



Super Conductor Materials, Inc.

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Chemtrec: (800) 424-9300

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SAFETY DATA SHEET

Identity: Aluminum nitride

Formula: AlN

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: 40.99

CAS #	OSHA PEL	ACGIH TLV	%
24304-00-5	15 mg(Al)/m ³ Total; 5 mg/m ³ respirable		10 mg (Al)/m ³

SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: N/A

Vapor Pressure (vs. air or mmHg): No data

Melting Point: 2150.00°C (3902.0 °F)

Density: 3.26 gm/cc

Evaporation Rate: No data

Flash Point: N/A

Solubility in water: Decomposes (to ammonia and aluminum hydroxide)

Appearance and odor: May be a pale gray or green-gray powder; 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. Do not use water.

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:

Contact with acids may generate flammable hydrogen gas.
May react with moist air to liberate ammonia gas and aluminum hydroxide which can form explosive mixtures in air.
Phosgene gas may be produced if chlorinated vapors are present near a plasma flame.

SECTION V - REACTIVITY DATA

Stability: Stable
Conditions to Avoid (instability): None
Incompatibility: Water, steam, moisture, chlorinated vapors and acids.

Hazardous Decomposition or Byproducts: Ammonia gas, aluminum hydroxide, hydrogen gas, phosgene and oxides of nitrogen.
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

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

Aluminum compounds have many commercial uses and are commonly found in industry. Many of these materials are active chemically and thus exhibit dangerous toxic and reactive properties. Inhalation of fine aluminum oxide particles is associated with Shaver’s disease. The halides are generally irritants. (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, sneezing, coughing, burning sensation, shortness of breath, swelling of mouth and throat.

Ingestion: Acute aluminum toxicity may cause: digestive and gastrointestinal disturbances, skin lesions and nervous afflictions. May cause a burning sensation, throat swelling, salivation, 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: May be an irritant and possibly corrosive to the nose, throat and mucous membranes. May cause 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. 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: May cause acute aluminum toxicity. Ammonia gas may cause nausea, vomiting and burns.

Chronic: Aluminum has been implicated in Alzheimer's disease.

Skin:

Acute: May be an irritant and possibly corrosive. Ammonia gas may cause irritation and chemical burns.

Chronic: Repeated or prolonged exposure to ammonia gas may cause tissue damage.

Eye:

Acute: May be an irritant and possibly 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: 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: 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 to be taken in handling and storing:

Aluminum nitride is moisture sensitive, handle and store under argon or other inert gas.



SECTION VIII - CONTROL MEASURES

Protective Equipment Summary (Hazard Label Information):

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

Ventilation:

Local Exhaust: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. And handle in a controlled 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