

## SAFETY DATA SHEET

### Section 1: Identification

Product name: Vanadium(V) oxide  
Product use: For laboratory research purposes.  
Supplier: Trace Sciences International  
40 Vogell Rd Suite 42  
Richmond Hill, ON L4B 3N6  
CANADA  
Telephone: +1 905-770-1100  
Fax: +1 905-770-1160  
Emergency Phone: CANUTEC +1-613-996-6666

### Section 2: Hazard(s) Identification

#### 2.1 GHS Classification

Acute toxicity, Oral (Category 3), H301  
Acute toxicity, Inhalation (Category 2), H330  
Germ cell mutagenicity (Category 2), H341  
Carcinogenicity (Category 1B), H350  
Reproductive toxicity (Category 2), H361  
Effects on or via lactation, H362  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
Specific target organ toxicity - repeated exposure, Inhalation (Category 1), Respiratory Tract, H372  
Long-term (chronic) aquatic hazard (Category 2), H411

#### 2.2 GHS Label elements, including precautionary statements

##### Pictogram



##### Signal word

Danger

##### Hazard statement(s):

H301 Toxic if swallowed.  
H330 Fatal if inhaled.  
H335 May cause respiratory irritation.  
H341 Suspected of causing genetic defects.  
H350 May cause cancer.  
H361 Suspected of damaging fertility or the unborn child.  
H362 May cause harm to breast-fed children.  
H372 Causes damage to organs (Respiratory tract) through prolonged or repeated exposure if inhaled.  
H411 Toxic to aquatic life with long lasting effects.

##### Precautionary statement(s):

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P260 Do not breathe dust.  
P263 Avoid contact during pregnancy and while nursing.  
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.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P284 Wear respiratory protection.

P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

### Section 3: Composition/ Information on Ingredients

**Formula** : V<sub>2</sub>O<sub>5</sub>  
**Molecular Weight** : 181.88 g/mol

Material	CAS-No.	EC-No.	Index-No.	Concentration
Vanadium(V) oxide	1314-62-1	215-239-8	023-001-00-8	<=100%

### Section 4: First-Aid Measures

#### 4.1 Description of first aid measures

##### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move person out of dangerous area if safe to do so.

##### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

##### In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water for at least 15 minutes. Use chemical shower if available. Consult a physician.

##### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Remove contacts if possible.

##### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### Section 5: Fire-Fighting Measures

#### 5.1 Conditions of flammability

No data available

#### 5.2 Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### 5.3 Hazardous combustion products

Hazardous decomposition products formed under fire conditions: Vanadium/vanadium oxides

#### 5.4 Special protective equipment for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

#### 5.5 Further information

No data available

### Section 6: Accidental Release Measures

#### 6.1 Personal precautions

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

#### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

#### 6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Keep in suitable, closed containers for disposal.

### Section 7: Handling and Storage

#### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

#### 7.2 Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

### Section 8: Exposure Controls/Personal Protection

#### 8.1 Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Vanadium pentoxide	1314-62-1	TWA	0.05 mg/m <sup>3</sup>	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWAEV	0.05 mg/m <sup>3</sup>	Canada. Ontario OELs
		TWAEV	0.05 mg/m <sup>3</sup>	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	0.05 mg/m <sup>3</sup>	Canada. British Columbia OEL
		TWA	0.05 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)

#### Remarks

IARC '2B' applies to substances deemed possibly carcinogenic to humans.

Carcinogenic effect detected in animals. Results of studies relating to the carcinogenicity of these substances in animals are not necessarily applicable to humans.

#### 8.2 Personal protective equipment

##### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use

respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### **Hand protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### **Eye protection**

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### **Skin and body protection**

Impervious clothing, flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### **Hygiene measures**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### **Specific engineering controls**

Use mechanical exhaust or laboratory fume hood to avoid exposure.

