

# Safety data sheet Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



## Vanadium(V) oxide $\geq 99,5$ %, pure

article number: **0308**  
Version: **3.0 en**  
Replaces version of: 2021-11-16  
Version: (2)

date of compilation: 2017-04-20  
Revision: 2022-09-12

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

### 1.1 Product identifier

|                                 |   |
|---------------------------------|---|
| Identification of the substance | <b>Vanadium(V) oxide <math>\geq 99,5</math> %, pure</b> |
| Article number                  | 0308  |
| EC number                       | 215-239-8   |
| CAS number                      | 1314-62-1   |

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

|                           |   |
|---------------------------|---|
| Relevant identified uses: | Laboratory chemical<br>Laboratory and analytical use  |
| Uses advised against:     | Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household). |

### 1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG  
Schoemperlenstr. 3-5  
D-76185 Karlsruhe  
Germany

**Telephone:** +49 (0) 721 - 56 06 0  
**Telefax:** +49 (0) 721 - 56 06 149  
**e-mail:** [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)  
**Website:** [www.carlroth.de](http://www.carlroth.de)

Competent person responsible for the safety data sheet: :Department Health, Safety and Environment

**e-mail (competent person):** [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

### 1.4 Emergency telephone number

| Name  | Street    | Postal code/city     | Telephone    | Website |
|---|-----------|----------------------|--------------|---------|
| National Poisons Information Service<br>City Hospital | Dudley Rd | B187QH<br>Birmingham | 844 892 0111 |         |

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

Classification acc. to GHS

| Section | Hazard class                      | Cat-egory | Hazard class and category | Hazard statement |
|---------|-----------------------------------|-----------|---------------------------|------------------|
| 3.10    | Acute toxicity (oral)             | 3         | Acute Tox. 3              | H301             |
| 3.1I    | Acute toxicity (inhal.)           | 2         | Acute Tox. 2              | H330             |
| 3.3     | Serious eye damage/eye irritation | 1         | Eye Dam. 1                | H318             |

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| Section | Hazard class  | Cat-egory | Hazard class and category | Hazard statement |
|---------|---|-----------|---------------------------|------------------|
| 3.5     | Germ cell mutagenicity  | 2         | Muta. 2                   | H341             |
| 3.6     | Carcinogenicity   | 1B        | Carc. 1B                  | H350             |
| 3.7     | Reproductive toxicity   | 2         | Repr. 2                   | H361fd           |
| 3.7L    | Effects on or via lactation   | L         | Lact.                     | H362             |
| 3.8R    | Specific target organ toxicity - single exposure (respiratory tract irritation) | 3         | STOT SE 3                 | H335             |
| 3.9     | Specific target organ toxicity - repeated exposure                              | 1         | STOT RE 1                 | H372             |
| 4.1C    | Hazardous to the aquatic environment - chronic hazard                           | 2         | Aquatic Chronic 2         | H411             |

For full text of abbreviations: see SECTION 16

### The most important adverse physicochemical, human health and environmental effects

Delayed or immediate effects can be expected after short or long-term exposure. Spillage and fire water can cause pollution of watercourses.

## 2.2 Label elements

### Labelling

#### Signal word

**Danger**

#### Pictograms

GHS05, GHS06,  
GHS08, GHS09



#### Hazard statements

|        |   |
|--------|---|
| H301   | Toxic if swallowed  |
| H318   | Causes serious eye damage   |
| H330   | Fatal if inhaled  |
| H335   | May cause respiratory irritation  |
| H341   | Suspected of causing genetic defects  |
| H350   | May cause cancer  |
| H361fd | Suspected of damaging fertility. Suspected of damaging the unborn child                         |
| H362   | May cause harm to breast-fed children   |
| H372   | Causes damage to organs (respiratory tract) through prolonged or repeated exposure (if inhaled) |
| H411   | Toxic to aquatic life with long lasting effects   |

#### Precautionary statements

##### Precautionary statements - prevention

|      |   |
|------|---|
| P260 | Do not breathe dust   |
| P273 | Avoid release to the environment  |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection |

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### Precautionary statements - response

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 Immediately call a POISON CENTER/doctor

For professional users only

### 2.3 Other hazards

#### Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                   |                               |
|-------------------|-------------------------------|
| Name of substance | Vanadium(V) oxide             |
| Molecular formula | V <sub>2</sub> O <sub>5</sub> |
| Molar mass        | 181,9 g/mol                   |
| CAS No            | 1314-62-1                     |
| EC No             | 215-239-8                     |

| Substance, Specific Conc. Limits, M-factors, ATE |           |                           |                                   |
|--|-----------|---------------------------|-----------------------------------|
| Specific Conc. Limits                            | M-Factors | ATE                       | Exposure route                    |
| -  | -         | 220 mg/kg<br>0,05 mg/l/4h | oral<br>inhalation: dust/<br>mist |

## SECTION 4: First aid measures

### 4.1 Description of first aid measures



#### General notes

Self-protection of the first aider.

