

GHS Safety Data Sheet

SDS No. : VVO03PAEG

Date: 2015/07/07

Last updated: 2018/12/13

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

Product Information

Product name: VO₂ Vanadium(IV)oxide

Product number:	Purity	Form	Size(μm)
VVO11PB	99.9%(3N)	powder	180 pass

Company Information:

Manufacturer : Kojundo Chemical Laboratory Co., Ltd.

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Section 2. Hazards identification

GHS Classification

Health Hazards	Environmental Hazards	Physical Hazards
Skin corrosive/irritation:Category 2 Serious eye damage/eye irritation: Category 2 Specific target organ toxicity, single exposure:Category 3	No data available	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

GHS Label: W



Pictograms or symbols

Warning word: DANGER
Hazard information
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
Description of precaution

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.

Take off the contaminated clothing and wash before reuse.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

IF ON SKIN: Remove immediately all contaminated clothing and rinse skin with water/shower. Then wash skin with plenty of soap and water. If skin irritation occurs, get medical advice/attention.

Call a POISON CENTER or doctor/physician if you feel unwell.

Protect from sunlight. Store in a cool, dry and well-ventilated place.

Keep container tightly closed.

Store locked up.

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

Additional hazard information : With respect to additional hazard information, see Section 11.

Section 3. Composition / information on ingredients

Chemical or common name:	Vanadium(IV) oxide
Synonyms:	Vanadium dioxide
Chemical formula:	VO ₂
Single Substance or Compound:	Single substance
Composition:	100%
CAS #:	12036-21-4
RTECS#:	not listed
TSCA inventory :	listed
EINECS:	2348411

(See Section 8 for Exposure Limits)

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:	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.
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Precautions to be taken in storage:

General precautions:	Store the material in a sealed container under dry inert atmosphere. Store in a cool, dry, well ventilated and dark place away from incompatible materials.
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Section 8. Exposure controls / personal protection

Exposure guideline:	ACGIH (2013) : No data available OSHA (2006) : No data available
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.

Section 9. Physical and chemical properties

Color and Form:	Bluish black powder
Chemical formula:	VO ₂
Formula weight:	82.9
Melting point:	1967 °C
Density:	4.339 g/cm ³
Solubility in water:	Insoluble
Flammable:	Non-combustible substance
Oxidation:	No data available

Section 10. Stability and reactivity

Stability:	Stable in closed container under inert gas.
Reactivity	
Incompatibility:	No data available
Condition to avoid:	Heat, air

Section 11. Toxicological information

Acute toxicity :	GHS : No data available.
Skin corrosive / irritation:	GHS : Category 2 ; Causes skin irritation
Serious eyes damage / eye irritation:	GHS : Category 2 ; Causes serious eye irritation
Respiratory sensitization:	GHS : No data available.
Skin sensitization:	GHS : No data available
Germ cell mutagenicity:	GHS : No data available
Carcinogenicity:	GHS : No data available
Reproductive toxicity:	GHS : No data available
Specific target organ toxicity	
—single exposure:	GHS : Category 3 ; May cause respiratory irritation
Specific target organ toxicity	
—repeated exposure:	GHS : No data available
Aspiration hazard:	GHS : No data available

Section 12. Ecological information

Ecotoxicity:	
Hazards to the aquatic environment	
—acute toxicity:	GHS : No data available
—chronic toxicity:	GHS : No data available
Hazardous the ozone layer:	GHS ; No data available No Freon or Halon
Fish toxicity:	No data available

Degradability:	No data available
Bioaccumulative potential:	No data available
Mobility in soil:	No data available

Section 13. 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 classification:	Non-hazards
UN number:	None
HS code:	2825.30
Marine pollution:	None
Precautions:	Container should be transported in a secure position, in a well-ventilated vehicle.

Section 15. Regulatory information

TSCA inventory : listed.

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

Section 16. Other information

The information described above is believed to be correct. However, Kojundo Chemical Lab. makes no representation, warranty nor guarantee of any kind with respect to the information on this data sheet or any use of the product based upon this information.