

# MATERIAL SAFETY DATA SHEET



Complies with U.S. OSHA  
E.C. Guideline 91/155/EEC:

Effective April 2010

## EMERGENCY TELEPHONE NUMBERS:

NATIONAL RESPONSE CENTER: 1-800-424-8802

CHEMTREC U.S. and CANADA: 1-800-424-9300

CHEMTREC International: 1-202-483-7616 (Collect)

Users of this product are requested to study this data sheet to learn the product's characteristics so that the product can be used safely. If the material is resold, the purchaser should be furnished a copy of this data sheet and the information should be made available to all users.

## SECTION 1 Chemical Product and Company Identification

|   |  |   |
|---|--|---|
| <b>Product Trade Name</b>                       | <b>Nitrovan<sup>®</sup> Vanadium</b>   |   |
| <b>Article No.</b>                              | V2, V3, V14  |   |
| <b>Company Identification<br/>And Inquiries</b> | Vametco Alloys (Pty.) Ltd.<br>Part of Evraz Group<br>P.O. Box 595; Brits, South Africa     | Tel.: +27 12 318-3262<br>Fax: +27 12 318-3201 |
|   | East Metals (North America), LLC<br>1180 Omega Drive<br>Pittsburgh, Pa. 15204-5005: U.S.A. | Tel.: (412) 787-4711<br>Fax: (412) 787-4703   |

## SECTION 2 Composition and Information on Ingredients

|                                   |                                 |
|-----------------------------------|---------------------------------|
| <b>Chemical Characterization:</b> |                                 |
| <b>Chemical Description</b>       | <b>Vanadium Carbide Nitride</b> |
| <b>UN Number</b>                  | <b>None</b>                     |
| <b>DOT Guide</b>                  | <b>170</b>                      |
| <b>CAS No.</b>                    | <b>12069-91-9</b>               |
| <b>EINECS No.</b>                 | <b>Not Listed</b>               |
| <b>Percentage</b>                 | <b>98 to 99%</b>                |

## SECTION 3 Hazards Identification

|  |   |
|--|---|
| <b>Potential Hazards for Humans and Animals:</b> |   |
| <b>Eye Contact</b>                               | Dust may irritate. Chips may cause corneal injury.  |
| <b>Skin Contact</b>                              | Dust may cause contact dermatitis with itching and rash.  |
| <b>Inhalation</b>                                | Dust may irritate the respiratory tract and cause coughing.<br>Extreme or repeated exposure may cause bronchitis. |
| <b>Ingestion</b>                                 | No expected effects.  |

## SECTION 4 First-Aid Measures

|                             |  |
|-----------------------------|--|
| <b>General Information:</b> |  |
| <b>Inhalation</b>           | Leave dusty area. Breathing assistance if necessary.                                     |
| <b>Skin</b>                 | Wash with soap and water.  |
| <b>Eyes</b>                 | Flush with water 15 minutes to remove particles. See a physician if irritation persists. |
| <b>Ingestion</b>            | No expected emergency care anticipated.  |

## SECTION 5

### Fire-Fighting Measures

|   |  |
|---|--|
| <b>Suitable Extinguishing Media</b>                   | Class D fire. Use dry chemical, completely dry sand, or carbon dioxide to smother.                                     |
| <b>Extinguishing Media Not to Be Used</b>             | Water sprayed on burning material may generate hydrogen gas.   |
| <b>Special Exposure Hazards</b>                       | Avoid creating dust. Fine dust suspended in air may ignite in the presence of a flame or high-temperature heat source. |
| <b>Special Protective Equipment for Fire Fighters</b> | Full protective equipment including positive-pressure breathing apparatus.   |

## SECTION 6

### Accidental-Release Measures

|                                  |   |
|----------------------------------|---|
| <b>Personal Precautions</b>      | Skin, eye, and respiratory protection as needed by conditions.  |
| <b>Environmental Precautions</b> | Not an environmentally-sensitive material.  |
| <b>Cleaning Methods</b>          | Vacuum preferred – or sweeping.   |
| <b>Additional Information</b>    | Avoid decontamination procedures which create airborne dusting. Use ventilation if necessary to control dusting. Avoid use of compressed air. Keep ignition sources away from spill area. |

## SECTION 7

### Handling and Storage

|                 |  |
|-----------------|--|
| <b>Handling</b> | Avoid procedures that cause dust. Keep away from sparks, heat, and open flame.   |
| <b>Milling</b>  | Precautions should be taken when crushing or milling this material to a fine-particle size (nominally less than 200 mesh with over 50% less than 325 mesh). Consideration should be given to performing these operations in an inert atmosphere or under vacuum. |
| <b>Storage</b>  | Material should be kept dry and in closed containers. Keep away from sparks, heat, and open flame in a well-ventilated area away from combustible materials.   |

## SECTION 8

### Exposure Controls and Personal Protection

|  |   |
|--|---|
| <b>Recommendations on Equipment Designs</b>              | Proper dust collection. Minimize dust during dumping operations. Avoid procedures that cause sparks   |
| <b>Occupational Exposure Limit</b>                       | 1 mg vanadium per cu. m for vanadium alloys (NIOSH).<br>5 mg per cu. m for Respirable Dust (PNOR)** (OSHA).<br>15 mg per cu. m for Total Dust (PNOR)** (OSHA).<br>**PNOR = Particulates Not Otherwise Regulated |
| <b>Personal Safety Equipment: Respiratory Protection</b> | Use respirators approved by NIOSH/MSHA or competent local authority.  |
| <b>Hand Protection</b>                                   | Use protective gloves and barrier creams.   |
| <b>Eye Protection</b>                                    | Use face shields, face screens, goggles or safety glasses with side shields.  |
| <b>Skin Protection</b>                                   | Not normally required.  |
| <b>Personal Hygiene</b>                                  | Wash with soap and water after handling and before eating, drinking, or smoking.  |