#### Following inhalation

Call a physician immediately. If breathing is irregular or stopped, administer artificial respiration.

#### Following skin contact

Rinse skin with water/shower.

#### Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

#### Following ingestion

Rinse mouth immediately and drink plenty of water. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

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## 4.2 Most important symptoms and effects, both acute and delayed

Risk of blindness, Risk of serious damage to eyes, Irritation, Cough, Dyspnoea

## 4.3 Indication of any immediate medical attention and special treatment needed

none

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media



#### Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings  
water, foam, dry extinguishing powder, ABC-powder

#### Unsuitable extinguishing media

water jet

### 5.2 Special hazards arising from the substance or mixture

Non-combustible.

### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Do not allow firefighting water to enter drains or water courses. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

## SECTION 6: Accidental release measures

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



#### For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe dust.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

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

#### Advice on how to contain a spill

Covering of drains. Take up mechanically.

#### Advice on how to clean up a spill

Take up mechanically. Control of dust.

#### Other information relating to spills and releases

Place in appropriate containers for disposal.

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## 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Use extractor hood (laboratory). Provision of sufficient ventilation. Avoid exposure. Avoid dust formation. Clear contaminated areas thoroughly.

#### Measures to prevent fire as well as aerosol and dust generation

Removal of dust deposits.

#### Measures to protect the environment

Avoid release to the environment.

#### Advice on general occupational hygiene

When using do not eat or drink. Thorough skin-cleansing after handling the product.

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

Store in a dry place.

#### Incompatible substances or mixtures

Observe hints for combined storage.

#### Consideration of other advice:

Store locked up.

#### Ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted. Use local and general ventilation.

#### Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

### 7.3 Specific end use(s)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### National limit values

#### Occupational exposure limit values (Workplace Exposure Limits)

| Country | Name of agent      | CAS No    | Identifier | TWA [mg/m <sup>3</sup> ] | STEL [mg/m <sup>3</sup> ] | Ceiling-C [mg/m <sup>3</sup> ] | Notation | Source    |
|---------|--------------------|-----------|------------|--------------------------|---------------------------|--------------------------------|----------|-----------|
| GB      | dust               |           | WEL        | 10                       |                           |                                | i        | EH40/2005 |
| GB      | dust               |           | WEL        | 4                        |                           |                                | r        | EH40/2005 |
| GB      | vanadium pentoxide | 1314-62-1 | WEL        | 0,05                     |                           |                                |          | EH40/2005 |

#### Notation

Ceiling-C Ceiling value is a limit value above which exposure should not occur

i Inhalable fraction

r Respirable fraction

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

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### Notation

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

### Human health values

| Relevant DNELs and other threshold levels |                        |                                    |                   |                            |
|---|------------------------|------------------------------------|-------------------|----------------------------|
| Endpoint                                  | Threshold level        | Protection goal, route of exposure | Used in           | Exposure time              |
| DNEL                                      | 0,5 mg/m <sup>3</sup>  | human, inhalatory                  | worker (industry) | chronic - systemic effects |
| DNEL                                      | 0,14 mg/m <sup>3</sup> | human, inhalatory                  | worker (industry) | chronic - local effects    |
| DNEL                                      | 0,7 mg/m <sup>3</sup>  | human, inhalatory                  | worker (industry) | acute - local effects      |

### Environmental values

| Relevant PNECs and other threshold levels |                 |                       |                              |                              |
|---|-----------------|-----------------------|------------------------------|------------------------------|
| End-point                                 | Threshold level | Organism              | Environmental compartment    | Exposure time                |
| PNEC                                      | 17,1 µg/l       | aquatic organisms     | freshwater                   | short-term (single instance) |
| PNEC                                      | 2,5 µg/l        | aquatic organisms     | marine water                 | short-term (single instance) |
| PNEC                                      | 450 µg/l        | aquatic organisms     | sewage treatment plant (STP) | short-term (single instance) |
| PNEC                                      | 538 mg/kg       | aquatic organisms     | freshwater sediment          | short-term (single instance) |
| PNEC                                      | 79 mg/kg        | aquatic organisms     | marine sediment              | short-term (single instance) |
| PNEC                                      | 7,2 mg/kg       | terrestrial organisms | soil                         | short-term (single instance) |

## 8.2 Exposure controls

### Individual protection measures (personal protective equipment)

#### Eye/face protection



Use safety goggles with side protection.

