

MATERIAL SAFETY DATA SHEET



Complies with U.S. OSHA
E.C. Guideline 91/155/EEC:
Revision: 7
Last Revision: October 2011
Replaces: August 2009

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

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

SECTION 2

Composition and Information on Ingredients

Chemical Characterization:

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:

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:

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

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

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

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

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.

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

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

SECTION 11

Toxicological Information

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

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

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


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

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:


MICHAEL R. WOOLERY
Director of Technology; Hot Springs, Arkansas; U.S.A. 10-1-11

Evraz Stratcor, Inc. 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 Evraz Stratcor 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 Evraz Stratcor and may not apply to products sold by others.

EVRAZ STRATCOR, Inc.

4285 Malvern Road
Hot Springs, Arkansas 71901

www.evrazstratcor.com; www.evraz.com