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## Material Safety Data Sheet

### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1 Product identifiers

Product name Vanadium(V) oxide  
Product number A48296  
Brand 3ASenrise  
CAS number 1314-62-1

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

Company: Anhui Senrise Technology Co., Ltd.  
Address: No.88 Weisan Road, High-Tech Industrial Development Zone, Anqing, Anhui  
Post code: 246003  
Tel: 400-005-6266  
Fax: 0556-5555368  
Email: service@3asenrise.com

#### 1.3 Emergency telephone

Emergency telephone: 0556-5500208

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

Identified uses: For R&D use only. Not for pharmaceutical, household or other uses.

### 2 HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

Acute toxicity, Oral (Category 2), H300  
Acute toxicity, Inhalation (Category 2), H330  
Germ cell mutagenicity (Category 2), H341  
Carcinogenicity (Category 2), H351  
Reproductive toxicity (Category 2), H361  
Effects on or via lactation, H362  
Specific target organ toxicity - single exposure (Category 3), respiratory tract irritation, H335  
Specific target organ toxicity - repeated exposure (Category 1), H372  
Short-term (acute) aquatic hazard (Category 2), H401  
Long-term (chronic) aquatic hazard (Category 2), H411

#### 2.2 GHS label elements, including precautionary statements

##### Pictogram



**Signal word: Danger****Hazard statement(s)**

H335 May cause respiratory irritation.  
H411 Toxic to aquatic life with long lasting effects.  
H341 Suspected of causing genetic defects.  
H351 Suspected of causing cancer.  
H361 Suspected of damaging fertility or the unborn child.  
H372 Causes damage to organs through prolonged or repeated exposure.  
H362 May cause harm to breast-fed children.  
H300+H330 Fatal if swallowed or if inhaled.

**Precautionary statement(s)****Prevention**

P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P270 Do not eat, drink or smoke when using this product.  
P264 Wash hands thoroughly after handling.  
P273 Avoid release to the environment.  
P284 Wear respiratory protection.  
P271 Use only outdoors or in a well-ventilated area.  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P263 Avoid contact during pregnancy/while nursing.

**Response**

P391 Collect spillage. Hazardous to the aquatic environment  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P301+P310+P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.  
P304+P340+P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
Immediately call a POISON CENTER/ doctor.

**Storage**

P405 Store locked up.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

**Disposal**

P501 Dispose of contents/ container to an approved waste disposal plant.

**2.3 Physical and chemical hazards**

No data available

**2.4 Health hazards**

H335 May cause respiratory irritation.  
H330 Fatal if inhaled.  
H341 Suspected of causing genetic defects.  
H351 Suspected of causing cancer.  
H361 Suspected of damaging fertility or the unborn child.  
H372 Causes damage to organs through prolonged or repeated exposure.  
H300 Fatal if swallowed.  
H362 May cause harm to breast-fed children.

**2.5 Environmental hazards Code**

H411 Toxic to aquatic life with long lasting effects.  
H401 Toxic to aquatic life.

**2.6 Other hazards**

No data available

### 3 COMPOSITION/INFORMATION ON INGREDIENTS

#### Substance / Mixture: Substance

##### 3.1 Substance

Name	Vanadium(V) oxide
Formula	V <sub>2</sub> O <sub>5</sub>
Molecular Weight	181.88
CAS	1314-62-1
Concentration	99%(metals basis)

### 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. 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

Do NOT induce vomiting. 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

No data available.

### 5 FIREFIGHTING MEASURES

#### 5.1 Extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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

Vanadium/vanadium oxides Not combustible. Ambient fire may liberate hazardous vapours.

#### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 6 ACCIDENTAL RELEASE MEASURES

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

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

#### 6.2 Environmental precautions

Do not let product enter drains.

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

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

#### 6.4 Reference to other section

For disposal see section 13.

### 7 HANDLING AND STORAGE

#### 7.1 Precautions for safe handling

## Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

## Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

## Hygiene measures

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

## 7.2 Conditions for safe storage, including any incompatibilities

### Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Long term storage: RT

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

No data available.

