

## SAFETY DATA SHEET

Preparation Date: 03/23/2015

Revision Date: 8/2/2018

Revision Number: G2

### 1. IDENTIFICATION

**Product identifier**

**Product code:** V1010  
**Product Name:** VANADIUM PENTOXIDE, POWDER, REAGENT

**Other means of identification**

**Synonyms:** Divanadium pentaoxide  
 Divanadium pentoxide  
 Pentaoxodivanadium  
 Vanadic anhydride  
 Vanadic acid anhydride  
 Pentóxido de vanadio (Spanish)  
 Vanadium (V) oxide  
 Vanadio, pentossido di (Italian)  
 Vanadium pentaoxide  
 Vanadium, pentoxyde de (French)  
 Vanadiumpentoxid (German)  
 Vanadiumpentoxyde (Dutch)  
 Wanadu pieciotlenek (Polish)

**CAS #:** 1314-62-1  
**RTECS #** YW2450000  
**CI#:** Not available

**Recommended use of the chemical and restrictions on use**

**Recommended use:** Manufacture of yellow glass. oxidation catalyst for sulfuric acid manufacture.  
**Uses advised against** No information available

**Supplier:** Spectrum Chemical Mfg. Corp  
 14422 South San Pedro St.  
 Gardena, CA 90248  
 (310) 516-8000

**Order Online At:** <https://www.spectrumchemical.com>  
**Emergency telephone number** Chemtrec 1-800-424-9300  
**Contact Person:** Martin LaBenz (West Coast)  
**Contact Person:** Ibad Tirmiz (East Coast)

### 2. HAZARDS IDENTIFICATION

**Classification**

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Acute toxicity - Oral	Category 2
Acute toxicity - Dermal	Category 1

Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 2
Reproductive toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1

### Label elements

#### **Danger**

#### **Hazard statements**

Fatal if swallowed  
 Fatal in contact with skin  
 Harmful if inhaled  
 Causes skin irritation  
 Causes serious eye irritation  
 Suspected of causing genetic defects  
 Suspected of causing cancer  
 Suspected of damaging fertility or the unborn child  
 May cause respiratory irritation  
 Causes damage to organs through prolonged or repeated exposure



#### **Hazards not otherwise classified (HNOC)**

Not Applicable

#### **Other hazards**

Toxic to aquatic life with long lasting effects

#### **Precautionary Statements - Prevention**

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Do not get in eyes, on skin, or on clothing  
 Use only outdoors or in a well-ventilated area  
 Do not breathe dust/fume/gas/mist/vapors/spray

#### **Precautionary Statements - Response**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.  
 Immediately call a POISON CENTER or doctor/physician

**Product code:** V1010

**Product name:** VANADIUM  
 PENTOXIDE, POWDER, REAGENT

**2 / 15**

IF ON SKIN: Gently wash with plenty of soap and water  
Remove/Take off immediately all contaminated clothing  
Wash contaminated clothing before reuse  
If skin irritation occurs: Get medical advice/attention  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
Rinse mouth

#### Precautionary Statements - Storage

Store locked up  
Store in a well-ventilated place. Keep container tightly closed

#### Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %
Vanadium Pentoxide	1314-62-1	100

### 4. FIRST AID MEASURES

#### First aid measures

- General Advice:** National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.
- Skin Contact:** Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.
- Eye Contact:** Flush eyes with water for 15 minutes. Get medical attention. If symptoms persist, call a physician.
- Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Ingestion:** Fatal if swallowed. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or Poison Control Center immediately.

#### Most important symptoms and effects, both acute and delayed

- Symptoms**
- Causes skin irritation
  - Causes serious eye irritation
  - Irritating to respiratory system
  - Dyspnea (Difficulty breathing and shortness of breath)
  - Chest tightness or pain
  - Sore throat
  - May cause bronchitis, nasal discharge and productive cough (phlegm)
  - May affect the liver
  - It may affect the kidneys
  - Abdominal pain
  - May cause nausea and vomiting

May cause loss of appetite  
May cause green tongue  
Central nervous system effects  
May cause drowsiness or dizziness  
May cause headache  
May affect the blood  
May affect the cardiovascular system

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician:** Treat symptomatically.

