

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product identifier:

Trade name: Selenium dioxide
CAS number: 7446-08-4
EC number: 231-194-7
Synonyms: Selenium(IV) oxide

Relevant identified uses of the substance or mixture and uses advised against:

Relevant identified uses: Research and development. Laboratory Chemicals. Manufacture of substances.
Not suitable for use in: Not suitable for human consumption or veterinary purposes.

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Classification according to Regulation (EC) No 1272/2008:

Classification: Hazardous to the aquatic environment — Acute hazard category 1
Hazardous to the aquatic environment — Chronic hazard category 1
Specific Target Organ Toxicity — Repeated exposure, hazard category 2
Acute toxicity, oral, hazard category 3
Acute toxicity, inhalation, hazard category 2

Hazard statements: H301, H311, H373, H400, H410

Label elements:

Labelling according to Regulation (EC) No 1272/2008:

Hazard pictograms:



Signal words: Danger.

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Hazard statements: H301 Toxic if swallowed.
H311
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements: P202 Do not handle until all safety precautions have been read and understood.
P231 Handle and store contents under inert gas.
P260 Do not breathe dust.
P262 Do not get in eyes, on skin, or on clothing.
P264 Wash contaminated skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/ container in accordance with national regulations.

Other hazards: No data available.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixtures:

| Chemical name | CAS no. EC no. REACH reg. Index no. | Concentration | Classification | H-phrase M factor acute M factor chronic | Note |
|------------------|--|---------------|---|--|------|
| Selenium Dioxide | 7446-08-4 231-194-7 - - | 100% | Acute Tox. 3 - oral, Acute Tox. 3 - inhalation, STOT RE 2, Aquatic Acute 1, Aquatic Chronic 1 | H301 + H331, H373, H400, H410 - - | - |

Molecular weight: 110.96

Substance additional information: For the complete text of H- / EUH-statements mentioned in this section, see section 16.

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4. FIRST AID MEASURES

Description of first aid measures:

- IF exposed or concerned:** Get medical advice/attention. First aiders/ medical personnel need to protect themselves. Show this Safety Data Sheet (SDS) to medical personnel.
- Inhalation:** Toxic if inhaled. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. If breathing stops, provide artificial respiration. For breathing difficulties oxygen may be necessary.
- Skin contact:** In case of skin contact: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Immediately call a POISON CENTER/doctor. The casualty should be transferred to hospital for further treatment.
- Eye contact:** Remove contact lenses if present. Rinse eyes with water. Continue to rinse for at least 15 minutes and seek medical attention.
- Ingestion:** IF SWALLOWED: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only if the persons are fully conscious and awake). Administer activated charcoal (20 - 40g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.
- Information for doctors:** No data available.

Most important symptoms and effects, both acute and delayed:

The severity of the symptoms described will vary dependant of the concentration and the length of exposure. See section 11 for more detailed information on health effects and symptoms.

- Inhalation:** Single exposure may cause the following adverse effects: Difficulty in breathing. Unconscious-ness, possibly death.
- Skin contact:** Single exposure may cause the following adverse effects: Unconsciousness, possibly death.
- Eye contact:** Single exposure may cause the following adverse effects: Severe irritation. Unconsciousness, possibly death.
- Ingestion:** Single exposure may cause the following adverse effects: Severe abdominal pain. May cause severe internal injury. Unconsciousness, possibly death.

Indication of any immediate medical attention and special treatment needed:

- Notes for the doctor:** Treat symptomatically. No special treatment requirement.

5. FIRE-FIGHTING MEASURES

Extinguishing media:

- Suitable extinguishing media:** In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.
- Unsuitable extinguishing media:** No specific firefighting procedure given.

Special hazards arising from the substance or mixture:

- Specific hazards:** Toxic. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.
Development of hazardous combustion gases or vapours possible in the event of fire.
Selenium Oxides of: Selenium. Not combustible. Ambient fire may liberate hazardous vapours.