## SECTION 9

# Physical and Chemical Properties

This MSDS reflects available research data and is not a product- or quality-specification document.

|                                   |   |
|-----------------------------------|---|
| <b>Appearance:</b>                |   |
| <b>Physical State</b>             | Solid.  |
| <b>Form</b>                       | Pellets, approximately 35 gm each.  |
| <b>Color</b>                      | Dark-gray metallic.   |
| <b>Odor</b>                       | None.   |
| <b>Change in Physical State:</b>  |   |
| <b>Melting Point</b>              | 2427°C (4400°F).  |
| <b>Boiling Point</b>              | Not available.  |
| <b>Vapor Pressure</b>             | Essentially zero.   |
| <b>Flash Point</b>                | Not applicable.   |
| <b>Flammability</b>               | Dust is combustible. Pellets will burn slowly if heated to a high temperature in air. |
| <b>Ignition Temperature</b>       | Not applicable.   |
| <b>Auto Flammability</b>          | Not applicable.   |
| <b>Oxidizing Properties</b>       | None.   |
| <b>Explosive Properties</b>       | Dust is combustible. Pellets will burn slowly if heated to a high temperature in air. |
| <b>Bulk Density</b>               | 1.6 g per cc (100 lb. per cu. ft.)  |
| <b>Solubility in Water (20°C)</b> | Insoluble.  |
| <b>pH Value</b>                   | Not applicable.   |

## SECTION 10

# Stability and Reactivity

|                                |  |
|--------------------------------|--|
| <b>Conditions to Avoid</b>     | Situations which cause dusting, fire, and high temperatures.                                 |
| <b>Incompatible Materials</b>  | None.  |
| <b>Hazardous Decomposition</b> | Unstable in air at temperatures above 150°C (302°F) with slow conversion to vanadium oxides. |

## SECTION 11

# Toxicological Information

|                                  |   |
|----------------------------------|---|
| <b>Acute Toxicity</b>            | Not listed.   |
| <b>Irritation</b>                | Mild respiratory irritant. May be a mild skin irritant  |
| <b>Chronic Toxicity</b>          | None noted.   |
| <b>Carcinogen Status:</b>        |   |
| <b>IARC</b>                      | Not listed, International Agency for Research on Cancer |
| <b>NTP Annual Report</b>         | Not listed, National Toxicology Program                 |
| <b>OSHA Subpart Z</b>            | Not listed.   |
| <b>U.S. EPA Genetic Toxicity</b> | Not listed.   |
| <b>Mutagen Status</b>            | Not listed.   |
| <b>Teratogen Status</b>          | Not listed.   |

## SECTION 12

# Ecological Information

|  |  |
|--|--|
| <b>Persistence and Degradability</b>                           | Will very slowly oxidize to vanadium oxide.          |
| <b>Aquatic Toxicity and Other Data Relating to Ecotoxicity</b> | Not located. This substance is not soluble in water. |

## SECTION 13 Disposal Considerations

**Product  
Recommendation**  
**Empty-Container  
Recommendation**

This product contains no ingredients which are listed as Hazardous Substances by the U.S. EPA.

This product does not possess characteristics which may qualify as hazardous waste. Waste and containers may be disposed of in accordance with applicable local guidelines. Unused product may be returned to supplier for recycling.

## SECTION 14 Transport Information

This product is not identified as a Hazardous Substance.

**U.N. packaging requirements shall be met for air and non-U.S. shipments.**

**Proper Shipping Description** Nitrovan<sup>®</sup> Vanadium. No special labeling, placarding, or identification is required by any agency.

**Empty-Container Description** None required.

**Land Transport** U.S. DOT or appropriate local guidelines.

**Inland-Waterway Transport** U.S. DOT or appropriate local guidelines.

**Ocean Transport** IMO / IMDG Code: Container shipments require a Container Packing Certificate.

**Air Transport** ICAO-IT and IATA-DGR: No limit on quantity.

## SECTION 15 Regulatory Information

This product is not identified as a Hazardous Substance.

**Classification According to U.N. Guidelines** None.

**E.C. Danger Symbol** None.  
**R-phrases** None.  
**S-phrases** None.

**U.S. EPA TSCA Inventory** Listed.

**U.S. EPA SARA III Section 302 and 304** Notification may be required. Check local regulations.

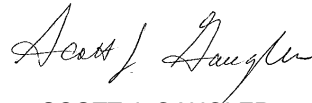
**U.S. EPA SARA III Section 311 and 312** Notification may be required. Check local regulations.

**U.S. EPA SARA III Section 313** Not required.

**Non-U.S. Regulations** Refer to specific national guidelines.

## SECTION 16 Other Information

**Data Sheet Prepared by:**



4-15-10

SCOTT J. GAUGLER

Director of Marketing and Sales; Pittsburgh, Pennsylvania; U.S.A.

Eat Metals (North America), LLC believes that the data on this sheet are correct as of the effective date and that the opinions given reflect those of qualified experts. Since Strategic Minerals cannot control the product or its use, it is the user's responsibility to use the product safely. The data on this sheet apply only to products sold by East Metals and may not apply to products sold by others.

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