#### Skin protection



#### • hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 °C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply

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only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

- **type of material**

NBR (Nitrile rubber)

- **material thickness**

>0,11 mm

- **breakthrough times of the glove material**

>480 minutes (permeation: level 6)

- **other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

### Respiratory protection



Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P3 (filters at least 99,95 % of airborne particles, colour code: White). P3 (filters at least 99,95 % of airborne particles, colour code: White).

### Environmental exposure controls

Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|  |                               |
|--|-------------------------------|
| Physical state   | solid                         |
| Form   | powder                        |
| Colour   | yellow-orange                 |
| Odour  | odourless                     |
| Melting point/freezing point                             | 690 °C (ECHA)                 |
| Boiling point or initial boiling point and boiling range | 1.750 °C (slow decomposition) |
| Flammability   | non-combustible               |
| Lower and upper explosion limit                          | not determined                |
| Flash point  | not applicable                |
| Auto-ignition temperature                                | not determined                |
| Decomposition temperature                                | 1.750 °C at 1.013 hPa (ECHA)  |
| pH (value)   | not applicable                |
| Kinematic viscosity                                      | not relevant                  |
| <u>Solubility(ies)</u>                                   |                               |
| Water solubility   | 0,515 g/l at 20 °C (ECHA)     |

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### Partition coefficient

Partition coefficient n-octanol/water (log value): 2,97 (calculated value)

Vapour pressure not determined

### Density and/or relative density

Density 3,65 g/cm<sup>3</sup> at 21,7 °C (ECHA)

Relative vapour density information on this property is not available

Bulk density ~ 400 – 600 kg/m<sup>3</sup>

Particle characteristics No data available.

### Other safety parameters

Oxidising properties none

## 9.2 Other information

Information with regard to physical hazard classes: hazard classes acc. to GHS (physical hazards): not relevant

Other safety characteristics: There is no additional information.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

This material is not reactive under normal ambient conditions.

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

### 10.3 Possibility of hazardous reactions

**Violent reaction with:** Alkali metals, Alkaline earth metal, Lithium, Reducing agents, Sulphur, Calcium, Chlorine trifluoride (ClF<sub>3</sub>).

### 10.4 Conditions to avoid

Keep away from heat. Decomposition takes place from temperatures above: 1.750 °C at 1.013 hPa.

### 10.5 Incompatible materials

There is no additional information.

### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.



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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

**Classification acc. to GHS**

**Acute toxicity**

Toxic if swallowed. Fatal if inhaled.

| Acute toxicity            |          |              |         |        |        |
|---------------------------|----------|--------------|---------|--------|--------|
| Exposure route            | Endpoint | Value        | Species | Method | Source |
| oral                      | LD50     | 221,1 mg/kg  | rat     |        | ECHA   |
| inhalation: dust/<br>mist | LC50     | 2,21 mg/l/4h | rat     |        | ECHA   |
| dermal                    | LD50     | >2.500 mg/kg | rat     |        | ECHA   |

**Skin corrosion/irritation**

Shall not be classified as corrosive/irritant to skin.

**Serious eye damage/eye irritation**

Causes serious eye damage.

**Respiratory or skin sensitisation**

Shall not be classified as a respiratory or skin sensitiser.

**Germ cell mutagenicity**

Suspected of causing genetic defects.

**Carcinogenicity**

May cause cancer.

**Reproductive toxicity**

Suspected of damaging the unborn child. Suspected of damaging fertility. May cause harm to breast-fed children.

**Specific target organ toxicity - single exposure**

May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**

Causes damage to organs (respiratory tract) through prolonged or repeated exposure (if inhaled).

| Hazard category | Target organ      | Exposure route |
|-----------------|-------------------|----------------|
| 1               | respiratory tract | if inhaled     |

**Aspiration hazard**

Shall not be classified as presenting an aspiration hazard.

**Symptoms related to the physical, chemical and toxicological characteristics**

• **If swallowed**

Data are not available.

• **If in eyes**

Causes serious eye damage, risk of blindness

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### • If inhaled

Irritation to respiratory tract, cough, Dyspnoea

### • If on skin

Data are not available.

