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## MATERIAL SAFETY DATA SHEET

### I PRODUCT IDENTIFICATION

|                    |                                  |                          |               |
|--------------------|----------------------------------|--------------------------|---------------|
| <b>Trade Name:</b> | Vanadium Nitride                 | <b>Chemical Family:</b>  | Metal nitride |
| <b>Formula:</b>    | VN                               | <b>CAS #:</b>            | 24646-85-3    |
| <b>TSCA:</b>       | Listed in the EPA TSCA Inventory | <b>Molecular Weight:</b> | 64.949        |

### II HAZARDOUS INGREDIENTS

| Hazardous Component | %   | OSHA/PEL                      | ACGIH/TLV  |
|---------------------|-----|-------------------------------|--|
| Vanadium Nitride    | 100 | 0.05 mg/m <sup>3</sup> (as V) | 0.05 mg/m <sup>3</sup> (as V <sub>2</sub> O <sub>5</sub> ) |

HMIS Hazard Rating (0-4): Health: 3    Flammability: 0    Reactivity: 2    Personal Protection: E

### III PHYSICAL DATA

|                                      |                                |                              |           |
|--------------------------------------|--------------------------------|------------------------------|-----------|
| <b>Boiling Point:</b>                | N/D                            | <b>Melting Point:</b>        | 2320      |
| <b>Vapor Pressure:</b>               | N/A                            | <b>Density gm/cc:</b>        | 6.13      |
| <b>Reaction with H<sub>2</sub>O:</b> | None                           | <b>Solubility in Water:</b>  | Insoluble |
| <b>Other Comments:</b>               | Slightly soluble in aqua regia | <b>% Volatile by Volume:</b> | N/A       |
| <b>Appearance and Odor:</b>          | Black crystalline powder       |                              |           |

### IV FIRE AND EXPLOSION HAZARDS DATA

**Flash Point:** N/A    **Autoignition Temperature:** N/A  
**Flammable Limits:** Lower: N/A    Upper: N/A

**Extinguishing Media:** Use dry chemical, graphite, agents for metal fires.

**Special Firefighting Procedures:** Wear a self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes.

**Unusual Fire and Explosion Hazards:** May evolve toxic fumes of VxOy and NxOy if involved in a fire

### V HEALTH HAZARD INFORMATION

#### Effects of Exposure:

**Inhalation:** Symptoms include pallor, paroxysmal cough, pain in chest, bronchitis, rales and rhonchi, bronchospasms, radiographic reticulation, and tremors of the arms and fingers. Prolonged exposure leads to pulmonary involvement. Serious overexposure may lead to pulmonary edema and pneumonia.

**Ingestion:** Greenish tongue, metallic taste, tremors, pallor, sore throat. Vanadium is an equivturmorigenic agent. Responses to vanadium exposure are acute, never chronic. Recent reports describe symptoms which are generally restricted to the conjunctiva and respiratory tracts, with no evidence of disturbances of the G.I. tract, kidneys, blood or CNS.

**Skin:** Irritation, redness, inflammation possible. May also cause eczematous type lesions and hives.

**Eye:** Irritant to conjunctiva. May cause burning sensation, watering, inflammation.

**Toxicity Data:** No specified data on this compound

**Routes of Entry:** Inhalation, Skin, and ingestion

**Medical Conditions Generally Aggravated by Exposure:** Respiratory and eye disorders.

**Carcinogenicity:** NTP: No      **IARC Monographs:** No      **OSHA Regulated:** Yes

#### **EMERGENCY AND FIRST AID PROCEDURES:**

**INHALATION:** Remove victim to fresh air. Seek medical attention. Give oxygen if breathing is difficult.

**INGESTION:** Give victim 1-2 glasses of milk or water and induce vomiting. Seek medical attention.

**SKIN:** Brush material off skin. Wash affected area with soap and water. Seek medical attention.

**EYES:** Flush eyes with lukewarm water for 15 minutes. Seek medical attention.

#### **VI REACTIVITY DATA**

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**Stability:** Stable

**Conditions to Avoid:** Exposure to high temp, incompatible materials

**Incompatibility (Material to Avoid):** No data. Possibly incompatible with HF, halogens, oxidizers, interhalogens.

**Hazardous Decomposition Products:** V<sub>2</sub>O<sub>5</sub>, NxOy (heat)

**Hazardous Polymerization:** Will not occur

#### **VII SPILL OR LEAK PROCEDURES**

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**Steps to Be Taken in Case Material Is Released or Spilled:** Wear a self-contained breathing apparatus and full protective clothing. Isolate the area where the spill occurred and insure that proper ventilation is available. Vacuum up spill using a high efficiency unit and place in a container for proper disposal. Take care not to raise dust.

**Waste Disposal Method:** Dispose of in accordance with applicable Federal, State and Local regulations.

#### **VIII SPECIAL PROTECTION INFORMATION**

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**Respiratory Protection (Specify Type):** Wear NIOSH-approved dust-mist-fume cartridge respirator.

**Ventilation:** Use local exhaust to maintain exposure below TLV for V<sub>2</sub>O<sub>5</sub>. Handle in controlled atmosphere. Mechanical exhaust is not recommended.

**Eye Protection:** Safety glasses

**Protective Gloves:** Neoprene

**Other Protective Equipment:** Wear protective clothing to prevent contamination of skin and clothes

#### **IX SPECIAL PRECAUTIONS**

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**Other Handling and Storage Conditions:** Store in a tightly closed containers in a cool, dry place. Wash hands and face thoroughly after handling and before eating.

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

Date: December 1992