritating.
4.6 **Behavior in Fire:** Intense white smoke is formed.
4.7 **Auto Ignition Temperature:** 86°F
4.8 **Electrical Hazards:** Not pertinent
4.9 **Burning Rate:** Not pertinent
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric Air to Fuel Ratio:** 5.9 (calc.)
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** 0.5 (calc.)
4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** No reaction
5.2 **Reactivity with Common Materials:** Ignites when exposed to air.
5.3 **Stability During Transport:** Stable
5.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
5.5 **Polymerization:** Not pertinent
5.6 **Inhibitor of Polymerization:** Not pertinent

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:** 0.105 ppm/48 hr/bluegill/TL₅₀/fresh water
6.2 **Waterfowl Toxicity:** Currently not available
6.3 **Biological Oxygen Demand (BOD):** Currently not available
6.4 **Food Chain Concentration Potential:** None
6.5 **GESAMP Hazard Profile:** Not listed

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 99.8-99.9%
7.2 **Storage Temperature:** Elevated
7.3 **Inert Atmosphere:** Padded
7.4 **Venting:** Pressure-vacuum
7.5 **IMO Pollution Category:** A
7.6 **Ship Type:** 1
7.7 **Barge Hull Type:** 1

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Spontaneously Combustible
8.2 **49 CFR Class:** 4.2
8.3 **49 CFR Package Group:** I
8.4 **Marine Pollutant:** No
8.5 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue).....	4
Flammability (Red).....	4
Instability (Yellow).....	2

8.6 **EPA Reportable Quantity:** 1 pound
8.7 **EPA Pollution Category:** X
8.8 **RCRA Waste Number:** Not listed
8.9 **EPA FWPCA List:** Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Solid
9.2 **Molecular Weight:** 123.89
9.3 **Boiling Point at 1 atm:** 535.5°F = 279.7°C = 552.9°K
9.4 **Freezing Point:** 111.4°F = 44.1°C = 317.3°K
9.5 **Critical Temperature:** Not pertinent
9.6 **Critical Pressure:** Not pertinent
9.7 **Specific Gravity:** 1.82 at 20°C (solid)
9.8 **Liquid Surface Tension:** Not pertinent
9.9 **Liquid Water Interfacial Tension:** Not pertinent
9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
9.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
9.12 **Latent Heat of Vaporization:** Not pertinent
9.13 **Heat of Combustion:** Not pertinent
9.14 **Heat of Decomposition:** Not pertinent
9.15 **Heat of Solution:** Not pertinent
9.16 **Heat of Polymerization:** Not pertinent
9.17 **Heat of Fusion:** 4.8 cal/g
9.18 **Limiting Value:** Currently not available
9.19 **Reid Vapor Pressure:** Very low

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
	I N S O L U B L E		N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T