ELECTRONIC SPACE PRODUCTS INTERNATIONAL

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MATERIAL SAFETY DATA SHEET

I PRODUCT IDENTIFICATION

Trade Name: Nickel Aluminide
Synonyms: Nickel monoaluminide
CAS #: 12003-78-0
Chemical Family: Metal aluminide
Formula: NiAl

II HAZARDOUS INGREDIENTS

Hazardous Components	%	OSHA/PEL	ACGIH/TLV	Sec. 302	Sec. 304	Sec. 313
Nickel Aluminide	0-100	1 mg(Ni)/m^3	.05(Ni)/m^3	No	Yes 1 lb	Yes

HMIS Ratings (0-4): **Health**: 3 **Flammability**: 0 **Reactivity**: 0
HMIS Protective Equipment: J: goggles, gloves, apron, respirator

III PHYSICAL DATA

Boiling Point: N/E or N/A
Vapor Density: N/A
Solubility in H_2O: N/E
Appearance and Odor: Powder and pieces, no odor.
Melting Point: N/E or N/A
Specific Gravity (H_2O=1): N/E
% Volatile: N/E or N/A

IV FIRE AND EXPLOSION HAZARDS DATA

Flash Point: N/E or N/A
Explosive Limits: **Lower**: N/A **Upper**: N/A
Method Used: Non-flammable

Extinguishing Media: Use suitable extinguishing media for surrounding materials or 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 & Explosion Hazard: When heated to decomposition, nickel aluminide may emit toxic fumes.

V HEALTH HAZARD INFORMATION

Effects of Exposure:

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

Nickel is a confirmed carcinogen with experimental carcinogenic, neoplastigenic, tumorigenic and teratogenic data. Poison by ingestion, intratracheal, intraperitoneal, subcutaneous and intravenous routes. An experimental teratogen. Ingestion of soluble salts causes nausea, vomiting and diarrhea. Hypersensitivity to nickel is common and can cause allergic contact dermatitis, pulmonary asthma, conjunctivitis and inflammatory reactions around nickel containing medical implants and prosthesis (Sax, Dangerous Properties of Industrial Materials, eighth edition).

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. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Acute Effects:

Inhalation: May cause irritation to the upper respiratory tract, nasal cavities, pulmonary asthma and pulmonary fibrosis.
Ingestion: Large doses may cause intestinal disorders, convulsions and asphyxia.
Skin: May cause irritation.
Eye: May cause irritation.

Chronic Effects:

Inhalation: May cause pneomitis.
Ingestion: May cause nickel toxicity.
Skin: May sensitize the skin (nickel itch). May cause allergic dermatitis, eczematous dermatitis and may be accompanied a week later with superficial skin ulcers, which may discharge and become crusted.
Eye: May cause conjunctivitis.

Target Organs: May affect the nasal cavities, lungs and skin.

Medical Conditions Generally Aggravated by Exposure: Pre-existing respiratory disorders, pulmonary functions, asthma and skin disorders.

Routes of Entry: Inhalation, ingestion, skin, eyes.
Carcinogenicity: **NTP**? Yes **IARC Monographs**? Yes **OSHA Regulated**? Yes

EMERGENCY AND FIRST AID PROCEDURES:

INHALATION: Remove victim to fresh air; keep warm and quiet. Give oxygen if breathing is difficult and 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 and wash affected area with mild soap and water. Seek medical attention if symptoms persist.
EYE: Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persist.

VI REACTIVITY DATA

Stability: Stable

Conditions to Avoid: None
Incompatibility (Material to Avoid): Strong acids, bases and oxidizing agents.

Hazardous Decomposition Products: Oxides of nitrogen and aluminum.
Hazardous Polymerization: Will not occur.

VII SPILL OR LEAK PROCEDURES

Steps to Be Taken in Case Material Is Released or Spilled: Wear appropriate respiratory and protective equipment specified in Section VIII - Special Protection Information. Isolate spill area and 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 Local, State and Federal regulations.

VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection: NIOSH - approved dust-mist-vapor cartridge respirator.
Ventilation: Use local exhaust to maintain exposure below the PEL, TLV. Handle in a controlled, enclosed environment. General not recommended.

Protective Gloves: Rubber gloves
Eye Protection: Safety goggles

Other Protective Equipment: Protective gear suitable to prevent contamination.

IX SPECIAL PRECAUTIONS

Precautions to Be Taken in Handling and Storage: Store in cool, dry area. Store in tightly sealed container. Wash thoroughly after handling.

Work Practices: Implement engineering and work practices 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 and smoking. Do not blow off clothing or skin with compressed air.

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI shall not be held liable for any damage resulting from handling or from contact with the above product.

Issued by: S. Dierks
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