

### SECTION 1: Identification

#### 1.1. Identification

Product form	: Substance
Trade name	: Vanadium Trioxide
Chemical name	: Vanadium oxide (III)
IUPAC name	: divanadium trioxide
CAS-No.	: 1314-34-7
Formula	: V <sub>2</sub> O <sub>3</sub>

#### 1.2. Recommended use and restrictions on use

Recommended use	: Industrial use
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#### 1.3. Supplier

VANÁDIO DE MARACÁS S/A

Fazenda São Conrado, km 18 da estrada municipal que liga o Povoado de Pé de Serra ao Povoado de Porto Alegre, zona rural do município de Maracás - Bahia

45.360-000

T +55 (73) 3047-0500

[alcides.palma@largoinc.com](mailto:alcides.palma@largoinc.com)

#### 1.4. Emergency telephone number

Emergency number	: +55 (71) 997257931
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### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Serious eye damage/eye irritation, Category 2A	H319	Causes serious eye irritation.
Full text of H statements : see section 16		

#### 2.2. GHS Label elements, including precautionary statements

##### GHS US labelling

Hazard pictograms (GHS US)



Signal word (GHS US)	: Warning
Hazard statements (GHS US)	: H319 - Causes serious eye irritation.
Precautionary statements (GHS US)	: P264 - Wash hands, forearms and face thoroughly after handling. P280 - Wear eye protection, protective gloves. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 - If eye irritation persists: Get medical advice/attention.

#### 2.3. Other hazards which do not result in classification

No additional information available

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### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%	GHS-US classification
Vanadium Trioxide (Main constituent)	CAS-No.: 1314-34-7	100	Eye Irrit. 2A, H319

Full text of hazard classes and H-statements : see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.
First-aid measures after eye contact	: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
First-aid measures after ingestion	: Do NOT induce vomiting. Rinse mouth out with water.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects	: Causes serious eye irritation.
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing.
Symptoms/effects after skin contact	: irritation (itching, redness, blistering).
Symptoms/effects after eye contact	: Causes serious eye irritation. stinging. redness, itching, tears.
Symptoms/effects after ingestion	: None under normal conditions.

### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Water spray. Earth, sand, dry chemical powder or foam.
Unsuitable extinguishing media	: Do not use a heavy water stream.

### 5.2. Specific hazards arising from the chemical

Fire hazard	: In case of fire and/or explosion do not breathe fumes.
Explosion hazard	: No direct explosion hazard.

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### 5.3. Special protective equipment and precautions for fire-fighters

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|--------------------------------|--|
| Firefighting instructions      | : Fight fire with normal precautions from a reasonable distance. Do not enter fire area without proper protective equipment, including respiratory protection. |
| Protection during firefighting | : Use self-contained breathing apparatus and chemically protective clothing.   |
| Other information              | : In case of fire, corrosive and harmful gases come free.  |

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

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|------------------|---|
| General measures | : Notify authorities if product enters sewers or public waters. Stop leak if safe to do so. Avoid contact with skin and eyes. |
|------------------|---|

#### 6.1.1. For non-emergency personnel

- |                      |  |
|----------------------|--|
| Protective equipment | : Wear recommended personal protective equipment.  |
| Emergency procedures | : Evacuate area. Only qualified personnel equipped with suitable protective equipment may intervene. |

#### 6.1.2. For emergency responders

- |                      |   |
|----------------------|---|
| Protective equipment | : Equip cleanup crew with proper protection. Self-contained breathing apparatus. Total impervious protective suits, gloves, and boots must be worn to prevent any contact with the product. |
| Emergency procedures | : Evacuate unnecessary personnel. Stop leak if safe to do so.   |

### 6.2. Environmental precautions

Avoid release to the environment.

### 6.3. Methods and material for containment and cleaning up

- |                         |   |
|-------------------------|---|
| For containment         | : Stop leak without risks if possible. Do not touch or walk on the spilled product. Create a physical barrier in order to avoid the dispersion of spilled products until the moment of their mechanical collection. |
| Methods for cleaning up | : Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal.   |

### 6.4. Reference to other sections

No additional information available

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

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|-----------------------------------|---|
| Additional hazards when processed | : Not expected to present a significant hazard under anticipated conditions of normal use.  |
| Precautions for safe handling     | : Avoid dust formation. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Keep only in original container. |
| Hygiene measures                  | : Always wash hands after handling the product. Remove contaminated clothes. Do not eat, drink or smoke when using this product.  |

### 7.2. Conditions for safe storage, including any incompatibilities

- |                     |   |
|---------------------|---|
| Technical measures  | : Keep in a cool, well-ventilated place away from heat.                     |
| Storage conditions  | : Store in dry protected location to prevent any moisture contact.          |
| Packaging materials | : Store always product in container of same material as original container. |

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### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

##### Vanadium Trioxide (1314-34-7)

No additional information available

#### 8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

#### 8.3. Individual protection measures/Personal protective equipment

##### Personal protective equipment:

Wear recommended personal protective equipment.