### • Other information

Other adverse effects: Cardiovascular system

## 11.2 Endocrine disrupting properties

Not listed.

## 11.3 Information on other hazards

There is no additional information.

## SECTION 12: Ecological information

### 12.1 Toxicity

Toxic to aquatic life with long lasting effects.

| Aquatic toxicity (acute) |                               |         |        |               |
|--------------------------|-------------------------------|---------|--------|---------------|
| Endpoint                 | Value                         | Species | Source | Exposure time |
| LC50                     | 27.800 $\mu\text{g}/\text{l}$ | fish    | ECHA   | 96 h          |
| ErC50                    | 2.907 $\mu\text{g}/\text{l}$  | algae   | ECHA   | 72 h          |

| Aquatic toxicity (chronic) |                            |                       |        |               |
|----------------------------|----------------------------|-----------------------|--------|---------------|
| Endpoint                   | Value                      | Species               | Source | Exposure time |
| EC50                       | 388 $\mu\text{g}/\text{l}$ | aquatic invertebrates | ECHA   | 14 d          |

### Biodegradation

The methods for determining the biological degradability are not applicable to inorganic substances.

## 12.2 Process of degradability

Data are not available.

## 12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

|                           |                         |
|---------------------------|-------------------------|
| n-octanol/water (log KOW) | 2,97 (Calculated value) |
|---------------------------|-------------------------|

## 12.4 Mobility in soil

Data are not available.

## 12.5 Results of PBT and vPvB assessment

Data are not available.

## 12.6 Endocrine disrupting properties

Not listed.

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## 12.7 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

#### Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

#### Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

### 13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process. Waste catalogue ordinance (Germany).

### 13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

### 14.1 UN number or ID number

|           |         |
|-----------|---------|
| ADRRID    | UN 2862 |
| IMDG-Code | UN 2862 |
| ICAO-TI   | UN 2862 |

### 14.2 UN proper shipping name

|           |                    |
|-----------|--------------------|
| ADRRID    | VANADIUM PENTOXIDE |
| IMDG-Code | VANADIUM PENTOXIDE |
| ICAO-TI   | Vanadium pentoxide |

### 14.3 Transport hazard class(es)

|           |     |
|-----------|-----|
| ADRRID    | 6.1 |
| IMDG-Code | 6.1 |
| ICAO-TI   | 6.1 |

### 14.4 Packing group

|           |     |
|-----------|-----|
| ADRRID    | III |
| IMDG-Code | III |
| ICAO-TI   | III |

### 14.5 Environmental hazards

hazardous to the aquatic environment

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### 14.6 Special precautions for user


Provisions for dangerous goods (ADR) should be complied within the premises.

### 14.7 Maritime transport in bulk according to IMO instruments


The cargo is not intended to be carried in bulk.

### 14.8 Information for each of the UN Model Regulations

#### Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information

|   |  |
|---|--|
| Proper shipping name  | VANADIUM PENTOXIDE   |
| Particulars in the transport document   | UN2862, VANADIUM PENTOXIDE, 6.1, III, (E), environmentally hazardous |
| Classification code   | T5   |
| Danger label(s)   | 6.1, "Fish and tree"   |
|  |  |
| Environmental hazards   | yes (hazardous to the aquatic environment)                           |
| Special provisions (SP)   | 600, 802(ADN)  |
| Excepted quantities (EQ)  | E1   |
| Limited quantities (LQ)   | 5 kg   |
| Transport category (TC)   | 2  |
| Tunnel restriction code (TRC)   | E  |
| Hazard identification No  | 60   |
| <b>Emergency Action Code</b>  | <b>2X</b>  |

#### Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) Additional information

|   |                           |
|---|---------------------------|
| <b>Classification code</b>  | T5                        |
| <b>Danger label(s)</b>  | 6.1<br>Fish and tree      |
|  |                           |
| <b>Environmental hazards</b>  | Yes<br>Hazardous to water |
| <b>Special provisions (SP)</b>  | 600, 802(ADN)             |
| <b>Excepted quantities (EQ)</b>   | E1                        |
| <b>Limited quantities (LQ)</b>  | 5 kg                      |
| <b>Transport category (TC)</b>  | 2                         |
| <b>Hazard identification No</b>   | 60                        |

