


ELECTRONIC SPACE PRODUCTS INTERNATIONAL

1050 Benson Way, Ashland, OR 97520
 Toll Free (800) 638-2581 * Fax (541) 488-8313
 E-Mail: sales@espimetals.com

MATERIAL SAFETY DATA SHEET
I PRODUCT IDENTIFICATION

Trade Name:	Vanadium Pentoxide	Molecular Formula:	V ₂ O ₅
Synonym:	Vanadium Anhydride, Vanadium Oxide	Molecular Weight:	182
CAS #:	1314-62-1		

II HAZARDOUS INGREDIENTS

Ingredient:	Weight:	PEL Data (TWA unless noted):
Vanadium Pentoxide	98.5-99.9%	0.5 mg V ₂ O ₅ Dust/m ³ , Ceiling (OSHA) 0.1 mg V ₂ O ₅ Fume/m ³ , Ceiling (OSHA) 0.5 mg Vanadium/m ³ , (V ₂ O ₅ Dust) (MSHA) 0.05 mg Vanadium/m ³ , Ceiling (V ₂ O ₅ Fume) (MSHA) 0.05 mg V ₂ O ₅ /m ³ , Respirable Dust or Fume (ACGIH)

III PHYSICAL DATA

Boiling Point 760 mm Hg:	Decomposes @ 1750 °C (3182 °F)	Melting Point:	690 °C (1274 °F)
Specific Gravity (H₂O=1):	3.36	% Volatile:	N/A
Vapor Pressure (mm Hg):	Essentially 0 (20 °C)	Evaporation Rate:	N/A
Bulk Density:	75 to 80 lb/ft ³ (1.2 to 1.28 g/cc)	Solubility in H₂O:	0.8 per 100 cc @ 20 °C)
Appearance and Odor:	Yellow-orange granules, no odor.		

IV FIRE AND EXPLOSION HAZARDS DATA

Combustibility: Non-combustible

Extinguishing Media: No fire hazard. Use extinguishing media suitable for type of surrounding fire.

Special Fire-Fighting Procedures: Avoid procedures that may create dust. When fighting a fire that might create dust, wear full protective equipment, including positive-pressure breathing apparatus.

V HEALTH HAZARD INFORMATION

Primary Routes of Entry: Inhalation, eyes, skin and ingestion.

Effects of Exposure:

Acute Effects:

Inhalation: Breathing dust and fumes can irritate the respiratory tract and cause chest tightness, wheezing and coughing.

Ingestion: May cause abdominal discomfort such as nausea, vomiting or cramps. Also may cause harmless greenish-black discoloration of the tongue.

Skin: Harmful amounts may be absorbed through the skin. Contact may cause local irritation with reddening and itching.

Eye: May cause moderate to severe eye irritation and possible corneal injury.

Chronic Effects:

Inhalation: May result in chronic bronchitis or asthmatic reaction with possible lung injury in susceptible individuals. When exposure ceases, effects are usually reversible.

Ingestion: No data

Skin: Allegedly causes allergic skin reaction in susceptible individuals. When exposure ceases, effects are usually reversible.

Eye: No data

Carcinogen Listing: National Toxicology Program Annual Report (NTP): Not Listed. International Agency for Research on Cancer (IARC): Not Listed. OSHA 29 CFR Part 1910, Subpart Z: Not Listed.

EMERGENCY AND FIRST-AID PROCEDURES:

INHALATION: Leave dusty area and get fresh air. Help breathing if necessary.

INGESTION: Give at least two glasses of water. Induce vomiting if the patient is conscious and call a physician.

SKIN: Wash with soap and water. See a physician if irritation occurs.

EYES: Flush with water for 10-20 minutes to make sure no particles remain in the eye. See a physician, preferably an ophthalmologist, promptly.

VI REACTIVITY DATA

Stability: Stable. Soluble in hot water and concentrated acids and alkalis. Reacts with chlorine or hydrochloric acid to form vanadium oxytrichloride.

Conditions to Avoid: None

Incompatibility (Material to Avoid): Keep Dry. Vanadium pentoxide absorbs moisture from the air.

Hazardous Decomposition Products: None

Hazardous Polymerization: Will not occur

VII SPILL OR LEAK PROCEDURES

Steps to Be Taken in Case Material Is Released or Spilled: Material should be swept up or vacuumed, using ventilation to control the level of airborne dust. Avoid using compressed air or any method that creates airborne dust. If cleanup may create airborne dust, personnel should wear skin and eye protection as well as respiratory protection.

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

VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): For operations such as grinding or polishing, which will produce dusts of metal powder or oxide above 0.5 mg/m³: NIOSH approved dust-mist-fume respirator

Ventilation: Provide sufficient ventilation to keep exposure to dust below permissible exposure limits.

Protective Gloves: Rubber

Eye Protection: Safety Glasses with side shields. Facilities to flush the eyes with water should be readily available.

Other Protective Clothing or Equipment: Protective gear suitable to prevent contamination.

IX SPECIAL PRECAUTIONS

Handling and Storage: Material should be kept dry and in closed containers. Personnel should clean up after handling the product and avoid areas where fume or dust is present.

Labeling: DOT classification: RQ, Hazardous Substance, Solid, n.o.s, ORM-E, NA9188 (Vanadium Pentoxide) IMO Classification: RQ, Vanadium Pentoxide, 6.1, UN2862, PG II.

TSCA: This material was reported on the initial TSCA inventory.

Emergency Release Notification: Vanadium pentoxide is listed under SARA III - Section 304 (40 CFR 355) with a threshold planning quantity (TPQ) of 100/10,000 pounds.

Some of the chemicals listed herein are research or experimental substances which may be toxic, as defined by various governmental regulations. In accordance with Environmental Protection Agency regulations and the Toxic Substance Control Act (TSCA), these materials should only be handled by, or under the direct supervision of, a "technically qualified individual", as defined in 40 CFR 710.2 (aa).

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change, and the conditions of handling and use or misuse are beyond our control. ESPI makes no warranty, either expressed nor implied, with respect to the completeness or continuing accuracy of the information contained herein, and disclaims all liability for reliance thereon. Users should satisfy themselves that they have

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Prepared by: S. Dierks
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