##### Hand protection:

Protective gloves

##### Eye protection:

Wear closed safety glasses

##### Skin and body protection:

Wear impervious rubber safety shoes

##### Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Powder.
Colour	: Black
Odour	: No data available
Odour threshold	: No data available
pH	: No data available
Melting point	: 1940 °C
Freezing point	: No data available
Boiling point	: ≈ 3000 °C 101,325 kPa
Flash point	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 5 22,5 °C
Density	: 5 g/cm³ 22,5 °C
Molecular mass	: 149.88 g/mol
Solubility	: Soluble in hydrogenfluoride. Soluble in nitric acid. Water: 0.01 g/100ml 20 °C
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available

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Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport. Vanadium trioxide undergoes slow air oxidation at room temperature. It does ignite upon heating in air. Reacts rapidly with chlorine.

### 10.2. Chemical stability

Stable under normal conditions of use.

### 10.3. Possibility of hazardous reactions

None under normal use.

### 10.4. Conditions to avoid

Store, if possible, in a cool, well ventilated place away from incompatible materials.

### 10.5. Incompatible materials

Alkali metals. Chlorine trifluoride. Finely divided aluminium.

### 10.6. Hazardous decomposition products

On exposure to high temperature, may decompose, releasing corrosive gases.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

#### Vanadium Trioxide (1314-34-7)

LD50 oral rat	> 2000 mg/kg OECD Guideline 401
LD50 dermal rat	> 2500 mg/kg bodyweight OECD Guideline 402
LC50 Inhalation - Rat	> 6.65 mg/l/4h OECD Guideline 403

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified

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### Vanadium Trioxide (1314-34-7)

LOAEC (inhalation, rat,dust/mist/fume, 90 days)	0.25 mg/l air OECD Guideline 412
Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available
Symptoms/effects	: Causes serious eye irritation.
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing.
Symptoms/effects after skin contact	: irritation (itching, redness, blistering).
Symptoms/effects after eye contact	: Causes serious eye irritation. stinging. redness, itching, tears.
Symptoms/effects after ingestion	: None under normal conditions.

## SECTION 12: Ecological information

### 12.1. Toxicity

No additional information available

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Regional legislation (waste)	: Disposal must be done according to official regulations.
Waste treatment methods	: Must follow special treatment according to local regulation.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Comply with applicable regulations for solid waste disposal. Disposal must be done according to official regulations.
Additional information	: Do not re-use empty containers.

## SECTION 14: Transport information

In accordance with Department of Transport / Transportation of Dangerous Goods / IMDG / IATA

### 14.1. UN number

Not regulated for transport

### 14.2. UN proper shipping name

Proper Shipping Name (DOT)	: Not applicable
Proper Shipping Name (TDG)	: Not applicable
Proper Shipping Name (IMDG)	: Not applicable
Proper Shipping Name (IATA)	: Not applicable

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### 14.3. Transport hazard class(es)

#### DOT

Transport hazard class(es) (DOT) : Not applicable

#### TDG

Transport hazard class(es) (TDG) : Not applicable

#### IMDG

Transport hazard class(es) (IMDG) : Not applicable

#### IATA

Transport hazard class(es) (IATA) : Not applicable

### 14.4. Packing group

Packing group (DOT) : Not applicable

Packing group (TDG) : Not applicable

Packing group (IMDG) : Not applicable

Packing group (IATA) : Not applicable

### 14.5. Environmental hazards

Other information : No supplementary information available.

### 14.6. Special precautions for user

#### DOT

No data available

#### TDG

No data available

#### IMDG

No data available

#### IATA

No data available

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Vanadium Trioxide (1314-34-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

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### 15.2. International regulations

#### CANADA

##### Vanadium Trioxide (1314-34-7)

Listed on the Canadian NDSL (Non-Domestic Substances List)

#### EU-Regulations

No additional information available

#### National regulations

No additional information available

### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

## SECTION 16: Other information

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Data sources : Natonal Library of Medicine, PubChem - Vanadium Trioxide; Accessed on March 16th of 2021.  
<https://pubchem.ncbi.nlm.nih.gov/source/hsdb/5799>. ECHA -  
<https://echa.europa.eu/pt/registration-dossier/-/registered-dossier/13629/7/10/4> - Dossier;  
Divanadium trioxide, accessed on March 16th of 2021.

#### Full text of H-statements

H319	Causes serious eye irritation.
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#### Abbreviations and acronyms

GHS	GHS - Globally Harmonized System of Classification and Labeling of Chemicals
LC50	Median lethal concentration
LD50	Median lethal dose
SDS	Safety Data Sheet

NFPA health hazard

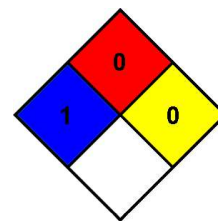
: 1 - Materials that, under emergency conditions, can cause significant irritation.

NFPA fire hazard

: 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity

: 0 - Material that in themselves are normally stable, even under fire conditions.



Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.