# MATERIAL SAFETY DATA SHEET

## Section 1- PRODUCT IDENTIFICATION

<table>
<thead>
<tr>
<th>COMPOSITION</th>
<th>PRODUCT NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>AlN</td>
<td>Aluminum Nitride</td>
</tr>
</tbody>
</table>

## Section 2- HAZARDOUS INGREDIENTS

Note: Products under normal conditions do not represent an inhalation, ingestion or contact health hazard.

<table>
<thead>
<tr>
<th>MATERIAL OR COMPONENT</th>
<th>CAS NUMBER</th>
<th>WT%</th>
<th>OSHA PEL (Mg/M³)</th>
<th>ACGIH TLV (MG/M³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Nitride</td>
<td>24304-00-5</td>
<td>100</td>
<td>15mg (Al)/ m³</td>
<td>10mg(Al)/m³</td>
</tr>
</tbody>
</table>

## Section 3- PHYSICAL DATA

<table>
<thead>
<tr>
<th>MATERIAL IS (AT NORMAL CONDITIONS)</th>
<th>APPEARANCE AND ODOR</th>
<th>MELTING POINT (BASE METAL)</th>
<th>SPECIFIC GRAVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Liquid □ Solid □ Gas □ Other</td>
<td>Pale gray or green-gray, ammonia odor in moist air.</td>
<td>2150° C</td>
<td>3.26gm/cc</td>
</tr>
</tbody>
</table>

## Section 4- FIRE AND EXPLOSION

<table>
<thead>
<tr>
<th>Flash Point (Method Used)</th>
<th>Flammable Limits</th>
<th>LEL</th>
<th>UEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

EXTINGUISHING MEDIA

Class D or other extinguishing agent. DO NOT USE WATER.

SPECIAL FIRED FIGHTING PROCEDURES

Wear full face, self-contained breathing apparatus with full protective clothing. Isolate run-off to prevent environmental contamination.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Contact with acids may generate flammable hydrogen gas. Phosgene gas may be produced if chlorinated vapors are present.
Section 5- REACTIVITY DATA

<table>
<thead>
<tr>
<th>STABILITY</th>
<th>INCOMPATABILITY (MATERIALS TO AVOID)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable</td>
<td>Water, steam, moisture, chlorinated vapors and acids.</td>
</tr>
</tbody>
</table>

CONDITIONS TO AVOID

None

HAZARDOUS DECOMPOSITION PRODUCTS

Ammonia gas, aluminum hydroxide, hydrogen gas, phosgene and oxides of nitrogen.

Section 6- HEALTH HAZARD GUIDE

MAJOR EXPOSURE HAZARD

- Inhalation
- Skin
- Skin Absorption
- Eye Contact
- Ingestion

EFFECTS OF OVEREXPOSURE

INHALATION: Acute: May be an irritant and possible corrosive to the nose, throat and mucus membranes. May cause chemical pneumonia, chemical bronchitis and pulmonary edema. Ammonia gas may cause irritation to the nose and throat, dyspnea, bronchia spasms, chest pain, pulmonary edema and pink forthy sputnum. Chronic: May cause pulmonary fibrosis. Repeated or prolonged exposure to ammonia gas may cause swelling of the moth and throat to the point of asphyxiation, permanent injury or death.

INGESTION: Acute: May cause aluminum toxicity. Ammonia gas may cause nausea, vomiting and burns. Chronic: Aluminum has been implicated in Alzheimer’s disease.

SKIN CONTACT: Acute: May be an irritant and possibly corrosive. Ammonia gas may cause irritation and chemical burns. Chronic: Repeated or prolonged exposure may cause tissue damage.

EYE CONTACT: Acute: May be an irritant and possibly corrosive. Ammonia gas may cause irritation and chemical burns. Chronic: Repeated or prolonged exposure may cause irreversible damage.

TARGET ORGANS: May affect respiratory system, lungs, skin and eyes.

EMERGENCY & FIRST AID PROCEDURES

INHALATION: Remove from exposed area to fresh air immediately; keep warm and quiet, give oxygen if breathing is difficult. Seek medical attention.

SKIN CONTACT: Remove contaminated clothing; brush material off skin. Wash affected area with soap or mild detergent and large amounts of water until no evidence of the chemical remains. Seek medical attention.

EYE CONTACT: Flush eyes with lukewarm water lifting up the upper and lower lids for at least fifteen minutes. Seek medical attention.

Section 7- SPILL OR LEAK PROCEDURES

SPILL OR LEAK PROCEDURES

Wear appropriate respiratory and protective equipment. Isolate the area where the spill occurred and provide ventilation and extinguish. Vacuum up the spill using a high efficiently particulate absolute (HEPA) air filter and place in a closed container for proper disposal.

WASTE DISPOSAL METHODS

Observe all federal, state and local regulations when storing or disposing.
Section 8- SPECIAL PROTECTION

VENTILATION
Local exhaust: Maintain concentration at or below the PEL.

EYE PROTECTION & PROTECTIVE CLOTHING
Wear Safety glasses for eyes. Wear rubber gloves on hands.

Section 9- SPECIAL PRECAUTIONS

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.

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 regulations and the Toxic Substance Control Act (TSCA), these materials should only be handled by, or under the direct supervision of a "technically qualified individual", as defined in 40 CFR710.2(aa)

The information in this MSDS was obtained from sources, which we believe are reliable. However, the information is provided without any representation or warranty, express or implied, regarding the accuracy or correctness.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.