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### International Maritime Dangerous Goods Code (IMDG) - Additional information

|  |  |
|--|--|
| Proper shipping name                     | VANADIUM PENTOXIDE                                     |
| Particulars in the shipper's declaration | UN2862, VANADIUM PENTOXIDE, 6.1, III, MARINE POLLUTANT |
| Marine pollutant                         | YES (hazardous to the aquatic environment)             |
| Danger label(s)                          | 6.1, "Fish and tree"                                   |
|  |  |
| Special provisions (SP)                  | -  |
| Excepted quantities (EQ)                 | E1   |
| Limited quantities (LQ)                  | 5 kg   |
| EmS                                      | F-A, S-A   |
| Stowage category                         | A  |

### International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

|  |  |
|--|--|
| Proper shipping name                     | Vanadium pentoxide                         |
| Particulars in the shipper's declaration | UN2862, Vanadium pentoxide, 6.1, III       |
| Environmental hazards                    | YES (hazardous to the aquatic environment) |
| Danger label(s)                          | 6.1  |
|  |  |
| Excepted quantities (EQ)                 | E1   |
| Limited quantities (LQ)                  | 10 kg                                      |

## SECTION 15: Regulatory information

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

#### Relevant provisions of the European Union (EU)

##### Seveso Directive

| 2012/18/EU (Seveso III) |                                       |   |       |
|-------------------------|---------------------------------------|---|-------|
| No                      | Dangerous substance/hazard categories | Qualifying quantity (tonnes) for the application of lower and upper-tier requirements | Notes |
| H2                      | acute toxic (cat. 2 + cat. 3, inhal.) | 50                      200   | 41)   |

##### Notation

- 41) - Category 2, all exposure routes  
- category 3, inhalation exposure route

##### Deco-Paint Directive

|             |              |
|-------------|--------------|
| VOC content | 0 %<br>0 g/l |
|-------------|--------------|

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### Industrial Emissions Directive (IED)

|             |       |
|-------------|-------|
| VOC content | 0 %   |
| VOC content | 0 g/l |

### Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

not listed

### Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

### Water Framework Directive (WFD)

| List of pollutants (WFD) |   |        |           |         |
|--------------------------|---|--------|-----------|---------|
| Name of substance        | Name acc. to inventory  | CAS No | Listed in | Remarks |
| Vanadium(V) oxide        | Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment |        | a)        |         |
| Vanadium(V) oxide        | Metals and their compounds  |        | a)        |         |

#### Legend

A) Indicative list of the main pollutants

### Regulation on the marketing and use of explosives precursors

not listed

### Regulation on drug precursors

not listed

### Regulation on substances that deplete the ozone layer (ODS)

not listed

### Regulation concerning the export and import of hazardous chemicals (PIC)

not listed

### Regulation on persistent organic pollutants (POP)

not listed

### National regulations(GB)

### List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

not listed

### Restrictions according to GB REACH, Annex 17

| Dangerous substances with restrictions (GB REACH, Annex 17) |                        |        |    |
|---|------------------------|--------|----|
| Name of substance   | Name acc. to inventory | CAS No | No |
| Vanadium(V) oxide   | carcinogenic           |        | 28 |

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acc. to Regulation (EC) No. 1907/2006 (REACH)



Vanadium(V) oxide  $\geq 99,5$  %, pure

article number: 0308

## Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

## National inventories

| Country | Inventory  | Status              |
|---------|------------|---------------------|
| AU      | AIIC       | substance is listed |
| CA      | DSL        | substance is listed |
| CN      | IECSC      | substance is listed |
| EU      | ECSI       | substance is listed |
| EU      | REACH Reg. | substance is listed |
| JP      | CSCL-ENCS  | substance is listed |
| KR      | KECI       | substance is listed |
| MX      | INSQ       | substance is listed |
| NZ      | NZIoC      | substance is listed |
| PH      | PICCS      | substance is listed |
| TR      | CICR       | substance is listed |
| TW      | TCSI       | substance is listed |
| US      | TSCA       | substance is listed |

### Legend

|            |   |
|------------|---|
| AIIC       | Australian Inventory of Industrial Chemicals                            |
| CICR       | Chemical Inventory and Control Regulation                               |
| CSCL-ENCS  | List of Existing and New Chemical Substances (CSCL-ENCS)                |
| DSL        | Domestic Substances List (DSL)  |
| ECSI       | EC Substance Inventory (EINECS, ELINCS, NLP)                            |
| IECSC      | Inventory of Existing Chemical Substances Produced or Imported in China |
| INSQ       | National Inventory of Chemical Substances                               |
| KECI       | Korea Existing Chemicals Inventory                                      |
| NZIoC      | New Zealand Inventory of Chemicals                                      |
| PICCS      | Philippine Inventory of Chemicals and Chemical Substances (PICCS)       |
| REACH Reg. | REACH registered substances   |
| TCSI       | Taiwan Chemical Substance Inventory                                     |
| TSCA       | Toxic Substance Control Act   |