**Protection of first-aiders**

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

**5. FIRE-FIGHTING MEASURES**

**Extinguishing Media**

**Suitable Extinguishing Media:** The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

**Unsuitable Extinguishing Media:** No information available.

**Specific hazards arising from the chemical**

**Hazardous Combustion Products:** If it is involved in a fire the following can be released:  
Vanadium oxide.

**Specific hazards:** No information available.

**Special Protective Actions for Firefighters**

**Specific Methods:** No information available.

**Special Protective Equipment for Firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions:** Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

**Methods and material for containment and cleaning up**

**Methods for containment** Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

**Methods for cleaning up** Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

#### **Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials.

#### **Safe Handling Advice**

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Do not ingest. Do not breathe dust. Handle in accordance with good industrial hygiene and safety practice.

### Conditions for safe storage, including any incompatibilities

#### **Technical Measures/Storage Conditions:**

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials. Store in a segregated and approved area.

#### **Incompatible Materials:**

Strong acids  
 Strong oxidizing agents  
 Alkali Metals  
 Lithium  
 Sodium  
 Potassium  
 Chlorine trifluoride  
 peroxy formic acid  
 Combustible materials  
 Halogens  
 Strong bases

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### **National occupational exposure limits**

##### **United States**

Components	CAS-No.	OSHA	NIOSH	ACGIH	AIHA WEEL
Vanadium Pentoxide	1314-62-1	None	0.05 mg/m <sup>3</sup> Ceiling 15 min	0.05 mg/m <sup>3</sup> TWA V inhalable particulate matter	None

##### **Canada**

Components	CAS-No.	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Vanadium Pentoxide	1314-62-1	0.05 mg/m <sup>3</sup> TWA V <sub>2</sub> O <sub>5</sub> fume or respirable particulate	0.05 mg/m <sup>3</sup> TWA V inhalable	None	None

##### **Australia and Mexico**

Components	CAS-No.	Australia	Mexico
Vanadium Pentoxide	1314-62-1	0.05 mg/m <sup>3</sup> TWA	0.5 mg/m <sup>3</sup> TWA

### Appropriate engineering controls

**Engineering measures to reduce exposure:**

Ensure adequate ventilation. Use process enclosures,

**Product code:** V1010

**Product name:** VANADIUM  
 PENTOXIDE, POWDER, REAGENT

**5 / 15**

local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Individual protection measures, such as personal protective equipment**

**Personal Protective Equipment**

- Eye protection:** Safety glasses with side-shields or Goggles
- Skin and body protection:** Long sleeved clothing
- Respiratory protection:** Effective dust mask. or. Use a dust respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds) , inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. Do not breathe dust. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical state:</b> Solid	<b>Appearance:</b> Powder.	<b>Color:</b> Yellow-orange. Yellowish-Red.
<b>Odor:</b> Odorless.	<b>Taste</b> No information available.	<b>Formula:</b> V2O5
<b>Molecular/Formula weight (g/mole):</b> 181.90 g/mol	<b>Flammability:</b> No information available	<b>Flashpoint (°C/°F):</b> No information available.
<b>Flash Point Tested according to:</b> Not available	<b>Autoignition Temperature (°C/°F):</b> No information available	<b>Lower Explosion Limit (%):</b> No information available
<b>Upper Explosion Limit (%):</b> No information available	<b>Melting point/range(°C/°F):</b> 690°C/ 1274°F	<b>Decomposition temperature(°C/°F):</b> No information available
<b>Boiling point/range(°C/°F):</b> 1750°C/ 3182°F	<b>Bulk density:</b> 1.2-1.3 g/cm3	<b>Density (g/cm3):</b> No information available
<b>Specific gravity:</b> 3.357	<b>pH:</b> No information available	<b>Vapor pressure @ 20°C (kPa):</b> No information available
<b>Evaporation rate:</b> No information available	<b>Vapor density:</b> No information available	<b>VOC content (g/L):</b> No information available
<b>Odor threshold (ppm):</b> No information available	<b>Partition coefficient (n-octanol/water):</b> 2.97	<b>Viscosity:</b> No information available
<b>Miscibility:</b> No information available	<b>Solubility:</b> Soluble in Acetone Partially soluble in cold water Soluble in acids	

