

GHS Safety Data Sheet

SDS No. : VVO01PAEG

Date Issued : 2010/05/19

Last updated : 2023/06/27

Section 1. Identification of the substance or mixture and of the supplier

Product Information

Product name: V₂O₅ Vanadium (V) oxide

Product	Purity	Form	Size or Shape
VVO12PB	99.9%(3N)	Powder	150 μm pass
VVO03GB	99.9%(3N)	Grains	2~5mm
VV008	—	Target	Various sizes
VV011	—	Tablet	Various sizes

Company Information:

Manufacturer : Kojundo Chemical Laboratory Co., Ltd.

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Recommended uses and restrictions on use: For research purposes

Section 2. Hazards identification

GHS Classification

Health Hazards	Environmental Hazards	Physical Hazards
Acute toxicity(Oral) : Category 3 Acute toxicity(Inhalation) : Category 2 Serious eye damage / irritation : Category 1 Germ cell mutagenicity : Category 2 Carcinogenicity : Category 1B Reproductive toxicity : Category 2 Specific target organ toxicity, single exposure: Category 1 Specific target organ toxicity, repeated exposure: Category 1	Hazardous to the aquatic environment, acute toxicity : Category 2 chronic toxicity : Category 1	Flammable solids : Not classified Pyrophoric solids : Not classified Self-heating substances and mixtures : Not classified Substances and mixtures which, in contact with water, emit flammable gases : Not classified Oxidizing solids : Not classified

GHS Label: T, R, C, V



Pictograms or symbols:

Warning word: DANGER

Hazard information	Description of precaution
Fatal if swallowed Harmful if inhaled Causes serious eye irritation May cause genetic defects Suspected of damaging fertility or the unborn child Suspected of causing cancer Causes damage to organs (respiratory organs, liver, kidney)	Obtain special instructions. Read and understand all safety precautions before handling. Wear protective gloves/protective clothing/eye protection/respiratory protection/face protection during handling. Avoid breathing dust/mist/gas/fume/vapors/spray. Do not eat, drink or smoke when using this product, and wash hands thoroughly after handling. Use only outdoors or in well-ventilated area. Avoid release to the environment and collect spillage. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF SWALLOWED: Immediately call a POISON CENTER or



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<p>Causes damage to organs (respiratory organs) through prolonged or repeated exposure</p> <p>May cause damage to organs (liver) through prolonged or repeated exposure</p> <p>Toxic to aquatic life</p> <p>Very toxic to aquatic life with long lasting effects</p>	<p>doctor/physician. Rinse mouth.</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell.</p> <p>Store locked up.</p> <p>Protect from sunlight. Store in a cool, dry and well-ventilated place. Keep container tightly closed.</p> <p>Dispose of contents/ container in accordance with local/national regulations.</p>
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Section 3. Composition / information on ingredients

Chemical or common name:	Vanadium(V) oxide
Synonyms:	Vanadium pentoxide
Chemical formula:	V ₂ O ₅
Single Substance or Compound:	Single substance
Composition:	100%
CAS #:	1314-62-1
RTECS#:	YW2450000
TSCA inventory :	Listed
EINECS:	2152398

Section 4. First aid measures

Eye contact:	Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes and get medical attention.
Skin contact:	Promptly flush contaminated skin with soap or mild detergent and water. Contact physician if irritation continues.
Inhalation:	Remove the exposed person immediately and provide fresh air. Get medical attention.
Ingestion:	Rinse mouth and throat with water. Get medical attention immediately.

Section 5. Fire fighting measures

Extinguishing media:	Use media appropriate for surrounding fire.
Fire fighting:	The product is not combustible. In case of fire, the product may liberate toxic gases/ fume. Self-contained breathing apparatus and full protective clothing should be used, if the material is involved in fire.

Section 6. Accidental release measures

Personal Precautions:	Workers should use protective wears to prevent contact with the spilt adhesive and inhalation of its vapor/dusts.
Environmental hazard precautions:	Shut off leak if without risk. Prevent flow out to river, etc. so as not to badly affect.
Method for containment and cleaning up:	Indoor leakage: Ventilate as much as possible until the cleaning is completed. Outdoor leakage: Work from the windward and evacuate the leeward crowd. Gather up, pack in closed DOT-approved waste container as much as possible. Carefully collect remnant and move to a safe place.