## **Section 9: Physical and Chemical Properties**

### **Appearance**

Form	Solid
Colour	Brown-yellow

### **Safety Data**

pH	No data available
Melting point/freezing point	690 °C (1,274 °F)
Boiling point	1,750 °C ca.3,182 °F - (decomposition)
Flash point	Not applicable
Flammability (solid, gas)	No data available
Ignition temperature	No data available
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapour pressure	No data available
Density	3.35 g/cm <sup>3</sup> at 25 °C (77 °F)
Water solubility	515 g/l at 20 °C (68 °F)
Partition coefficient: n-octanol/water	No data available
Relative vapour density	No data available
Odour	No data available
Odour Threshold	No data available
Evaporation rate	No data available

## **Section 10: Stability and Reactivity**

### **10.1 Chemical stability**

Stable under recommended storage conditions

### 10.2 Possibility of hazardous reactions

Exothermic reaction with:

Alkali metals, halogen-halogen compounds, acids

Risk of explosion with:

Performic acid

Risk of ignition or formation of inflammable gases or vapours with:

Alkaline earth metals, highly flammable solvents, oxidisable substances, sulfur (in the presence of atmospheric oxygen and/or moisture)

### 10.3 Conditions to avoid

No data available

### 10.4 Materials to avoid

Strong acids

### 10.5 Hazardous decomposition products

See section 5

## Section 11: Toxicological Information

### Acute toxicity

#### Oral

Acute toxicity estimate Oral - 220 mg/kg

(Acute toxicity estimate according to Regulation (EC) No. 1272/2008)

#### Inhalation

Acute toxicity estimate Inhalation - 0.05 mg/l - dust/mist

(Acute toxicity estimate according to Regulation (EC) No. 1272/2008)

#### Dermal

LC50 Dermal - Rat - > 2,500 mg/kg

(OECD Test Guideline 402)

#### Other information on acute toxicity

No data available

### Skin corrosion/irritation

Skin - in vitro test

Result: No skin irritation - 15 min

Remarks: (ECHA)

### Serious eye damage/eye irritation

No data available

### Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

### Germ cell mutagenicity

Suspected of causing genetic defects.

Test Type: Micronucleus test

Species: Mouse  
Cell type: Red blood cells (erythrocytes)  
Application Route: Inhalation  
Method: OECD Test Guideline 474  
Result: negative

Test Type: Transgenic rodent somatic cell gene mutation assay  
Species: Mouse  
Application Route: Inhalation  
Method: OECD Test Guideline 488  
Result: negative

Test Type: comet assay  
Species: Mouse  
Application Route: Inhalation  
Result: negative  
Remarks: (ECHA)

#### **Carcinogenicity**

Presumed to have carcinogenic potential for humans

#### **Reproductive toxicity**

Suspected of damaging the unborn child. Suspected of damaging fertility. Studies indicating a hazard to babies during the lactation period

#### **Specific target organ toxicity - single exposure (Globally Harmonized System)**

Inhalation - May cause respiratory irritation. - Respiratory Tract

#### **Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

Inhalation - Causes damage to organs through prolonged or repeated exposure - Respiratory Tract

#### **Aspiration hazard**

No data available

#### **Signs and Symptoms of Exposure**

Stomach - Irregularities - Based on Human Evidence

#### **Additional Information**

RTECS: Not available

### **Section 12: Ecological Information**

#### **12.1 Toxicity**

Toxicity to fish (Chronic toxicity)      Growth inhibition NOEC - Pimephales promelas (fathead minnow) - 0.24 mg/l - 28 d  
Remarks: (ECOTOX Database)

#### **12.2 Persistence and degradability**

No data available

#### **12.3 Bioaccumulative potential**

No data available

#### **12.4 Mobility in soil**

No data available

#### 12.5 PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

#### 12.6 Other adverse effects

No data available

### Section 13: Disposal Considerations

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

#### Contaminated packaging

Dispose of as unused product.

### Section 14: Transport Information

#### IATA

UN number: UN2862 Class: 6.1 Packing group: III  
Proper shipping name: Vanadium pentoxide

### Section 15: Regulatory Information

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR

### Section 16: Other Information

#### Further information

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for his or her particular purpose(s).

#### *Trace Sciences International.*

See <https://www.tracesciences.com/> for additional terms and conditions of sale.

**Date Prepared: February 10, 2025**