

# BORIDE PRODUCTS

## MATERIAL SAFETY DATA SHEET

MSDS # 919  
K-0963-919

Date of Issue: 5/01  
Supersedes: 4/99

### SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: ALNIDE, ROKLITE 510, Tiles, Billets, Dow Chemical XUS-35532.00  
Chemical Name: Aluminum Nitride Solid  
Synonyms: AlN  
Manufacturer: Boride Products, 2879 Aero Park Drive, Traverse City, MI 49686-9170

<b>EMERGENCY TELEPHONE NUMBER: THE 3E COMPANY 1-800-451-8346</b>
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### SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Material	CAS Number	% by Weight	OSHA PEL	ACGIH TLV	NFPA HAZARD RATING SCALE		
			TWA (mg/m <sup>3</sup> )	TWA (mg/m <sup>3</sup> )	Health	0-4 Fire	Reactivity
Aluminum Nitride	24304-00-5	95-100	5	5	No rating	0	0
Aluminum Oxide	1344-28-1	0-5	5	10	1	0	0
Yttrium Oxide	001-314-369	0-5	1 as Y	1 as Y	2	0	0

### SECTION 3 - HAZARDS IDENTIFICATION

In the form of a powder, this gray material may be flammable and may cause respiratory and/or skin irritation. Overexposure to this material in the form of metallurgical powder, dust or mist from grinding or sweeping may be hazardous to health. Preexisting pulmonary and skin conditions such as emphysema, asthma, bronchitis and dermatitis may be aggravated by exposure to this material.

*[Note: Health effects listed are for exposure to metallurgical powders, dust, or mist from grinding. No health effects have been reported for exposure to this material in solid form.]*

**Inhalation:** Irritant: In the form of ceramic powder, dust or mist from grinding or dust from sweeping.

Acute Overexposure: May cause irritation of the upper respiratory tract, coughing, or shortness of breath. May also result in dust accumulation in the lungs.

Chronic Overexposure: May cause bronchitis, emphysema, build-up of dust in the lungs, and damage to lung tissue. Occasionally, individuals exposed to aluminum fumes suffer severe reaction of the lungs, including damage to lung tissue and emphysema. Rarely, encephalopathy, a degenerative brain disease, has been reported.

**Skin Contact:** Irritant: In the form of metallurgical powder, dust, or mist from grinding.

Acute Overexposure: May cause mild irritation.

Chronic Overexposure: May cause inflammation of the skin.

**Eye Contact:** Irritant.

Acute Overexposure: May cause irritation, redness, and pain.

Chronic Overexposure: May cause conjunctivitis.

**Ingestion:** Irritant: In the form of metallurgical powder, dust, or mist from grinding.

Acute Overexposure: May cause nausea, vomiting, and weakness.

Chronic Overexposure: May cause constipation. Aluminum is poorly absorbed, but individuals with impaired kidney function may accumulate aluminum in tissues. High levels of aluminum in the brain have been associated with senility and Alzheimer's disease.

### SECTION 4 - FIRST AID MEASURES

Inhalation: If symptoms of pulmonary involvement develop (coughing, wheezing, shortness of breath), remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep affected person warm and at rest. Get medical attention immediately.

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Skin Contact: If irritation or rash occurs, remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of material remains (approximately 15-20 minutes). Get medical attention.

Eye Contact: If irritation occurs, wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of material remains (approximately 15-20 minutes). Get medical attention immediately.

Ingestion: If this material has been swallowed and person is conscious, immediately give person large amounts of water. Do not attempt to make an unconscious person drink or vomit. Get medical attention immediately. Induce vomiting only if specifically instructed by a physician.

### ***SECTION 5 - FIRE FIGHTING MEASURES***

Fire and Explosion Hazards: This product, except as powder or dust, is not a fire hazard. If dusts are allowed to accumulate, under rare favoring conditions, finely divided powder or dust is expected to be a fire and explosion hazard when exposed to high temperatures or ignition sources. Particle size and dispersion in air determine reactivity.

Flashpoint: Not applicable.

Firefighting Media: For localized powder fires, smother with dry sand, dry dolomite, sodium chloride or soda ash. Use fire extinguishing media appropriate to fight surrounding fire.