## 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

## SECTION 16: Other information

### Indication of changes (revised safety data sheet)

Alignment to regulation:

Restructuring: section 9, section 14

| Section | Former entry (text/value) | Actual entry (text/value)                                    | Safety-relevant |
|---------|---------------------------|--|-----------------|
| 2.1     |                           | Classification acc. to GHS:<br>change in the listing (table) | yes             |
| 2.2     |                           | Pictograms:<br>change in the listing (table)                 | yes             |

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| Section | Former entry (text/value)   | Actual entry (text/value)   | Safety-relevant |
|---------|---|---|-----------------|
| 2.2     |   | Hazard statements:<br>change in the listing (table)   | yes             |
| 2.2     |   | Precautionary statements - response:<br>change in the listing (table)                           | yes             |
| 2.2     | Labelling of packages where the contents do not exceed 125 ml:<br>Signal word: Danger |   | yes             |
| 2.2     |   | Labelling of packages where the contents do not exceed 125 ml:<br>change in the listing (table) | yes             |
| 2.2     |   | Labelling of packages where the contents do not exceed 125 ml:<br>change in the listing (table) | yes             |
| 2.2     |   | Labelling of packages where the contents do not exceed 125 ml:<br>change in the listing (table) | yes             |

### Abbreviations and acronyms

| Abbr.     | Descriptions of used abbreviations  |
|-----------|---|
| ADN       | Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways) |
| ADR       | Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)   |
| ATE       | Acute Toxicity Estimate   |
| CAS       | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)  |
| Ceiling-C | Ceiling value   |
| DGR       | Dangerous Goods Regulations (see IATA/DGR)  |
| DNEL      | Derived No-Effect Level   |
| EC50      | Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval                                      |
| EC No     | The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)                                     |
| EH40/2005 | EH40/2005 Workplace exposure limits ( <a href="http://www.nationalarchives.gov.uk/doc/open-government-licence/">http://www.nationalarchives.gov.uk/doc/open-government-licence/</a> )                                 |
| EINECS    | European Inventory of Existing Commercial Chemical Substances   |
| ELINCS    | European List of Notified Chemical Substances   |
| EmS       | Emergency Schedule  |
| ErC50     | $\equiv$ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control   |
| GB REACH  | The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)  |
| GHS       | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations   |
| IATA      | International Air Transport Association   |



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| Abbr.     | Descriptions of used abbreviations  |
|-----------|---|
| IATA/DGR  | Dangerous Goods Regulations (DGR) for the air transport (IATA)  |
| ICAO      | International Civil Aviation Organization   |
| ICAO-TI   | Technical instructions for the safe transport of dangerous goods by air   |
| IMDG      | International Maritime Dangerous Goods Code   |
| IMDG-Code | International Maritime Dangerous Goods Code   |
| LC50      | Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval                       |
| LD50      | Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval  |
| NLP       | No-Longer Polymer   |
| PBT       | Persistent, Bioaccumulative and Toxic   |
| PNEC      | Predicted No-Effect Concentration   |
| REACH     | Registration, Evaluation, Authorisation and Restriction of Chemicals  |
| RID       | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail) |
| STEL      | Short-term exposure limit   |
| TWA       | Time-weighted average   |
| VOC       | Volatile Organic Compounds  |
| vPvB      | Very Persistent and very Bioaccumulative  |
| WEL       | Workplace exposure limit  |

### Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

### List of relevant phrases (code and full text as stated in section 2 and 3)

| Code   | Text   |
|--------|--|
| H301   | Toxic if swallowed.  |
| H318   | Causes serious eye damage.   |
| H330   | Fatal if inhaled.  |
| H335   | May cause respiratory irritation.  |
| H341   | Suspected of causing genetic defects.  |
| H350   | May cause cancer.  |
| H361fd | Suspected of damaging fertility. Suspected of damaging the unborn child.                         |
| H362   | May cause harm to breast-fed children.   |
| H372   | Causes damage to organs (respiratory tract) through prolonged or repeated exposure (if inhaled). |
| H411   | Toxic to aquatic life with long lasting effects.   |

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**Vanadium(V) oxide  $\geq 99,5$  %, pure**

article number: **0308**

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## **Disclaimer**

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.