

MATERIAL SAFETY DATA SHEET



Complies with U.S. OSHA
E.C. Guideline 91/155/EEC:
Revision: 6
Last Revision: August 2009
Replaces: May 2005

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

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|-------------------------------|--|
| Product Trade Name | Vanadium Pentoxide |
| Article No. | MC4, MC5, MC6, MC6-A |
| Company Identification | Stratcor, Inc. Tel.: (501) 262-1270 4285 Malvern Road Fax: (501) 262-2793 Hot Springs, Arkansas 71901; USA |
| Inquiry Department | Stratcor, Inc., Pittsburgh, PA; USA Tel.: 1-412-787-4500; www.stratcor.com |

SECTION 2

Composition and Information on Ingredients

Chemical Characterization:

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| Chemical Description | Vanadium Pentoxide, V₂O₅ |
| UN Number | UN 2862 |
| DOT Guide | 151 |
| CAS No. | 1314-62-1 |
| EINECS No. | 215-239-8 divanadium pentaoxide |

This substance contains only vanadium pentoxide with trace impurities.

SECTION 3

Hazards Identification

Potential Hazards for Humans and Animals:

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| Eye Contact | Irritation with possible corneal injury. |
| Skin Contact | Irritation with reddening and itching. Absorption of harmful amounts possible. |
| Inhalation | Irritation of the respiratory tract, chest tightness, wheezing, bloody nose, and coughing. |
| Ingestion | Abdominal discomfort, nausea, vomiting, cramping. Harmless green tongue discoloration. |

SECTION 4

First-Aid Measures

General Information:

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| Inhalation | Leave dusty area. Breathing assistance or oxygen if necessary. |
| Skin | Wash with soap and water. See a physician if irritation continues. |
| Eyes | Flush with water 15 minutes to remove particles. See an ophthalmologist. |
| Ingestion | Give two glasses of water. Induce vomiting if conscious. Call a physician. |

SECTION 5 Fire-Fighting Measures

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| Suitable Extinguishing Media | Not flammable. Use media suitable for surrounding fire. |
| Extinguishing Media Not to Be Used | None. |
| Special Exposure Hazards | Avoid creating dust. |
| Special Protective Equipment for Fire Fighters | Full protective equipment including positive pressure-breathing apparatus. (See DOT Guide 151.) |

SECTION 6 Accidental- Release Measures

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| Personal Precautions | Skin, eye, and respiratory protection. |
| Environmental Precautions | Prevent entering sewage systems or surface water. |
| Cleaning Methods | Vacuum preferred – or sweeping. Addition of sand or sweeping compound is advisable. |
| Additional Information | Avoid decontamination procedures which create airborne dusting. Use ventilation if necessary to control dusting. |

SECTION 7 Handling and Storage

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| Handling | Vacuum dust at point of formation. Provide proper protective gear for handling dusty materials. Personnel should clean up after handling. Avoid areas where dust is present. |
| Storage | Keep dry and in closed containers. |

SECTION 8 Exposure Controls and Personal Protection

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| Recommendations on Equipment Designs | Proper dust collection. Minimize dust during dumping operations. |
| Occupational Exposure Limit | Listed in OSHA 29 CFR 1910.1000, Table Z-1 (Air Contaminants): 0.05 mg/m ³ for V ₂ O ₅ inhalable particulate matter, measured as vanadium (ACGIH TLV TWA) 0.05 mg V/m ³ for V ₂ O ₅ fume (MSHA Ceiling) 0.1 mg/m ³ for V ₂ O ₅ fume (OSHA Table Z-1, Ceiling PEL) 0.5 mg/m ³ for V ₂ O ₅ dust (OSHA Table Z-1, Ceiling PEL) 0.5 mg V/m ³ for V ₂ O ₅ dust (MSHA TWA) |
| Personal Safety Equipment: | |
| Respiratory Protection | Use respirators approved by NIOSH/MSHA in dusty areas. |
| Hand Protection | Use protective gloves and barrier creams. |
| Eye Protection | Use goggles or safety glasses with side shields. |
| Skin Protection | Avoid contamination of work clothing. |
| Personal Hygiene | Wash or bathe 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.