Advice for firefighters:

- Special protective equipment for fire-fighters:** Evacuate area. Avoid breathing gas, fume, vapours or spray. Cool containers exposed to heat with water spray and remove container, if no risk is involved. [cont...]

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6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Avoid breathing dust/fume/gas/mist/vapours/spray. Provide adequate ventilation. Avoid contact with skin and eyes. Avoid dust formation. For personal protection, see section 8.

Environmental precautions: Avoid discharge into drains or watercourses or onto the ground.

Methods and material for containment and cleaning up:

Collect spillage with shovel, broom or the like and reuse, if possible. Dispose of large amounts of spillage/waste according to agreement with local authorities.

Reference to other sections: For personal protection, see section 8. For waste disposal, see section 13.

7. HANDLING AND STORAGE

Precautions for safe handling:

Preventive handling precautions: For precautions see section 2.2. Do not handle until all safety precautions have been read and understood. Work under hood Do not handle broken packages without protective equipment. This product is toxic. Keep containers tightly closed. Immediate first aid is necessary. Wear protective clothing, gloves, eye and face protection. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid ingestion and inhalation. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Do not reuse empty containers.

General hygiene: Observe good chemical hygiene practices. Remove contaminated clothing immediately and wash skin with soap and water. Remove contaminated clothing and launder thoroughly before re-use. Wash skin thoroughly after handling.

Conditions for safe storage, including any incompatibilities:

Store at room temperature. Store in a dry place. Store in a closed container.

Storage class: Toxic storage. Hygroscopic. Handle and store contents under inert gas.

Specific end use(s): No specific usage precautions noted.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters:

Exposure limits: TWA: 0.1mg/m³. UK. EH40. WEL = Workplace Exposure Limit.

Exposure controls:

Personal Protective Equipment Symbols:



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- Eye/face protection:** Wear eye protection.
- Hand protection:** Wear protective gloves.
Recommended gloves: Nitrile.
Glove Thickness: 0.11mm
Breakthrough time: 8 hours
Always inspect gloves before use. If signs of wear and tear are noticed, then the gloves should be replaced.
No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Wash contaminated skin thoroughly after handling.
- Other skin protection:** Wash skin thoroughly after handling.
- Respiratory protection:** Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided.
- Environmental exposure controls:** Avoid discharge into drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

- Physical state:** Solid
- Colour:** White
- Odour:** Odourless
- Melting point/freezing point:** No data available
- Boiling point or initial boiling point and boiling range:** 340 - 350 °C
- Flammability:** No data available
- Lower and upper explosion limit:** No data available
- Flash point:** No data available
- Auto-ignition temperature:** No data available
- Decomposition temperature:** No data available
- pH:** No data available
- Kinematic viscosity:** No data available
- Solubility:** No data available
- Partition coefficient n-octanol/water:** No data available
- Vapour pressure:** No data available
- Density and/or relative density:** 3.95 g/cm³
- Relative vapour density:** No data available
- Explosive properties:** Not classified as explosive.
- Particle characteristics:** No data available
- Other information:** No data available

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10. STABILITY AND REACTIVITY

Reactivity: There are no known reactivity hazards associated with this product.

Chemical stability: Stable under normal temperature conditions. Stable under the prescribed storage conditions.

Possibility of hazardous reactions: There are no known conditions that are likely to result in a hazardous situation.

Conditions to avoid: Moisture.

Incompatible materials: Strong acids. Ammonia. Organic compounds.

Hazardous decomposition products: See section 5.