Special Firefighting Procedures: Move container from fire area if possible. Cool containers exposed to flame with water from side until well after fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, or withdraw and let fire burn. Use powdered sodium chloride, or suitable dry powder. Avoid breathing fumes from burning material. Firefighting personnel must use proper respiratory protection and protective fire suits.

### ***SECTION 6 - ACCIDENTAL RELEASE MEASURES***

Steps to be Taken if Material is Released or Spilled: Sweep up with minimum amount of dust generation and place in suitable clean, dry containers for later disposal or reclamation. Residue should be cleaned up using a high efficiency particulate filter vacuum or wet clean up. Use appropriate personal protective equipment including respiratory protection.

### ***SECTION 7 - HANDLING AND STORAGE***

Handling and Storage: Minimize free fall of powder and avoid dispersion of dust in air. Finely divided particles, dust, or fumes may be flammable or explosive. Keep away from sparks or ignition sources. Contents should be stored in a clean, cool area.

Other Precautions: Wash hands thoroughly after handling, before eating or smoking. Do not shake clothing, rags or other items to remove dust. Dust should be removed by washing or vacuuming. Periodic examinations are recommended for individuals regularly exposed to dust or mist.

### ***SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION***

Ventilation: Provide local exhaust ventilation or general dilution to maintain exposure levels below the PEL and TLV.

Respiratory Protection:

High levels - High efficiency particulate filter with a full facepiece. Supplied-air respirator with a full facepiece, helmet, or hood. Self-contained breathing apparatus with a full facepiece.

Firefighting: Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive-pressure mode.

Clothing: Protective clothing not required; however, avoid repeated or prolonged contact with this substance.

Gloves: Protective gloves are not required, but recommended.

Eye Protection: Safety glasses with side shields or goggles are recommended. Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain within the immediate work area for emergency use. Contact lenses should not be worn when handling these materials.

### ***SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES***

Appearance and Odor: Odorless, gray-white powder or solid

Solubility in Water: Practically insoluble

Petroleum Based Solvent Solubility: Practically insoluble

Boiling Point: Decomposes at 3902°F

Melting Point: N/A

Specific Gravity: (H<sub>2</sub>O = 1): 3.26

### ***SECTION 10 - STABILITY AND REACTIVITY***

Stability: Stable under normal temperatures and pressure.

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Decomposition: Thermal decomposition may release acrid smoke and irritating fumes.

Incompatibilities:

**Aluminum Oxide:**

Chlorine Trifluoride: May react violently with possible flame.

Ethylene Oxide: May polymerize violently in contact with aluminum oxide.

**Aluminum Nitride:**

Halocarbon Vapors: Exothermic reaction above 200°C produces toxic hydrogen chloride and phosgene.

**Yttrium Oxide:**

None known.

### ***SECTION 11 - TOXICOLOGICAL INFORMATION***

This material has not been identified as a suspected or known carcinogen. No other data are available.

### ***SECTION 12 - ECOLOGICAL INFORMATION***

No data are available.

### ***SECTION 13 - DISPOSAL CONSIDERATIONS***

Waste Disposal Method: This is a valuable material that should be sent to an appropriate reclamation facility if available. If material cannot be sent to a reclamation facility, disposal should be made in compliance with federal, provincial/state, and local environmental regulations.

### ***SECTION 14 - TRANSPORT INFORMATION***

May be classified as a hazardous substance when it is in a quantity, in one package, in which individual, regulated components equal or exceed the reportable quantities established by the Department of Transportation.

### ***SECTION 15 - REGULATORY INFORMATION***

Some ingredients may be subject to reporting requirements of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372 – see Section 2.

### ***SECTION 16 - OTHER INFORMATION***

Although Boride Products and Kennametal Inc. have attempted to provide current and accurate information herein, Boride Products and Kennametal Inc. make no representations regarding the accuracy or completeness of the information and assumes no liability for any loss, damage, injury of any kind which may result from or arise out of the use of or reliance on the information by any person.

For technical information contact William Huston Materials & Development Manager 231-929-2105.

Prepared by: Boride Products and Kennametal Inc. Hazard Communication Committee