

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 15.02.2022

Revision: 15.02.2022

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

- **1.1 Product identifier**
- **Trade name:** Vanadium(V) oxide (99.99%-V) PURATREM
- **Item number:** 93-2337
- **CAS Number:**  
1314-62-1
- **EC number:**  
215-239-8
- **Index number:**  
023-001-00-8
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Strem Chemicals, Inc.  
7 Mulliken Way  
NEWBURYPORT, MA 01950  
USA  
info@strem.com
- **Further information obtainable from:** Technical Department
- **1.4 Emergency telephone number:**  
EMERGENCY: CHEMTREC: +1 (800) 424-9300  
During normal opening times: +1 (978) 499-1600

**SECTION 2: Hazards identification**

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS08 health hazard

Muta. 2                    H341    Suspected of causing genetic defects.  
 Repr. 2                    H361d   Suspected of damaging the unborn child.  
 STOT RE 1                H372    Causes damage to organs through prolonged or repeated exposure.



GHS09 environment

Aquatic Chronic 2 H411    Toxic to aquatic life with long lasting effects.



GHS07

Acute Tox. 4                H302    Harmful if swallowed.  
 Acute Tox. 4                H332    Harmful if inhaled.  
 STOT SE 3                 H335    May cause respiratory irritation.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**  
The substance is classified and labelled according to the CLP regulation.

(Contd. on page 2)

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**Trade name: Vanadium(V) oxide (99.99%-V) PURATREM**

(Contd. of page 1)

· **Hazard pictograms**



GHS07    GHS08    GHS09

· **Signal word** *Danger*

· **Hazard-determining components of labelling:**

*divanadium pentaoxide*

· **Hazard statements**

*H302+H332 Harmful if swallowed or if inhaled.*

*H341 Suspected of causing genetic defects.*

*H361d Suspected of damaging the unborn child.*

*H335 May cause respiratory irritation.*

*H372 Causes damage to organs through prolonged or repeated exposure.*

*H411 Toxic to aquatic life with long lasting effects.*

· **Precautionary statements**

*P101 If medical advice is needed, have product container or label at hand.*

*P102 Keep out of reach of children.*

*P103 Read label before use.*

*P280 Wear protective gloves/protective clothing/eye protection/face protection.*

*P261 Avoid breathing dust/fume/gas/mist/vapours/spray.*

*P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*

*P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.*

*P403+P233 Store in a well-ventilated place. Keep container tightly closed.*

*P501 Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

**SECTION 3: Composition/information on ingredients**

· **3.1 Chemical characterisation: Substances**

· **CAS No. Description**

*1314-62-1 divanadium pentaoxide*

· **Identification number(s)**

· **EC number:** 215-239-8

· **Index number:** 023-001-00-8

**SECTION 4: First aid measures**

· **4.1 Description of first aid measures**

· **General information:**

*Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.*

· **After inhalation:**

*Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.*

(Contd. on page 3)

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**Trade name: Vanadium(V) oxide (99.99%-V) PURATREM**

(Contd. of page 2)

- In case of unconsciousness place patient stably in side position for transportation.*
- **After skin contact:** Immediately rinse with water.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Call for a doctor immediately.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### **SECTION 5: Firefighting measures**

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

### **SECTION 6: Accidental release measures**

- **6.1 Personal precautions, protective equipment and emergency procedures** Not required.
- **6.2 Environmental precautions:**  
*Do not allow product to reach sewage system or any water course.*  
*Inform respective authorities in case of seepage into water course or sewage system.*
- **6.3 Methods and material for containment and cleaning up:**  
*Dispose contaminated material as waste according to item 13.*  
*Ensure adequate ventilation.*
- **6.4 Reference to other sections**  
*See Section 7 for information on safe handling.*  
*See Section 8 for information on personal protection equipment.*  
*See Section 13 for disposal information.*

### **SECTION 7: Handling and storage**

- **7.1 Precautions for safe handling**  
*Thorough dedusting.*  
*Ensure good ventilation/exhaustion at the workplace.*
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** Keep container tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

### **SECTION 8: Exposure controls/personal protection**

- **Additional information about design of technical facilities:** No further data; see item 7.

(Contd. on page 4)

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 15.02.2022

Revision: 15.02.2022

**Trade name: Vanadium(V) oxide (99.99%-V) PURATREM**

(Contd. of page 3)

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

**1314-62-1 divanadium pentaoxide**

WEL Long-term value: 0.05 mg/m<sup>3</sup>

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.  
Wash hands before breaks and at the end of work.  
Store protective clothing separately.

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

**Form:** Powder  
**Colour:** Orange  
**Odour:** Odourless  
**Odour threshold:** Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

**Melting point/freezing point:** 690 °C  
**Initial boiling point and boiling range:** 1.750 °C

· **Flash point:** Not applicable.

· **Flammability (solid, gas):** Not determined.