Soluble in Alkalis  
Insoluble in Alcohol  
Solubility in water: 1g/ 125 ml

## 10. STABILITY AND REACTIVITY

### Reactivity

Reactive with strong oxidizing agents, strong bases, strong acids, halogens, chlorine trifluoride and lithium  
A mixture of Vanadium pentoxide, and calcium that is contaminated with sulfur and water may ignite spontaneously

### Chemical stability

**Stability:** Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur

**Conditions to avoid:** Incompatible materials. Avoid dust formation.

**Incompatible Materials:** Strong acids  
Strong oxidizing agents  
Alkali Metals  
Lithium  
Sodium  
Potassium  
Chlorine trifluoride  
peroxy formic acid  
Combustible materials  
Halogens  
Strong bases

**Hazardous decomposition products:** Vanadium oxide.

### Other Information

**Corrosivity:** No information available

**Special Remarks on Corrosivity:** No information available

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

#### **Principal Routes of Exposure:**

Skin. Inhalation. Ingestion. Eyes.

### Acute Toxicity

### **Component Information**

Vanadium Pentoxide

CAS-No. 1314-62-1

**LD50/oral/rat** = 10 mg/kg Oral LD50 Rat

**LD50/oral/mouse** = 23 mg/kg Oral LD50 Mouse

**LD50/dermal/rabbit** = 50 mg/kg Dermal LD50Rabbit

**LD50/dermal/rat** = No information available

**LC50/inhalation/rat** = 2.21 mg/L Inhalation LC50 Rat 4 h

**LC50/inhalation/mouse** = No information available

**Product code:** V1010

**Product name:** VANADIUM  
PENTOXIDE, POWDER, REAGENT

7 / 15

Other LD50 or LC50 information = No information available

#### Product Information

##### LD50/oral/rat =

VALUE- Acute Tox Oral = 10 mg/kg

##### LD50/oral/mouse =

Value - Acute Tox Oral = 23 mg/kg

##### LD50/dermal/rabbit

VALUE-Acute Tox Dermal = 50 mg/kg

##### LD50/dermal/rat

VALUE -Acute Tox Dermal = > 2500 mg/kg

##### LC50/inhalation/rat

VALUE-Vapor = No information available

VALUE-Gas = No information available

VALUE-Dust/Mist = 2.21 mg/l

##### LC50/Inhalation/mouse

VALUE-Vapor = No information available

VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

#### Symptoms

##### Skin Contact:

Causes skin irritation. May be fatal if absorbed through skin.

##### Eye Contact:

Causes serious eye irritation.

##### Inhalation

It causes respiratory tract irritation. The major target for Vanadium Pentoxide toxicity is the respiratory tract. It is an irritant of the eyes, nose, throat, and respiratory tract at 0.1 mg/m<sup>3</sup> or greater. Bronchitis, nasal discharge, sore throat, shortness of breath or dyspnea, rales, chest pain, and productive cough(phlegm) can occur following acute exposure, with effects sometimes being delayed by several days and lasting up to 2 weeks. Higher exposures can produce bronchopneumonia, and pulmonary edema. Vanadium pentoxide can be absorbed through the lungs. Acute inhalation may also cause liver damage and kidney damage, and affect behavior/central nervous system (ataxia). A green tongue may occur with high-level acute exposure of Vanadium compounds. Larger acute exposure by inhalation can produce effects on the nervous system, including paralysis, respiratory depression, and convulsions, but these generally occur only in fatal exposures. Vanadium Pentoxide is a powerful vasoconstrictor and can cause renal hypertension.