Section 7. Handling and storage

Precautions to be taken in handling:

Safe handling: Use protective wears and local ventilation equipment, if inhalation or skin contact is foreseen.

Avoid prolonged or repeated exposure.

Precautions to be taken in storage:

General precautions: Store the material in a sealed container.

Store in a cool, dry, well ventilated and dark place away from incompatible materials.

Section 8. Exposure controls / personal protection

Exposure guideline:

Chemical Name	ACGIH(2019) TLV-TWA mg/m ³	OSHA(2006) PEL-TWA mg/m ³
Vanadium pentoxide	0.05(I)*	0.5(R,C), 0.1(F,C)

I: Inhalable particulate, R: respirable particles, C: Ceiling limit, F: Fume, *: as V

Facility measures: Local ventilation of closed work room or total proper ventilation to prevent inhalation.

Protective ware: Wear appropriate NIOSH/MSHA-approved respirator, safety goggles, impervious gloves, protective wear, protective boots etc.

Section 9. Physical and chemical properties

Appearance:	Reddish yellow solid
Chemical formula:	V ₂ O ₅
Formula weight:	181.9
Melting point:	690 °C, 1750 °C(decompose)
Density:	3.35 g/cm ³
Solubility:	Slightly soluble ; water Soluble ; acid, base
Flammable:	Non-combustible substance
Oxidation:	None

Section10. Stability and reactivity

Stability: Stable in closed container.

Reactivity:

Incompatibility: Strong acids, chlorine trifluoride, lithium, peroxyformic acid

Section11. Toxicological information

Acute toxicity(Oral):	GHS : Category 3 ; Toxic if swallowed Oral rat LD ₅₀ = 221~658 mg/kg (AICIS IMAP(2016))
Acute toxicity(Inhalation):	GHS : Category 2 ; Fatal if inhaled Oral rat LC ₅₀ (4h) = 0.25 mg/L (CLH Report(2019),ECHA RAC Opinion(2020))
Skin corrosive / irritation:	GHS : Not classified
Serious eye damage / irritation:	GHS : Category 1 ; Causes serious eye damage
Respiratory sensitization:	GHS : Not classified
Skin sensitization:	GHS : No data available
Germ cell mutagenicity:	GHS : Category 2 ; Suspected of causing genetic defects
Carcinogenicity:	GHS : Category 1B ; May cause cancer



Carcinogenicity:

Chemical Name	ACGIH (2019)	IARC (2022)	NTP (2021)
Vanadium pentoxide	A3	2B	—

ACGIH A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans

IARC 2B The agent is possibly carcinogenic to humans

Reproductive toxicity:	GHS : Category 2 ; Suspected of damaging fertility or the unborn child
Specific target organ toxicity	GHS :
— single exposure:	Category 1 ; Causes damage to organs(respiratory organs, liver, kidney)
— repeated exposure:	GHS : Category 1 ; Causes damage to organs (respiratory organs) through prolonged or repeated exposure
Aspiration hazard:	GHS : No data available

Section12. Ecological information

Ecotoxicity:

Hazardous to the aquatic environment

— acute toxicity: GHS : Category 2 ; Toxic to aquatic life

 — chronic toxicity: GHS :
Category 1 ; Very toxic to aquatic life with long lasting effectsHazardous to the ozone layer GHS : No data available
No Freon or Halon

Fish toxicity: See above.

Degradability: No data available

Bioaccumulative potential: No data available

Mobility in soil: No data available

Section13. Disposal considerations

Disposal method: User of the product should contract with the local government or licensed 'Industrial Waste Haulers' for disposal of waste.

Section 14. Transport information

UN number:	2862
IATA shipping name:	VANADIUM PENTOXIDE, non-fused form
IATA hazard class:	Class 6.1 (Toxic substances)
IATA packing group:	III
HS code:	2825.30
Marine pollution:	Yes

Section 15. Regulatory information

TSCA inventory: listed.

Please refer to any other local / national measures that may be relevant.

Section 16. Other information

This SDS is for provision of information, and it does not represent a guarantee the properties or safeties of the product.

The information herein is based on the references we could obtained and the present state of our knowledge, however, this SDS does not always cover all information about the product. Some new information or amendments may be added afterwards.



Prior to use, please investigate the laws and regulations of the organization, area and country where the product is to be used. The information is intended to ordinary usage, in case of special handling, sufficient care should be taken.



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