

VANADIUM PENTOXIDE

VOX

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Vanadic anhydride Vanadium pentaoxide	Solid Yellowish-brown Odorless Sinks in water.
Keep people away. Avoid contact with solid and dust. Call fire department. Restrict access. Notify local health and pollution control agencies. Protect water intakes.	
Fire	Not flammable. Will increase the intensity of a fire. Flood discharge area with water.
Exposure	CALL FOR MEDICAL AID. DUST Irritating to eyes, nose and throat. If inhaled will cause coughing or difficult breathing. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. SOLID Irritating to skin and eyes. If swallowed will cause nausea. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk and have victim induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.
Water Pollution	HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge
Collection Systems: Dredge

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed.
2.2 Formula: V₂O₅
2.3 IMO/UN Designation: Not listed
2.4 DOT ID No.: 2862
2.5 CAS Registry No.: 1314-62-1
2.6 NAERG Guide No.: 151
2.7 Standard Industrial Trade Classification: 52269

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Bu. Mines approved respirator; rubber gloves; goggles for prolonged exposure
3.2 **Symptoms Following Exposure:** Inhalation of dust irritates nose and throat. Ingestion causes severe irritation of mouth and stomach and may be fatal. Contact with eyes or skin causes irritation; eczema may develop.
3.3 **Treatment of Exposure:** INHALATION: move to fresh air; if exposure to dust has been severe, get medical attention. INGESTION: induce vomiting; get medical attention. EYES: flush with water for at least 15 min. SKIN: flush with water; wash with soap and water.
3.4 **TLV-TWA:** 0.05 mg/m³
3.5 **TLV-STEL:** Not listed.
3.6 **TLV-Ceiling:** Not listed.
3.7 **Toxicity by Ingestion:** Grade 4; oral LD₅₀ = 23 mg/kg (mouse)
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** Repeated exposures may cause discoloration of tongue, loss of appetite, anemia, kidney disorders, and blindness.
3.10 **Vapor (Gas) Irritant Characteristics:** Currently not available
3.11 **Liquid or Solid Characteristics:** Currently not available
3.12 **Odor Threshold:** Currently not available
3.13 **IDLH Value:** 35 mg V/m³ (dust or fume)
3.14 **OSHA PEL-TWA:** Not listed.
3.15 **OSHA PEL-STEL:** Not listed.
3.16 **OSHA PEL-Ceiling:** 0.5 mg V/m³ dust; 0.1 mg V/m³ fume
3.17 **EPA AEGL:** Not listed

4. FIRE HAZARDS

- 4.1 **Flash Point:**
Not flammable
4.2 **Flammable Limits in Air:** Not flammable
4.3 **Fire Extinguishing Agents:** Not pertinent
4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
4.5 **Special Hazards of Combustion Products:** Not pertinent
4.6 **Behavior in Fire:** May increase intensity of fire when in contact with combustible materials
4.7 **Auto Ignition Temperature:** Not pertinent
4.8 **Electrical Hazards:** Not pertinent
4.9 **Burning Rate:** Not pertinent
4.10 **Adiabatic Flame Temperature:** Currently not available
4.11 **Stoichiometric Air to Fuel Ratio:** Not pertinent.
4.12 **Flame Temperature:** Currently not available
4.13 **Combustion Molar Ratio (Reactant to Product):** Not pertinent.
4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** No reaction
5.2 **Reactivity with Common Materials:** Currently not available
5.3 **Stability During Transport:** Stable
5.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
5.5 **Polymerization:** Not pertinent
5.6 **Inhibitor of Polymerization:** Not pertinent

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:**
55 ppm/96 hr/fathead minnows/TL_m/hard water
13 ppm/96 hr/fathead minnows/TL_m/soft water
6.2 **Waterfowl Toxicity:** Currently not available
6.3 **Biological Oxygen Demand (BOD):** None
6.4 **Food Chain Concentration Potential:** None
6.5 **GESAMP Hazard Profile:**
Bioaccumulation: 0
Damage to living resources: 2
Human Oral hazard: 4
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Commercial, 98-99%
7.2 **Storage Temperature:** Ambient
7.3 **Inert Atmosphere:** No requirement
7.4 **Venting:** Open
7.5 **IMO Pollution Category:** Currently not available
7.6 **Ship Type:** Currently not available
7.7 **Barge Hull Type:** Currently not available

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Poison
8.2 **49 CFR Class:** 6.1
8.3 **49 CFR Package Group:** II
8.4 **Marine Pollutant:** No
8.5 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue).....	3
Flammability (Red).....	0
Instability (Yellow).....	0

8.6 **EPA Reportable Quantity:** 1,000 pounds
8.7 **EPA Pollution Category:** C
8.8 **RCRA Waste Number:** P120
8.9 **EPA FWPCA List:** Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Solid
9.2 **Molecular Weight:** 181.88
9.3 **Boiling Point at 1 atm:** Not pertinent (decomposes)
9.4 **Freezing Point:** Not pertinent
9.5 **Critical Temperature:** Not pertinent
9.6 **Critical Pressure:** Not pertinent
9.7 **Specific Gravity:** 3.36 at 20°C (solid)
9.8 **Liquid Surface Tension:** Not pertinent
9.9 **Liquid Water Interfacial Tension:** Not pertinent
9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
9.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
9.12 **Latent Heat of Vaporization:** Not pertinent
9.13 **Heat of Combustion:** Not pertinent
9.14 **Heat of Decomposition:** Not pertinent
9.15 **Heat of Solution:** Not pertinent
9.16 **Heat of Polymerization:** Not pertinent
9.17 **Heat of Fusion:** 85.5 cal/g
9.18 **Limiting Value:** Currently not available
9.19 **Reid Vapor Pressure:** Currently not available

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
34	0.070		N O T		N O T		N O T
36	0.070						
38	0.070						
40	0.070						
42	0.070		P E R T I N E N T		P E R T I N E N T		P E R T I N E N T
44	0.070						
46	0.070						
48	0.070						
50	0.070						
52	0.070						
54	0.070						
56	0.070						
58	0.070						
60	0.070						
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64	0.070						
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80	0.070						
82	0.070						
84	0.070						