11. TOXICOLOGICAL INFORMATION

Information on hazard classes as defined in Regulation (EC) No 1272/2008:

Acute toxicity:

| Product/Substance name CAS/EC no. | Dose descriptor | Value/Dose | Exposure route | Duration of exposure | Test animals |
|---|-----------------|--------------------------|----------------|----------------------|--------------|
| Selenium dioxide 7446-08-4 / 231-194-7 | LD50 | 68.1 mg/kg | Oral | - | Rat |
| Selenium dioxide 7446-08-4 / 231-194-7 | LC50 | 0.51 mg/l (dust/mist) | Inhalation | 4 hours | - |

Aspiration hazard: Based on available data, the classification criteria are not met.

Information on other hazards: No data available.

12. ECOLOGICAL INFORMATION

Toxicity:

Acute fish toxicity:

| Product/Substance name CAS/EC no. | Measurement type | Value/Result | Duration of exposure | Species |
|---|------------------|--------------|----------------------|--|
| Selenium dioxide 7446-08-4 / 231-194-7 | LC50 | 2.9 mg/l | 96 hours | Pimephales promelas (Fat-head Minnow) |

Acute algae toxicity:

| Product/Substance name CAS/EC no. | Measurement type | Value/Result | Duration of exposure | Species | Remark |
|---|------------------|--------------|----------------------|---------------------------------|-------------------|
| Selenium dioxide 7446-08-4 / 231-194-7 | EC50 | 0.1 mg/l | 3 days | Scenedesmus actus | Growth inhibition |
| Selenium dioxide 7446-08-4 / 231-194-7 | LOEC | 24.63 mg/l | 6 days | Pseudokirchneriella subcapitata | Growth inhibition |

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Persistence and degradability: No data available

Bioaccumulative potential: No data available

Mobility in soil: No data available

Results of PBT and vPvB assessment: No data available

Endocrine disrupting properties: This product does not contain any known or suspected endocrine disruptors.

Other adverse effects: No data available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods:

Disposal considerations: Dispose of contents/container in accordance with local/regional/national/international regulations.

14. TRANSPORT INFORMATION

UN number: UN 3283

UN proper shipping name:

ADR / RID / ADN proper shipping name: SELENIUM COMPOUND, SOLID, N.O.S. (Selenium dioxide)

IMDG proper shipping name: SELENIUM COMPOUND, SOLID, N.O.S. (Selenium dioxide)

IATA proper shipping name: Selenium compound, solid, n.o.s. (Selenium dioxide)

Transport hazard class(es):

Labels:

ADR / RID / ADN / IMDG / IATA:



6.1



Environmental hazard

ADR / RID Class: 6.1

ADR / RID Classification code: T5

ADR / RID hazard identification number: 60

IMDG Class: 6.1

IATA Class: 6.1

ADN Class: 6.1

ADN Class code: T5

Packing group:

ADR / RID / ADN: III

IMDG: III

IATA: III

Environmentally hazards: Not applicable

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Special precautions for user:

Tunnel restriction code: E
Transport category: 2
MDG EmS: F-A, S-A

Maritime transport in bulk according to IMO instruments: IBC Instruction: IBC08

15. REGULATORY INFORMATION

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

EU regulations: This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. This material safety data sheet complies with the requirements of Regulation (EU) 2020/878.

National regulations: Directive: 2012/18/EU:
H2 ACUTE TOXIC
E1 ENVIRONMENTAL HAZARDS

Chemical safety assessment: No chemical safety assessment has been carried out.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

Phrase meaning: Aquatic Acute 1 - Hazardous to the aquatic environment — Acute hazard category 1
Aquatic Chronic 1 - Hazardous to the aquatic environment — Chronic hazard category 1
STOT RE 2 - Specific Target Organ Toxicity — Repeated exposure, hazard category 2
Acute Tox. 3 - oral - Acute toxicity, oral, hazard category 3
Acute Tox. 2 - inhalation - Acute toxicity, inhalation, hazard category 2
Acute Tox. 3 - inhalation - Acute toxicity, inhalation, hazard category 3
H301 Toxic if swallowed.
H301 + H331 Toxic if swallowed or if inhaled.
H311 Toxic in contact with skin.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Legal disclaimer: The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

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