



SAFETY DATA SHEET

Identity: Zinc nitride

Formula: Zn₃N₂

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: 244.12

CAS #	OSHA PEL	ACGIH TLV	%
1313-49-1	NE	NE	0.0-100.0%

SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: Vapor Pressure (vs. air or mmHg): N/A
Melting Point: Specific Gravity (Water=1): 6.22
Evaporation Rate: N/A Flash Point: N/A
Solubility in water: Decomposes to ammonia

Appearance and odor: Black-grey powder and pieces, may have an ammonia odor in moist air.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

Method Used: Unknown *Explosive Limits:* LEL: N/A UEL: N/A
Extinguishing Media: Use suitable extinguishing agent for surrounding material 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 and Explosion Hazards:

- When heated to decomposition, zinc nitride may emit toxic fumes of ammonia.
- Contact with acids may generate flammable hydrogen gas.
- May react with moist air to liberate ammonia gas which can form explosive mixtures in air.



SECTION V - REACTIVITY DATA

Stability: Stable

Conditions to Avoid (instability): None

Incompatibility (Materials to avoid): Water, steam, moisture and acids

Hazardous Decomposition or Byproducts: Ammonia gas, oxides of nitrogen and zinc

Hazardous Polymerization: Will not occur

Conditions to avoid (hazardous polymerization): None

SECTION VI - HEALTH HAZARD DATA

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

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

Zinc compounds have variable toxicity, but generally are of low toxicity. Zinc is not inherently a toxic element. However, when heated, it evolves a fume of zinc oxide which, when inhaled fresh, can cause a disease known as "brass founders' "ague," or "brass chills". Zinc oxide dust which is not freshly formed is virtually innocuous. There is no cumulative effect from the inhalation of zinc fumes. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Ammonia gas is a human poison by an unspecified route. Poison by inhalation, ingestion, and possibly other routes. An eye, mucous membrane, and systemic irritant by inhalation. Mutation data reported. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Signs and Symptoms of Overexposure:

Inhalation: May cause a red, dry throat, sweet taste, sneezing, coughing, burning sensation, shortness of breath, weakness, generalized aches, chills, fever, nausea, vomiting, swelling of mouth and throat.

Ingestion: May cause a burning sensation, throat swelling, salivation, sweating, shortness of breath, coughing, nausea, vomiting, cramps, rapid breathing and diarrhea.

Skin: May cause redness, burning, itching, inflammation, blistering and tissue damage.

Eye: May cause redness, burning, itching, watering, lens opacities and ulceration of the conjunctiva and cornea.

Health Hazards (Acute and Chronic):

Inhalation:

Acute: SEVERE IRRITANT AND CORROSIVE. May cause irritation to the nose, throat and mucous membranes. May cause brass chills, chemical pneumonia, chemical bronchitis and pulmonary edema.

Ammonia gas may cause irritation to the nose and throat, dyspnea, bronchial spasms, chest pain, pulmonary edema and pink frothy sputum.

Chronic: May cause pulmonary fibrosis, nasopharyngitis and laryngitis. Repeated or prolonged exposure to ammonia gas may cause swelling of mouth and throat to the point of asphyxiation, permanent injury and death.

Ingestion:

Acute: SEVERE IRRITANT AND CORROSIVE. May cause coughing, shortness of breath and sweating. Ammonia gas may cause nausea, vomiting and burns.

Chronic: No chronic health effects recorded.



Skin:

Acute: SEVERE IRRITANT AND CORROSIVE. Ammonia gas may cause irritation and chemical burns.
Chronic: Repeated or prolonged exposure to ammonia gas may cause tissue damage.

Eye:

Acute: SEVERE IRRITANT AND CORROSIVE. Ammonia gas may cause severe irritation and chemical burns.
Chronic: Repeated or prolonged exposure to ammonia gas may cause irreversible damage to the conjunctiva, cornea and lens.

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

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

Medical Conditions Aggravated by Exposure:

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.

Precautions: Zinc nitride is moisture sensitive. Handle and store in an controlled environment and inert gas such as argon.

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 low exposure levels



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Special: Handle in a controlled, enclosed atmosphere

Mechanical (General): Not recommended

Other: Handle in an inert gas such as argon

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