##### Ingestion

Fatal if swallowed. Ingestion is not anticipated to be a significant route of occupational overexposure since it is poorly absorbed by the digestive system. However, if swallowed and absorbed by the digestive it can be fatal. Causes gastrointestinal tract irritation or disturbances with nausea, vomiting, severe abdominal pain. It may also cause dizziness, headache, drowsiness and unconsciousness.

##### Aspiration hazard

No information available.

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

##### Chronic Toxicity

Repeated exposures by inhalation are associated with respiratory effects similar to



those of acute exposure, except that the intensity increases with further exposures and lower doses. Chronic bronchitis, green tongue, conjunctivitis, pharyngitis, rhinitis, rales, chronic productive cough, shortness of breath, wheezing, tightness of the chest, and dermatitis have been reported. Onset of respiratory effects can be followed by systemic effects, including pallor, loss of appetite, anemia, nausea, headache, insomnia, nervousness, hypertension, heart palpitations upon exertion, dizziness, kidney damage, liver damage (fatty liver degeneration), tremor, psychological problems (hysteria, and depression), blindness. Chronic exposure is frequently associated with asthma, but it is not clear if it is the causative agent. Chronic exposure by ingestion may cause anorexia, and affect the blood (decreased red blood cell count), behavior/central nervous system and urinary system.

**Sensitization:** No information available.

**Mutagenic Effects:** May affect genetic material  
Mutagenic effects on mammalian germ cells

**Carcinogenic effects:** Possibly carcinogenic to humans.

Components	CAS-No.	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Vanadium Pentoxide	1314-62-1	Group 2B - Possibly carcinogenic to humans - Monograph 86 [2006]	A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans	Not listed	Present	Not listed	Not listed

*ACGIH (American Conference of Governmental Industrial Hygienists)*

*IARC (International Agency for Research on Cancer)*

*NTP (National Toxicology Program)*

*OSHA (Occupational Safety and Health Administration of the US Department of Labor)*

**Reproductive toxicity** Suspected of damaging fertility or the unborn child

**Reproductive Effects:** May cause adverse reproductive effects based on animal data  
May cause harm to the unborn child

**Developmental Effects:** No information available

**Teratogenic Effects:** Showed adverse reproductive effects and teratogenic effects in animal experiments  
May cause birth defects (teratogenic effects) based on animal test data

**Specific Target Organ Toxicity**

**STOT - single exposure** Respiratory Tract.  
**STOT - repeated exposure** respiratory system.  
**Target Organs:** Gastrointestinal tract. Respiratory system. Skin.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:** Aquatic environment.

Vanadium Pentoxide - 1314-62-1

**Freshwater Fish Species Data:** LC50 (Rainbow trout, donaldson trout (*Oncorhynchus mykiss*), 96 h): 6.1 mg/l Mortality  
LC50 (Brook trout (*Salvelinus fontinalis*), 96h): 5.6-9.2 mg/l Mortality  
LC50 (Fathead minnow (*Pimephales promelas*), 96 h): 13 mg/l Mortality

**Water Flea Data:** LC50 (*Dalphnia magna*), 48 h: 1.52 mg/l Mortality

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available.

**Mobility:** No information available.

### 13. DISPOSAL CONSIDERATIONS

#### Disposal Methods

**Waste from residues / unused products:**  
Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**  
Empty containers should be taken for local recycling, recovery or waste disposal

Components	CAS-No.	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Vanadium Pentoxide	1314-62-1	None	None	P120	None

### 14. TRANSPORT INFORMATION

#### DOT

**UN-No:** UN2862  
**Proper Shipping Name:** Vanadium pentoxide  
**Hazard Class:** 6.1  
**Subsidiary Class:** No information available  
**Packing group:** III  
**Emergency Response Guide Number:** 151  
**Marine Pollutant:** No data available  
**DOT RQ (lbs):** No information available  
**Special Provisions:** IB8, IP3, T1, TP33  
**Symbol(s):** [DOT]: (R4) - Identifies a material that is a hazardous substance that has a reportable quantity (RQ) of 1000 pounds (454 Kilograms).  
**Description:** UN2862, Vanadium pentoxide, 6.1, III

