



Super Conductor Materials, Inc.

391 Spook Rock Industrial Park, Suffern, NY 10901 · 845.368.0240 · www.scm-inc.com

Chemtrec: (800) 424-9300

Poison Center: (800) 562-8236

Revision Date: January 8th, 2019

SAFETY DATA SHEET

Identity: Aluminum phosphide

Formula: AIP

SECTION I - GENERAL INFORMATION

Manufacturer: Super Conductor Materials, Inc.

The information below is believed to be accurate and represents the best information available to Super Conductor Materials, Inc. However, SCM makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Molecular weight: 57.96

CAS #	OSHA PEL	ACGIH TLV	%
20859-73-8	N/A	N/A	N/A

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: >1000°C

Melting Point: >1000°C

Evaporation Rate: N/A

Solubility in water: Insoluble, reacts

Vapor Pressure (vs. air or mmHg): 0 mm Hg

Specific Gravity (Water=1): 2.85

Flash Point: Not flammable

Appearance and odor: Greenish-gray color, and when combined with other chemicals to produce hydrogen phosphide (phosphine, PH₃) gas, it has an odor described as similar to garlic, carbide, or decaying fish.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

Method Used: Unknown

Explosive Limits: LEL: 1.8%

UEL: N/A

Extinguishing Media: Suffocate flames with sand, carbon dioxide or dry extinguishing chemicals.

Special Fire Fighting Procedures: Do not use water on metal phosphide fires. Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.



Unusual Fire and Explosion Hazards: Phosphine (hydrogen phosphide, PH₃) -air mixtures at concentrations above the lower flammable limit of 1.8% v/v (18,000 ppm), Phosphine (hydrogen phosphide, PH₃) may ignite spontaneously. Ignition of high concentrations of phosphine (hydrogen phosphide, PH₃) can produce a very energetic reaction. Explosions can occur under these conditions and may cause severe personal injury. Never allow the buildup of phosphine (hydrogen phosphide, PH₃) to exceed explosive concentrations. Open containers of metal phosphides in open air only and never in a flammable atmosphere. Do not confine spent or partially spent dust from metal phosphide fumigants as the slow release of phosphine (hydrogen phosphide, PH₃) from these materials may result in the formation of an explosive atmosphere. Spontaneous ignition may occur if large quantities of aluminum phosphide or magnesium phosphide are piled in contact with liquid water. This is particularly true if quantities of these materials are placed in an environment which can provide partial confinement of the hydrogen phosphide gas liberated by hydrolysis. Fires containing phosphine (hydrogen phosphide, PH₃) or metal phosphides will produce phosphoric acid by the following reaction: $2\text{PH}_3 + 4\text{O}_2 \longrightarrow 3\text{H}_2\text{O} + \text{P}_2\text{O}_5 \longrightarrow 2\text{H}_3\text{PO}_4$

SECTION V - REACTIVITY DATA

Stability: Stable to most chemical reactions,

Conditions to Avoid (instability): A hydrolysis reaction

Incompatibility (Materials to avoid): Avoid contact with water and oxidizing agents

Hazardous Decomposition or Byproducts: AIP reacts with moist air, liquid water, acids and some other liquids to produce toxic and flammable phosphine (hydrogen phosphide, PH₃) gas.

Hazardous Polymerization: Will not occur

Conditions to avoid (hazardous polymerization): No Data Available

SECTION VI - HEALTH HAZARD DATA

Routes of entry: Inhalation? Yes Ingestion? Yes Eyes? No Skin? No Other? No

Aluminum Phosphide tablets, pallets, bags, and dust react with moisture from the air, acids and many other liquids to release phosphine (hydrogen phosphide, PH₃) gas. Moderate poisoning causes weakness, vomiting, pain just above the stomach, chest pain, diarrhea and dyspnea (difficulty in breathing). Symptoms of severe poisoning may occur within a few hours to several days resulting in pulmonary edema (fluid in lungs) and may lead to dizziness, cyanosis (blue or purple skin color), unconsciousness, and death.

Signs and Symptoms of Overexposure:

Inhalation: Mild exposure by inhalation causes malaise (indefinite feeling of sickness), ringing in the ears, fatigue, nausea and pressure in the chest which is relieved by removal to fresh air.

Ingestion: Headache, dizziness, nausea, difficult breathing, vomiting, and diarrhea.

Skin: Headache, dizziness, nausea, difficult breathing, vomiting, and diarrhea.

Eye: Headache, dizziness, nausea, difficult breathing, vomiting, and diarrhea.

Health Hazards (Acute and Chronic):

No Data available regarding acute health hazards. AIP and hydrogen phosphine, PH₃ do not cause chronic poisoning.



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Target Organs: N/A

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

Medical Conditions Aggravated by Exposure: No Data available

Emergency and First Aid Procedures:

Inhalation: Remove victim to fresh air, keep warm and quiet, and give oxygen if breathing is difficult; seek medical attention

Ingestion: Give 1-2 glasses of milk or water and induce vomiting, seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person

Skin: Remove contaminated clothing, brush material off skin, wash affected area with mild soap and water, and seek medical attention if symptoms persist

Eye: Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled:

Wear appropriate respiratory and protective equipment specified in section VIII. Isolate spill area, provide ventilation and extinguish sources of ignition. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

Waste disposal method:

Dispose of in accordance with state, local, and federal regulations.

Hazard Label Information:

Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

SECTION VIII - CONTROL MEASURES

Protective Equipment Summary (Hazard Label Information):

NIOSH approved respirator, impervious gloves, safety glasses, clothes to prevent contact.

Ventilation:

Local Exhaust: To maintain concentration at or below the PEL, TLV

Mechanical (General): Recommended

Work/Hygienic/Maintenance Practices:

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Please be advised that N/A can either mean Not Applicable or No Data Has Been Established