



SAFETY DATA SHEET

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SECTION 1 PRODUCT AND COMPANY INFORMATION

PRODUCT NAME: **Vanadium (V) Oxide**
PRODUCT NUMBER: 3775
CAS NUMBER: 1314-62-1
SYNONYMS: Divanadium pentoxide, vanadic anhydride, vanadium pentoxide
MANUFACTURER:

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SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION OF SUBSTANCE OR MIXTURE

Pictogram



Signal Word

Danger

Hazard Statements

H300+ H330	Fatal if swallowed or inhaled.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.

Precautionary Phrases

P260	Do not breathe dust or mist.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink, or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	Wear respiratory equipment.
P301+310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P330	Rinse mouth.

SECTION 2 HAZARDS IDENTIFICATION (Cont.)

HMIS CLASSIFICATION:

Health: 2 Fire: 0 Reactivity Hazard: 1

NFPA RATING:

Health: 2 Flammability: 0 Reactivity Hazard: 1

EYE CONTACT: Causes irritation to the eye tissue. May cause blindness.

SKIN CONTACT: Sever irritant. May cause dermatitis.

INHALATION: Harmful by inhalation. Danger of serious damage to health by prolonged exposure by inhalation.

INGESTION: Harmful if swallowed. Causes irritation of the mouth, throat, and gastrointestinal tract.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Formula: V_2O_5

Molecular Weight: 181.88

CHEMICAL NAME	CAS#	%
Vanadium (V) Oxide	1314-62-1	100

SECTION 4 FIRST AID MEASURES

EYE EXPOSURE: Immediately flush the eyes with copious amounts of water for at least 15 minutes. Assure flushing under eyelids. A victim may need assistance in keeping their eyelids open. Get immediate competent medical attention.

SKIN EXPOSURE: Wash affected area with water. Remove contaminated clothes if necessary. Seek medical assistance if irritation persists.

INHALATION: Remove to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention if necessary.

INGESTION: Seek medical assistance immediately. Keep the victim calm. Give the victim water (only if conscious). Induce vomiting only if directed by medical personnel.

SECTION 5 FIREFIGHTING MEASURES

FLASH POINT: Product is not flammable

AUTO IGNITION TEMPERATURE: Not available

EXPLOSION LIMITS: Not available

EXTINGUISHING MEDIUM: Use fire fighting measures that suit the surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots.

HAZARDOUS COMBUSTION AND DECOMPOSITION PRODUCTS: Vanadium oxides

SECTION 6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Wear all appropriate equipment when using this material. Ensure adequate ventilation. Keep unprotected persons away. Avoid breathing dust.

ENVIRONMENTAL PRECAUTIONS: Prevent spillage from entering drains or allowing to be released into the environment.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP: Small spills can be mixed with vermiculite or sodium carbonate and swept up. Do not mix with combustibles. Avoid creating dust.

SECTION 7 HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: Wear appropriate personal protective equipment. Use with adequate ventilation. Avoid contact with skin and eyes. Avoid formation of dust. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

CONDITIONS FOR SAFE STORAGE: Store in cool, dry, and well-ventilated area. Keep container tightly closed.

SECTION 8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

EXPOSURE CONTROLS

Component	Exposure Limits	Basis	Entity
Vanadium (V) oxide	0.05 mg/m ³	TLV	ACGIH
	0.1 mg/m ³	STEL	OSHA
	0.05 mg/m ³	PEL	OSHA
	0.05 mg/m ³	REL	NIOSH
	0.1 mg/m ³	STEL	NIOSH

STEL: Short Term Exposure Limit during x minutes.

TLV: Threshold Limit Value over 8 hours of work.

REL: Recommended Exposure Limit

PEL: Permissible Exposure Limit

EYE PROTECTION: Wear chemical safety glasses or goggles.

SKIN PROTECTION: Wear nitrile or rubber gloves, apron, or lab coat.

VENTILATION: Provide local exhaust, preferably mechanical.

RESPIRATOR: Use an approved respirator.

ADDITIONAL PROTECTION: Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

COLOR AND FORM: Orange to brown solid

ODOR: None

MOLECULAR WEIGHT: 181.88

BOILING POINT: 1750°C (dec.)

MELTING POINT: 690°C

SPECIFIC GRAVITY: 3.357 gm/ml

SOLUBILITY: Insoluble

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Stable

HAZARDOUS POLYMERIZATION: Will not occur

CONDITIONS TO AVOID: Excess heat

INCOMPATIBILITY: Strong oxidizing agents and strong acids

DECOMPOSITION PRODUCTS: Vanadium oxides

SECTION 11 TOXICOLOGICAL DATA

ACUTE TOXICITY: LD50 Oral – rat – 10mg/kg. LD50 Inhalation – rat – 6h – 126mg/m³. LC50 Dermal – rat - >2,500 mg/kg. TCLo Inhalation – Human – 346mg/m³. TCLo Inhalation – Human – 1mg/m³ – 8h. LD50 Intraperitoneal – rat – 12mg/kg. LD50 Subcutaneous – rat – 14mg/kg. LD50 Intratracheal – rat – 6mg/kg. TDLo Oral – rat – 91 mg/kg/26W-1. TCLo Inhalation – rat – 100µg/m³/24h/24D-C. TDLo Intraperitoneal – rat – 56mg/kg/14D-1. TDLo Oral – rat – 90 mg/kg. TDLo Intraperitoneal – rat – 10mg/kg. DNA Repair Bacterial-Bacillus subtilis – 500 mmol/L. DNA Damage Human Leukocyte – 300nmol/L. DNA damage Human Lymphocyte – 30µmol/L.

CARCINOGENIC EFFECTS: The IARC states that there is not enough information to dismiss this product as a possible human carcinogen. ACGIH verified this is a carcinogen in animals at high doses with unknown relevance to human workers. NTP and OSHA have not identified this product a carcinogen.

MUTAGENIC EFFECTS: Not available

TETRATOGENIC EFFECTS: This product has been linked to a possible risk of congenital malformation in the fetus. Suspected human reproductive toxicant.

RTECS: YW2450000

To the best of our knowledge the toxicological effects of this compound have not been fully investigated.

SECTION 12 ECOLOGICAL DATA

AQUATIC VERTEBRATE: LC50 – Oncorhynchus mykiss (rainbow trout) – 5.2 mg/L – 96h.

AQUATIC INVERTEBRATE: LC50 – Daphnia magna (Water flea) – 1.52 mg/L – 48h.

TERRESTRIAL: Not available

SECTION 13 DISPOSAL CONSIDERATIONS

Dispose of in according to local, state, and federal regulations.

SECTION 14 TRANSPORTATION DATA

UN2862

Vanadium Pentoxide

CLASS 6.1

PG III

Marine Pollutant: No

SECTION 15 REGULATORY INFORMATION

TSCA: Listed in the TSCA inventory

SARA 302/304: Vanadium Pentoxide

SARA 311/312: Acute Health Hazard, Chronic Health Hazard

SARA (TITLE 313): Vanadium Pentoxide

CALIFORNIA PROP. 65: Listed: Vanadium Pentoxide

MASSACHUSETTS RIGHT TO KNOW: Vanadium Pentoxide

PENNSYLVANIA RIGHT TO KNOW: Vanadium Pentoxide

NEW JERSEY RIGHT TO KNOW: Vanadium Pentoxide

WHMIS CANADA: Class D-1B: Toxic material causing immediate and serious toxic effects. Class D-2B: Very toxic material causing other toxic effects

SECTION 16 OTHER INFORMATION

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DATE PREPARED: 10/14