#### TDG (Canada)

**UN-No:** UN2862  
**Proper Shipping Name:** Vanadium pentoxide  
**Hazard Class:** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**Marine Pollutant:** No Information available  
**Description:** UN2862, Vanadium pentoxide, 6.1, III

#### ADR

**UN-No:** UN2862  
**Proper Shipping Name:** Vanadium pentoxide  
**Hazard Class:** 6.1

**Product code:** V1010

**Product name:** VANADIUM  
PENTOXIDE, POWDER, REAGENT

10 / 15

**Packing Group:** III  
**Subsidiary Risk:** No information available  
**Special Provisions** 600  
**Description:** UN2862, Vanadium pentoxide, 6.1, III, ENVIRONMENTALLY HAZARDOUS

**IMO / IMDG**

**UN-No:** UN2862  
**Proper Shipping Name:** Vanadium pentoxide  
**Hazard Class:** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**Marine Pollutant** No information available  
**EMS:** F-A  
**Description** UN2862, Vanadium pentoxide, 6.1, III, Marine pollutant

**RID**

**UN-No:** UN2862  
**Proper Shipping Name:** Vanadium pentoxide  
**Hazard Class:** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**Special Provisions** 600  
**Description:** UN2862, Vanadium pentoxide, 6.1, III, ENVIRONMENTALLY HAZARDOUS

**ICAO**

**UN-No:** UN2862  
**Proper Shipping Name:** Vanadium pentoxide  
**Hazard Class:** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**Description:** UN2862, Vanadium pentoxide, 6.1, III

**IATA**

**UN-No:** UN2862  
**Proper Shipping Name:** Vanadium pentoxide  
**Hazard Class:** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**ERG Code:** 6L  
**Special Provisions** No information available  
**Description:** UN2862, Vanadium pentoxide, 6.1, III

**15. REGULATORY INFORMATION**

**International Inventories**

Components	CAS-No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Vanadium Pentoxide	1314-62-1	PresentACTIV E	Present KE-12750	Present	Present (1)-559	Present	Present	Present 215-239-8

**U.S. Regulations**

*Vanadium Pentoxide*

**Massachusetts RTK:** Present  
**New Jersey RTK Hazardous Substance List:** 1993  
**New Jersey (EHS) List:** 1993 100 lb TQP  
**New Jersey - Discharge Prevention - List of Hazardous Substances:** Present

**Pennsylvania RTK:** Environmental hazard  
 Present (dust; fume)  
**Pennsylvania RTK - Environmental Hazard List** Present  
**Minnesota - Hazardous Substance List:** Present  
**New York Release Reporting - List of Hazardous Substances:**  
 1000 lb RQ  
 100 lb RQ  
**Louisiana Reportable Quantity List for Pollutants:** 1000lbfinal RQ  
 454kgfinal RQ  
**California Directors List of Hazardous Substances:** Present

**California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.**

**Chemicals Known to the State of California to Cause Cancer:**

**⚠️ WARNING:** This product can expose you to chemicals including (see table below) which is (are) known to the State of California to cause cancer. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov).

**Chemicals Known to the State of California to Cause Reproductive Toxicity:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	CAS-No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Vanadium Pentoxide	1314-62-1	carcinogen	Not Listed	Not Listed	Not Listed

**CERCLA/SARA**

Components	CAS-No.	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Vanadium Pentoxide	1314-62-1	1000 lb final RQ 454 kg final RQ	1000 lb EPCRA RQ	None	Vanadium compounds	1% de minimis concentration

**U.S. TSCA**

Components	CAS-No.	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Vanadium Pentoxide	1314-62-1	Not Applicable	Not Applicable

**Canada**

**WHMIS 2015 - GHS Classifications**

WHMIS 2015 Hazard Classification Information:

Component  
 Vanadium Pentoxide  
 1314-62-1 ( 100 )

WHMIS 2015 Hazard Classification  
 Acute toxicity - Oral - Category 3: H301 Toxic if swallowed.; Acute toxicity - Inhalation - Category 4: H332 Harmful if inhaled.; Serious Eye Damage/Eye Irritation - Category 2: H319 Causes serious eye irritation.; Carcinogenicity - Category 2: H351 Suspected of causing cancer.; Specific target organ toxicity - Repeated exposure - Category 1: H372 Causes damage to organs through prolonged or repeated exposure.

