

Material Safety Data Sheet

Identity: Zinc nitride

Formula: Zn_3N_2

SECTION I - GENERAL INFORMATION

Manufacturer: [Stanford Advanced Materials](#) (SAM)

The information below is believed to be accurate and represents the best information available to SAM. However, SAM 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: 224.15

CAS #	OSHA PEL	ACGIH TLV	%
1313-49-1	N/A	N/A	0.0-100%

SECTION III - PHYSICAL CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: N/A

Specific Gravity ($H_2O=1$): 6.22 gm/cc at 25 °C

Melting Point: N/A

Vapor Pressure (vs. air or mmHg): N/A

Evaporation Rate: N/A

Vapor Density (vs. air=1): N/A

Solubility in water: Decomposes

Percent Volatile: N/A

Appearance and odor: Black-grey powder and pieces; may have ammonia odor in moist air

SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

Flash Point: N/A

Method Used: Non-Flammable

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 gas which can form explosive mixtures in air

SECTION V - REACTIVITY DATA

Stability: Stable

Conditions to Avoid (stability): None

Incompatibility: 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
Skin?	Yes
Eyes?	Yes
Ingestion?	Yes
Other?	No

Signs and Symptoms of Exposure:

Inhalation: May cause 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 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 conjunctivae and cornea

Health Hazards (Acute and Chronic):

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 variably 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, 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, eighth edition)

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 the 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 respiratory system, lungs, skin and eyes

Carcinogenicity: No data available

Medical Conditions Aggravated by Exposure:

Pre-existing respiratory, gastric, and skin disorders

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: Do not induce vomiting, seek medical attention.

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

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. 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. Store in inert atmosphere. Wash thoroughly after handling.

Other Precautions:

Zinc nitride is moisture sensitive. Handle and store in a controlled environment and inert gas such as Argon (Ar)

SECTION VIII - CONTROL MEASURES

Protective Equipment Summary (Hazard Label Information):

NIOSH approved respirator, impervious butyl or polycarbonate gloves, safety goggles, clothes to prevent skin contact.

Ventilation:

Local Exhaust: To maintain concentration at low exposure levels. Handle in a controlled, enclosed atmosphere

Mechanical (General): Not Recommended. Other:
Handle in an inert gas, such as Argon (Ar)

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