(Contd. on page 5)

**Safety data sheet**  
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Revision: 15.02.2022

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(Contd. of page 4)

· <b>Ignition temperature:</b>	
· <b>Decomposition temperature:</b>	Not determined.
· <b>Auto-ignition temperature:</b>	Not determined.
· <b>Explosive properties:</b>	Product does not present an explosion hazard.
· <b>Explosion limits:</b>	
· <b>Lower:</b>	Not determined.
· <b>Upper:</b>	Not determined.
· <b>Vapour pressure:</b>	Not applicable.
· <b>Density at 20 °C:</b>	3.357 g/cm <sup>3</sup>
· <b>Bulk density at 20 °C:</b>	500 kg/m <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapour density</b>	Not applicable.
· <b>Evaporation rate</b>	Not applicable.
· <b>Solubility in / Miscibility with water:</b>	Insoluble.
· <b>Partition coefficient: n-octanol/water:</b>	Not determined.
· <b>Viscosity:</b>	
· <b>Dynamic:</b>	Not applicable.
· <b>Kinematic:</b>	Not applicable.
· <b>Solvent content:</b>	
· <b>Organic solvents:</b>	0.0 %
· <b>VOC (EC)</b>	0.00 %
· <b>Solids content:</b>	100.0 %
· <b>9.2 Other information</b>	No further relevant information available.

**SECTION 10: Stability and reactivity**

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

**SECTION 11: Toxicological information**

- **11.1 Information on toxicological effects**
- **Acute toxicity**  
Harmful if swallowed or if inhaled.

· **LD/LC50 values relevant for classification:**

Oral	LD50	10 mg/kg (rat)
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(Contd. on page 6)

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Revision: 15.02.2022

**Trade name: Vanadium(V) oxide (99.99%-V) PURATREM**

(Contd. of page 5)

**1314-62-1 divanadium pentaoxide**

Oral LD50 10 mg/kg (rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity**  
Suspected of causing genetic defects.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity**  
Suspected of damaging the unborn child.
- **STOT-single exposure**  
May cause respiratory irritation.
- **STOT-repeated exposure**  
Causes damage to organs through prolonged or repeated exposure.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

**SECTION 12: Ecological information**

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**  
Also poisonous for fish and plankton in water bodies.  
Toxic for aquatic organisms
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

**SECTION 13: Disposal considerations**

- **13.1 Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

**SECTION 14: Transport information**

- **14.1 UN-Number**
- **ADR, IMDG, IATA** UN2862

(Contd. on page 7)

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(Contd. of page 6)

· **14.2 UN proper shipping name**  
· **ADR** 2862 VANADIUM PENTOXIDE  
· **IMDG, IATA** VANADIUM PENTOXIDE

· **14.3 Transport hazard class(es)**  
· **ADR**

· **Class** 6  
· **Label** 6

· **IMDG, IATA**



· **Class** 6.1 Toxic substances.  
· **Label** 6.1

· **14.4 Packing group**  
· **ADR, IMDG, IATA** III

· **14.5 Environmental hazards:**  
· **Marine pollutant:** No

· **14.6 Special precautions for user** Not applicable.  
· **Danger code (Kemler):** 60  
· **EMS Number:** F-A,S-A  
· **Stowage Category** A

· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **ADR**  
· **Limited quantities (LQ)** 5 kg  
· **Excepted quantities (EQ)** Code: E1  
Maximum net quantity per inner packaging: 30 g  
Maximum net quantity per outer packaging: 1000 g  
· **Transport category** 2  
· **Tunnel restriction code** E

· **IMDG**  
· **Limited quantities (LQ)** 5 kg  
· **Excepted quantities (EQ)** Code: E1  
Maximum net quantity per inner packaging: 30 g  
Maximum net quantity per outer packaging: 1000 g

· **UN "Model Regulation":** UN 2862 VANADIUM PENTOXIDE, 6, III

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(Contd. on page 8)



**Safety data sheet**  
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(Contd. of page 7)

**SECTION 15: Regulatory information**

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **Seveso category E2** Hazardous to the Aquatic Environment
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 200 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

- **Department issuing SDS:** Technical Department.
- **Contact:** Technical Director
- **Abbreviations and acronyms:**  
*ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)*  
*IMDG: International Maritime Code for Dangerous Goods*  
*IATA: International Air Transport Association*  
*GHS: Globally Harmonised System of Classification and Labelling of Chemicals*  
*EINECS: European Inventory of Existing Commercial Chemical Substances*  
*CAS: Chemical Abstracts Service (division of the American Chemical Society)*  
*VOC: Volatile Organic Compounds (USA, EU)*  
*LC50: Lethal concentration, 50 percent*  
*LD50: Lethal dose, 50 percent*  
*PBT: Persistent, Bioaccumulative and Toxic*  
*vPvB: very Persistent and very Bioaccumulative*  
*Acute Tox. 4: Acute toxicity – Category 4*  
*Muta. 2: Germ cell mutagenicity – Category 2*  
*Repr. 2: Reproductive toxicity – Category 2*  
*STOT SE 3: Specific target organ toxicity (single exposure) – Category 3*  
*STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1*  
*Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2*

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