

MATERIAL SAFETY DATA SHEET

I PRODUCT IDENTIFICATION

Trade Name: Nickel Phosphide	Chemical Family: Metal phosphide
Synonyms: Nickel phosphide, Nickel diphosphide	CAS #: 12035-64-2
Formula: Ni ₂ P	Molecular Weight: 148.35

II HAZARDOUS INGREDIENTS

<u>Hazardous Components:</u>	<u>OSHA/PEL:</u>	<u>ACGIH/TLV:</u>	<u>Other:</u>	<u>Percent:</u>
Nickel Phosphide	1 mg Ni/m ³	1 mg Ni/m ³	N/E0.	0 -100.0

Sec.302: No **Sec.304:** Yes 1 lb **Sec.313:** Yes

III PHYSICAL DATA

Boiling Point 760 mm Hg: 1112.0 °C	Melting Point: N/A
Freezing Point: N/A	Solubility in H₂O: Insoluble
Appearance and Odor: Gray powder, no odor	Specific Gravity: 6.31 gm/cc @ 15 °C

IV FIRE AND EXPLOSION HAZARDS DATA

Flash Point (Method): N/E or N/A (Non-flammable) **Explosive Limits: LEL:** N/A **UEL:** N/A

Extinguishing Media: Use: Not applicable. Use suitable extinguishing agent for surrounding materials and type of fire.

Special Fire Fighting Procedures: 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 & Explosion Hazards: When heated to decomposition, nickel phosphide may emit oxides of phosphorous.

V HEALTH HAZARD INFORMATION

Routes of Entry: Inhalation, and ingestion.

Health Hazards (Acute and Chronic):

To the best of our knowledge the chemical, physical and toxicological properties of nickel phosphide have not been thoroughly investigated and recorded.

Nickel is a confirmed carcinogen with experimental carcinogenic, neoplastic, tumorigenic and teratogenic data. Poison by ingestion, intratracheal, intraperitoneal, subcutaneous and intravenous routes. An experimental teratogen (Sax, Dangerous Properties of Industrial Materials, eighth edition).

Inhalation: Acute: Inhalation of dust or powder may cause irritation to the upper respiratory tract, mucous membranes and nasal cavities.

Chronic: May cause pneumonitis.

Ingestion: Acute: Large doses may cause intestinal disorders, convulsions and asphyxia.

Chronic: May cause nickel toxicity.

Skin: Acute: May cause irritation.

Chronic: May sensitize the skin (nickel itch). May cause dermatitis, eczematous dermatitis and may be accompanied a week later with superficial skin ulcers, which may discharge and become crusted.

Eyes: Acute: May cause irritation.

Chronic: May cause damage to the cornea.

Target Organs: May affect the nasal cavities, lungs, respiratory system and skin.

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

Recommended Exposure Limits: See section II

LD50/LC50: No toxicity data recorded.

Signs and Symptoms of Exposure:

Inhalation: May cause a red, dry throat, coughing and short breath.

Ingestion: May cause gastroenteritis. Nervous symptoms such as tremor, chorea-like movements and paralysis occur prior to death, which occurs mostly from heart failure.

Skin: May cause redness and itching, and possible ulcers.

Eye: May cause redness, itching and watering.

Medical Conditions Generally Aggravated by Exposure: Pre-existing respiratory and skin disorders.

EMERGENCY AND FIRST AID PROCEDURES:

INHALATION: Remove victim to fresh air, if conscious, encourage victim to blow nose, cough up, then spit out mucous and saliva. Keep warm and quiet. Give oxygen if breathing is difficult and seek medical attention if symptoms persist.

INGESTION: Give 1-2 glasses of milk or water and induce vomiting, seek medical attention if symptoms persist, keep warm and quiet. 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. Seek medical attention if symptoms persist.

EYES: Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persist.

VI REACTIVITY DATA

Stability: Stable

Conditions to Avoid: None

Incompatibilities (Materials to Avoid): None recorded

Hazardous Decomposition Products: Oxides of Phosphorus

Conditions to Avoid: None

Hazardous Polymerization: Will not occur.

VII SPILL OR LEAK PROCEDURES

Steps to Be Taken in Case Material Is Released or Spilled: Wear appropriate respiratory and protective equipment specified in Section VIII-Special Protection Information. Isolate spill area and provide ventilation. 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: Disposal must be made in accordance with Federal, State and Local regulations.

VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection (specify type): NIOSH approved Dust, mist, cartridge respirator.

Ventilation: Local Exhaust: To maintain concentration at or below the PEL, TLV. **Special:** None

Mechanical: Recommended. **Other:** None

Protective Gloves: Rubber Gloves

Eye Protection: Safety Goggles

Other Equipment: Normal lab wear suitable to prevent contamination.

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 and smoking. Do not blow dust off clothing or skin with compressed air.

IX SPECIAL PRECAUTIONS

Hazard Label Information:

- Store away from incompatible material.
- Store in a tightly sealed container.
- Wash thoroughly after handling.
- Store away from sparks and flames.

Some of the chemicals listed herein are research or experimental substances which may be toxic, as defined by various governmental regulations. In accordance with Environmental Protection Agency regulation and the Toxic Substances Control Act (TSCA), these materials should only be handled by, or under the direct supervision of, a "technically qualified individual", as defined in 40 CFR 710.2(aa).

The above information is accurate to the best of our knowledge. However, since, data, safety standards, and government regulation are subject to change, and the conditions of handling and use or misuse are beyond our control, ESPI MAKES NO WARRANTY, NEITHER EXPRESSED NOR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN, AND DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. Users should satisfy themselves that they have all current data relevant to their particular use.

Issued By: S. Dierks

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