

Safety Data Sheet according to OSHA HCS

Printing date 07/20/2021

Reviewed on 07/20/2021

1 Identification

- **Product name**
- **Trade name:** Vanadium(V) trifluoride oxide, 98+%
- **Item number:** 93-2332
- **CAS Number:**
13709-31-4
- **EC number:**
237-250-7
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Strem Chemicals, Inc.
7 Mulliken Way
NEWBURYPORT, MA 01950
USA
info@strem.com
- **Information department:** Technical Department
- **Emergency telephone number:**
EMERGENCY: CHEMTREC: + 1 (800) 424-9300
During normal opening times: +1 (978) 499-1600

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements**

- **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS05

- **Signal word** Danger

- **Hazard-determining components of labeling:**

Vanadium(V) trifluoride oxide, 98+%

- **Hazard statements**

H314 Causes severe skin burns and eye damage.

- **Precautionary statements**

P231 Handle under inert gas.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

P422 Store contents under inert gas.

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

Classification system:**NFPA ratings (scale 0 - 4)**

Health = 4
Fire = 0
Reactivity = 0

HMIS-ratings (scale 0 - 4)

Health = 4
Fire = 0
Reactivity = 0

Other hazards**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.

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3 Composition/information on ingredients

Chemical characterization: Substances**CAS No. Description**

13709-31-4 Vanadium(V) trifluoride oxide, 98+%

Identification number(s)**EC number:** 237-250-7

4 First-aid measures

Description of first aid measures

- General information:** Immediately remove any clothing soiled by the product.
- After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- Information for doctor:**
- Most important symptoms and effects, both acute and delayed:** No further relevant information available.
- Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

Extinguishing media**Suitable extinguishing agents:** Use fire fighting measures that suit the environment.**Special hazards arising from the substance or mixture**

During heating or in case of fire poisonous gases are produced.

Advice for firefighters**Protective equipment:** Mouth respiratory protective device.

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6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures**

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

- Environmental precautions:** No special measures required.

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

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

- 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.

- Protective Action Criteria for Chemicals**

- PAC-1:**

Substance is not listed.

- PAC-2:**

Substance is not listed.

- PAC-3:**

Substance is not listed.

7 Handling and storage

- Handling:**

- Precautions for safe handling**

Thorough dedusting.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

- Information about protection against explosions and fires:** Keep respiratory protective device available.

- 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:** Not required.

- Further information about storage conditions:**

Keep receptacle tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

- Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

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

- Control parameters**

- Components with limit values that require monitoring at the workplace:** Not required.

- Additional information:** The lists that were valid during the creation were used as basis.

- Exposure controls**

- Personal protective equipment:** Wear protective clothing

- General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

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Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· **Breathing equipment:** A NIOSH approved respirator in accordance with 29 CFR 1910.134.

· **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 Physical and chemical properties

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

· **General Information**

· **Appearance:**

Form: Powder

Color: Orange

· **Odor:** Pungent

· **Odor threshold:** Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

Melting point/Melting range: 300 °C (572 °F)

Boiling point/Boiling range: 480 °C (896 °F)

· **Flash point:** Not applicable.

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

· **Ignition temperature:**

Decomposition temperature: Not determined.

· **Auto igniting:** Not determined.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

Lower: Not determined.

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Upper:	Not determined.
. Vapor pressure:	Not applicable.
. Density at 20 °C (68 °F):	2.459 g/cm ³ (20.52036 lbs/gal)
. Relative density	Not determined.
. Vapor density	Not applicable.
. Evaporation rate	Not applicable.
. Solubility in / Miscibility with Water:	Insoluble.
. Partition coefficient (n-octanol/water):	Not determined.
. Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
. Solvent content:	
Organic solvents:	0.0 %
VOC content:	0.0 g/l / 0.00 lb/gl
. Solids content:	100.0 %
. Other information	No further relevant information available.

10 Stability and reactivity

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

11 Toxicological information

- . Information on toxicological effects**
- . Acute toxicity:**
- . Primary irritant effect:**
- . on the skin:** Caustic effect on skin and mucous membranes.
- . on the eye:**
 - Strong caustic effect.
 - Strong irritant with the danger of severe eye injury.
- . Sensitization:** No sensitizing effects known.
- . Additional toxicological information:**

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
- . Carcinogenic categories**
- . IARC (International Agency for Research on Cancer)**

Substance is not listed.
- . NTP (National Toxicology Program)**

Substance is not listed.

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- **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number	
· DOT, IMDG, IATA	UN1759
· UN proper shipping name	
· DOT	Corrosive solids, n.o.s.
· IMDG, IATA	CORROSIVE SOLID, N.O.S.

- **Transport hazard class(es)**

- **DOT**



- **Class**
- **Label**

8 Corrosive substances

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· IMDG, IATA



· Class	8 Corrosive substances
· Label	8

· Packing group

· DOT, IMDG, IATA	II
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· Environmental hazards:

· Marine pollutant:	No
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· Special precautions for user	Warning: Corrosive substances
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· EMS Number:	F-A,S-B
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· Stowage Category	A
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· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
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· Transport/Additional information:

· DOT

· Quantity limitations	On passenger aircraft/rail: 15 kg On cargo aircraft only: 50 kg
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· IMDG

· Limited quantities (LQ)	1 kg
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· Excepted quantities (EQ)	Code: E2
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Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 500 g

· UN "Model Regulation":	UN 1759 CORROSIVE SOLIDS, N.O.S., 8, II
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15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

· Sara

· Section 355 (extremely hazardous substances):

Substance is not listed.

· Section 313 (Specific toxic chemical listings):

Substance is not listed.

· TSCA (Toxic Substances Control Act):

Substance is not listed.

· Proposition 65

· Chemicals known to cause cancer:

Substance is not listed.

· Chemicals known to cause reproductive toxicity for females:

Substance is not listed.

· Chemicals known to cause reproductive toxicity for males:

Substance is not listed.

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· Chemicals known to cause developmental toxicity:

Substance is not listed.

· Carcinogenic categories**· EPA (Environmental Protection Agency)**

Substance is not listed.

· TLV (Threshold Limit Value established by ACGIH)

Substance is not listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

Substance is not listed.

· GHS label elements

The substance is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms

GHS05

· Signal word Danger**· Hazard-determining components of labeling:**

Vanadium(V) trifluoride oxide, 98+%

· Hazard statements

H314 Causes severe skin burns and eye damage.

· Precautionary statements

P231 Handle under inert gas.

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

P422 Store contents under inert gas.

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

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.**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**· Date of preparation / last revision** 07/20/2021 / -**· 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

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

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*HMIS: Hazardous Materials Identification System (USA)**VOC: Volatile Organic Compounds (USA, EU)**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**NIOSH: National Institute for Occupational Safety**OSHA: Occupational Safety & Health**TLV: Threshold Limit Value**PEL: Permissible Exposure Limit**REL: Recommended Exposure Limit**Skin Corr. 1B: Skin corrosion/irritation – Category 1B**Eye Dam. 1: Serious eye damage/eye irritation – Category 1*

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