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|-----------------------------------|--|
| Appearance: | |
| Physical State | Solid. |
| Form | Granules. |
| Color | Yellow-orange. |
| Odor | None. |
| Change in Physical State: | |
| Melting Point | 690°C (1274°F). |
| Boiling Point | Decomposes at 1750°C (3182°F). |
| Vapor Pressure | Essentially zero. |
| Flash Point | Not applicable. |
| Flammability | Not applicable. |
| Ignition Temperature | Not applicable. |
| Auto Flammability | Not applicable. |
| Oxidizing Properties | May act as a catalyst in certain chemical environments. |
| Explosive Properties | None. |
| Bulk Density | 1.2 to 1.3 g/cm ³ (75 to 80 lb./ft ³) |
| Solubility in Water (20°C) | 0.8 g per 100 cc. |
| pH Value | Not applicable. |

SECTION 10

Stability and Reactivity

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| Conditions to Avoid | Situations which cause dusting. |
| Incompatible Materials | Aluminum powder. |
| Hazardous Decomposition | None. |

SECTION 11

Toxicological Information

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| Acute Toxicity | LD ₅₀ orl-rat: 10 mg/kg. (DPIM, 10 th Edition) LCL ₀ ihl-rat: 70 mg/m ³ for 2 hr. (DPIM, 10 th Edition) Poison by ingestion, inhalation, intraperitoneal, subcutaneous, intratracheal, and intravenous routes. Absorption by inhalation is nearly 100%. |
| Irritation | Respiratory and skin irritant. May cause asthmatic reaction or allergic skin reaction in susceptible individuals. |
| Chronic Toxicity | EXTREME or repeated overexposure may cause chronic bronchitis, allergic skin reaction, or asthmatic reaction with possible lung injury in susceptible individuals. When exposure ceases, effects are usually reversible. |
| Carcinogen Status: | |
| ACGIH | A3, confirmed animal carcinogen with unknown relevance to humans. |
| IARC | Group 2B, possibly carcinogenic to humans. |
| NTP Annual Report | Suspected carcinogen, NTP 507. |
| OSHA Subpart Z | Not listed. |
| California Proposition 65 | Known to the State of California to be a carcinogen under Proposition 65 regulations. |
| U.S. EPA Genetic Toxicity | Reported, Genetic Toxicology Program |
| Mutagen Status | Some data available. |
| Teratogen Status | Listed as an experimental teratogen. |

SECTION 12

Ecological Information

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| Persistence and Degradability | Does not readily deteriorate in the environment. |
| Aquatic Toxicity and Other Data Relating to Ecotoxicity | Not located. This substance is slightly soluble in water. |

SECTION 13 Disposal Considerations

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| Product Recommendation | Listed as an acutely hazardous waste when discarded. |
| Empty-Container Recommendation | U.S. EPA classifies discarded product, non-RCRA empty containers and liners, or spill residue as P120 waste. |

SECTION 14 Transport Information


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| U.S. packaging requirements shall be met for all modes of transportation for U.S. and international shipments. | |
| Proper Shipping Name | Vanadium Pentoxide |
| Proper Shipping Description | UN 2862, Vanadium Pentoxide, 6.1, III. |
| Labeling | Toxic labels are used for non-bulk packaging. For bulk packaging, the identification number 2862 is required on an orange panel or placard with toxic labels as required. |
| Placarding | Placards with ID #2862 are required on all bulk packaging shipments and non-bulk packaging shipments in which the aggregate weight is 454 kg (1001lbs.) or more. Toxic placards for all shipments. |
| Land Transport | Regulated by U.S. DOT (CFR Parts 100 to 185). |
| Ocean Transport | Regulated by IMDG (IMDG Code Volume I, Volume II). |
| Air Transport | Regulated by IATA (Dangerous Goods Regulations). Passenger aircraft is limited to 100 kg; cargo aircraft is limited to 200 kg; "limited quantity" is limited to 10 kg. |
| International Transport | Regulated by U.N. TDG regulations. |

SECTION 15 Regulatory Information

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| Classification: U.N. Guidelines | Toxic, 6.1. |
| TSCA Inventory | Reported in the initial EPA TSCA Inventory. |
| CERCLA RQ – 40 CFR 302.4(a) | Vanadium pentoxide is a listed hazardous substance with a reportable quantity (RQ) of 1000 lbs. Notification to NRC required for spills to the environment in excess of the RQ. |
| SARA 302 Components – 40 CFR 355, Appendix A | EHS – Yes. TPQ/Tier II – 100/10,000 lbs. Notification to NRC and appropriate state and local officials may be required for spills to the environment in excess of the RQ. |
| Section 311/12 Hazard Class - 40 CFR 370.2 | Acute: Yes. Chronic: Yes. Fire: No. Pressure: No. Reactivity – No. Review appropriate regulations for Tier II requirements. |
| Section 313 – 40 CFR 372.65 | Reportable chemical categories: vanadium and vanadium compounds. |
| Non-U.S. Requirements | Refer to specific national guidelines. |

SECTION 16 Other Information

Data Sheet Prepared by:


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Strategic Minerals Corporation 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 corporate subsidiaries of Strategic Minerals and may not apply to products sold by others.

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The material difference is value.