**Canada Hazardous Products Regulation** This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

**WHMIS 1988 Hazard Class**

Non-controlled

**Canada Controlled Products Regulation:**

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
Vanadium Pentoxide	0.1 %

**Inventory**

Components	CAS-No.	Canada (DSL)	Canada (NDSL)
Vanadium Pentoxide	1314-62-1	Present	Not Listed

Components	CAS-No.	CEPA Schedule I - Toxic Substances
Vanadium Pentoxide	1314-62-1	Present
Components	CAS-No.	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Vanadium Pentoxide	1314-62-1	Not listed

**EU Classification****EU GHS - SV - CLP 1272/2008**

Components	CAS-No.	EU GHS - SV - CLP (1272/2008)
Vanadium Pentoxide	1314-62-1	Acute toxicity - Oral - Acute Tox. 4: H302 Harmful if swallowed. (Minimum classification); Acute toxicity - Inhalation - Acute Tox. 4: H332 Harmful if inhaled. (Minimum classification); Germ cell mutagenicity - Muta. 2: H341 Suspected of causing genetic defects.; Reproductive Toxicity - Repr. 2: H361d Suspected of damaging the unborn child. (Hazard statements H360 and H361 indicate a general concern for effects on both fertility and development: May damage/Suspected of damaging fertility or the unborn child; According to the criteria, the general hazard statement can be replaced by the hazard statement indicating the specific effect of concern in accordance with section 1.1.2.1.2; When the other differentiation is not mentioned, this is due to evidence proving no such effect, inconclusive data or no data and the obligations in Article 4(3) shall apply for that differentiation); Specific target organ toxicity - Single exposure - STOT SE 3: H335 May cause respiratory irritation.; Specific target organ toxicity - Repeated exposure - STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure. (No information to prove exclusion of certain routes of exposure); Hazardous to aquatic environment - chronic hazard - Aquatic Chronic 2: H411 Toxic to aquatic life with long lasting effects.023-001-00-8

**EU - CLP (1272/2008)****R-phrase(s)****Product code:** V1010**Product name:** VANADIUM PENTOXIDE, POWDER, REAGENT**13 / 15**

R37 - Irritating to respiratory system.  
 R63 - Possible risk of harm to the unborn child.  
 R68 - Possible risk of irreversible effects.  
 R20/22 - Harmful by inhalation and if swallowed.  
 R48/23 - Toxic: danger of serious damage to health by prolonged exposure through inhalation.  
 R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**S -phrase(s)**

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).  
 S38 - In case of insufficient ventilation, wear suitable respiratory equipment.  
 S61 - Avoid release to the environment. Refer to special instructions/safety data sheets.  
 S37/39 - Wear suitable gloves and eye/face protection.  
 S 1/2 - Keep locked up and out of the reach of children.  
 S36/37 - Wear suitable protective clothing and gloves.

Components	CAS-No.	Classification	Concentration Limits:	Safety Phrases
Vanadium Pentoxide	1314-62-1	Xn; R20/22 Xi; R37 T; R48/23 N; R51-53 Repr.Cat.3; R63 Muta.Cat.3; R68	No information	S: (1/2)-36/37-38-45-61

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**

Xn - Harmful.  
 Xi - Irritant.  
 T - Toxic  
 N - Dangerous for the environment.



**16. OTHER INFORMATION**

Preparation Date: 03/23/2015  
 Revision Date: 8/2/2018  
 Prepared by: Sonia Owen

**Disclaimer:**

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal

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**End of Safety Data Sheet**