### 8.2 Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses.

#### 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.

#### Body protection

Flame retardant antistatic protective clothing.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### Control of environmental exposure

Do not let product enter drains. Risk of explosion.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

a) Appearance	Yellow or orange-red (crystalline) powder
b) Odor	No data available
c) pH	No data available
d) Melting point/freezing point	690 ° C - lit.
e) Initial boiling point and boiling range	ca. 1,750 ° C - (decomposition)
f) Upper/lower flammability or explosive limits	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Vapor pressure	No data available
j) Vapor density	No data available
k) Density	3.35 g/cm <sup>3</sup> at 25 ° C - lit.
l) Water solubility	515 g/l at 20 ° C - soluble
m) Partition coefficient: n-octanol/water	No data available
n) Autoignition temperature	No data available
o) Decomposition temperature	No data available

p) Flammability

No data available

## **10 STABILITY AND REACTIVITY**

### **10.1 Chemical stability**

No data available.

### **10.2 Conditions to avoid**

No data available.

### **10.3 Incompatible materials**

No data available

### **10.4 Hazardous decomposition products**

In the event of fire: see section 5.

## **11 TOXICOLOGICAL INFORMATION**

### **11.1 Acute toxicity**

LD50 Oral

No data available

LC50 Inhalation

No data available

LD50 Dermal

No data available

### **11.2 Skin corrosion/irritation**

Skin - in vitro test Result: No skin irritation - 15 min Remarks:

### **11.3 Serious eye damage/eye irritation**

No data available

### **11.4 Respiratory or skin sensitization**

Maximization Test - Guinea pig Result: negative

### **11.5 Germ cell mutagenicity**

Suspected of causing genetic defects. Test Type: Micronucleus test Species: Mouse Cell type: Red blood cells (erythrocytes) Application Route: Inhalation Result: negative Test Type: Transgenic rodent somatic cell gene mutation assay Species: Mouse Applica

### **11.6 Carcinogenicity**

Presumed to have carcinogenic potential for humans

### **11.7 Reproductive toxicity**

Suspected of damaging the unborn child. Suspected of damaging fertility. Studies indicating a hazard to babies during the lactation period

### **11.8 Specific target organ toxicity - single exposure**

Inhalation - May cause respiratory irritation. - Respiratory Tract Remarks:

### **11.9 Specific target organ toxicity - repeated exposure**

Inhalation - Causes damage to organs through prolonged or repeated exposure. - Respiratory Tract Remarks:

### **11.10 Aspiration hazard**

no data available.

### **11.11 Additional Information**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Vanadium and its compounds generally cause irritations after eye and skin contact and mucosal irritations, coughing, and dyspnoea after inhalation. After absorption of toxic quantities changes in the blood picture, loss of weight, cardiovascular complaints. Other dangerous properties can not be excluded. This substance should be handled with particular care.

## 12 ECOLOGICAL INFORMATION

### 12.1 Toxicity

Toxicity to fish:

No data available

Toxicity to daphnia and other aquatic:

No data available

Toxicity to algae:

No data available

Toxicity to bacteria:

No data available

### 12.2 Persistence and degradability

The methods for determining biodegradability are to inorganic substances.

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Other adverse effects

No data available

## 13 DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Observe all federal, state and local regulations when disposing of the substance.

#### Contaminated packaging

Disposal must be made according to official regulations.

## 14 TRANSPORT INFORMATION

### 14.1 UN number

ADR/RID: 2862 IMDG: 2862 IATA: 2862

### 14.2 UN proper shipping name

ADR/RID: VANADIUM(V) OXIDE

IMDG: VANADIUM(V) OXIDE

IATA-DGR: Vanadium(V) oxide

### 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: yes IMDG Marine pollutant: yes IATA: no

### 14.6 Special precautions for user

No data available

## 15. REGULATORY INFORMATION

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

Applicable regulations

Regulations on the Control over Safety of Dangerous Chemicals.

This product is included in the list of dangerous chemicals.

Please pay attention to waste disposal and meet the requirements of local regulations.

## **16. OTHER INFORMATION**

### **Abbreviations and acronyms**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Dangerous Goods

IATA: International Air Transport Association

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

CAS: Chemical Abstracts Service (division of the American Chemical Society)

### **Further information**

The above safety technical information is for reference only, because many physical and chemical properties are not entirely clear. Please consult information carefully before use and use after confirmation.

Anhui Senrise Technology Co., Ltd. shall not be held liable for any damage resulting from handling or from contact with the above product. More terms of use, see invoice information for details.

Tel: +86 -400-005-6266 Fax: +86 -0556-5555368 E-mail: Service@3asenrise.com

Add: No.88 Weisan Road, High-Tech Industrial Development Zone, Anqing, Anhui