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

1.1 Product identifiers
Product name: Vanadium Pentoxide
CAS-No.: 1314-62-1

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory chemicals, Industrial & for professional use only.

1.3 Details of the supplier of the safety data sheet
Company: Central Drug House (P) Ltd
7/28 Vardaan House
New Delhi-10002
INDIA
Telephone: +91 11 49404040
Email: care@cdhfinechemical.com

1.4 Emergency telephone number
Emergency Phone #: +91 11 49404040 (9:00am - 6:00 pm) [Office hours]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Serious eye damage (Category 1), H318
Germ cell mutagenicity (Category 2), H341
Reproductive toxicity (Category 2), H361d
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Specific target organ toxicity - repeated exposure (Category 1), H372
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements
Labelling according Regulation (EC) No 1272/2008
Pictogram

Signal word: Danger
Hazard statement(s)
H302 + H332 Harmful if swallowed or if inhaled
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
H361d Suspected of damaging the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273 Avoid release to the environment.
P280 Wear eye protection/ face protection.
P305 + P351 + P338 + P310 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/doctor.
P501 Dispose of contents/ container to an approved waste disposal plant.

Supplemental Hazard
Statements none

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances
Formula: \( \text{V}_2\text{O}_5 \)
Molecular weight: 181.88 g/mol
CAS-No.: 1314-62-1
EC-No.: 215-239-8
Index-No.: 023-001-00-8

Hazardous ingredients according to Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vanadium pentoxide</td>
<td>Acute Tox. 4; Eye Dam. 1;</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>1314-62-1</td>
<td></td>
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<td>EC-No.</td>
<td>215-239-8</td>
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<tr>
<td>Index-No.</td>
<td>023-001-00-8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Muta. 2; Repr. 2; STOT SE 3;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STOT RE 1; Aquatic Chronic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H302, H332, H318, H341, H361d, H335, H372, H411</td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Vanadium/vanadium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.2 Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment

**Eye/face protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Body Protection**
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use (EN 143) respirator cartridges as a backup to engineering controls. If th full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

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

a) **Appearance**
Form: solid

b) **Odour**
No data available

c) **Odour Threshold**
No data available

d) **pH**
No data available

e) **Melting point/freezing point**
Melting point/range: 690 °C - lit.

f) **Initial boiling point and boiling range**
No data available

g) **Flash point**
Not applicable

h) **Evaporation rate**
No data available

i) **Flammability (solid, gas)**
No data available

j) **Upper/lower flammability or explosive limits**
No data available

k) **Vapour pressure**
No data available

l) **Vapour density**
No data available

m) **Relative density**
3.35 g/mL at 25 °C

n) **Water solubility**
904 g/l at 20 °C - OECD Test Guideline 105

o) **Partition coefficient: n-octanol/water**
No data available

p) **Auto-ignition temperature**
No data available

q) **Decomposition temperature**
No data available

r) **Viscosity**
No data available

s) **Explosive properties**
No data available
t) Oxidizing properties

The substance or mixture is not classified as oxidizing.

9.2 Other safety information

Solubility in other solvents

- Ethanol - insoluble

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong acids

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Vanadium/vanadium oxides

Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) Vanadium pentoxide

LC50 Inhalation - Rat - female - 4 h - 2.21 mg/l (Vanadium pentoxide) (OECD Test Guideline 403)

LC50 Dermal - Rat - > 2,500 mg/kg (Vanadium pentoxide) (OECD Test Guideline 402)

Skin corrosion/irritation

Skin - in vitro assay (Vanadium pentoxide)

Result: No skin irritation

Serious eye damage/eye irritation

Eyes - Rabbit (Vanadium pentoxide)

Result: Risk of serious damage to eyes. (OECD Test Guideline 405)

Respiratory or skin sensitisation

No data available (Vanadium pentoxide)

Germ cell mutagenicity

Laboratory experiments have shown mutagenic effects (Vanadium pentoxide) In vitro tests showed mutagenic effects (Vanadium pentoxide)

Carcinogenicity

No data available (Vanadium pentoxide)

(Vanadium pentoxide)

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Vanadium pentoxide)

Reproductive toxicity

Possible risk of congenital malformation in the fetus (Vanadium pentoxide)

Suspected human reproductive toxicant (Vanadium pentoxide)
Specific target organ toxicity - single exposure
May cause respiratory irritation. (Vanadium pentoxide)
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available (Vanadium pentoxide)

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (Vanadium pentoxide)

SECTION 12: Ecological information

12.1 Toxicity
Toxicity to fish
LC50 - Oncorhynchus mykiss (rainbow trout) - 5.2 mg/l - 96.0 h (Vanadium pentoxide)

Toxicity to daphnia and other aquatic invertebrates
LC50 - Daphnia magna (Water flea) - 1.52 mg/l - 48 h (Vanadium pentoxide)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available (Vanadium pentoxide)

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chem scrubber.

Contaminated packaging
Dispose of as unused product.
SECTION 14: Transport information

14.1 UN number
ADR/RID: 2862  IMDG: 2862  IATA: 2862

14.2 UN proper shipping name
ADR/RID: VANADIUM PENTOXIDE
IMDG: VANADIUM PENTOXIDE
IATA: Vanadium pentoxide

14.3 Transport hazard class(es)
ADR/RID: 6.1  IMDG: 6.1  IATA: 6.1

14.4 Packaging group
ADR/RID: III  IMDG: III  IATA: III

14.5 Environmental hazards
ADR/RID: no  IMDG Marine pollutant: no  IATA: no

14.6 Special precautions for user
No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-statements referred to under sections 2 and 3.

H302  Harmful if swallowed.
H302 + H332  Harmful if swallowed or if inhaled
H318  Causes serious eye damage.
H332  Harmful if inhaled.
H335  May cause respiratory irritation.
H341  Suspected of causing genetic defects.
H361d  Suspected of damaging the unborn child.
H372  Causes damage to organs through prolonged or repeated exposure.
H411  Toxic to aquatic life with long lasting effects.

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Central Drug House (P) Ltd and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.cdhfinechemical.com for additional terms and conditions of sale.