

## Safety Data Sheet

according to Regulation (EC) No 1907/2006

### Selenium(IV) oxide technical grade

Revision date: 31.10.2023

Product code: 26423

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

### 1.1. Product identifier

Selenium(IV) oxide technical grade

CAS No: 7446-08-4  
Index No: 034-002-00-8  
EC No: 231-194-7

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

#### Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

#### Uses advised against

Do not use for private purposes (household).

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

Company name: AnalytiChem GmbH  
Street: Stempelstraße 6  
Place: D-47167 Duisburg  
Telephone: 0203/5194-0  
E-mail: info@analytichem.de  
Contact person: Abteilung Produktsicherheit  
E-mail: produktsicherheit@analytichem.de  
Internet: www.analytichem.de  
Responsible Department: Abteilung Produktsicherheit

Telefax: 0203/5194-290

Telephone: 0203/5194-107/117

### 1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

### Further Information

A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### Regulation (EC) No 1272/2008

Acute Tox. 3; H331  
Acute Tox. 3; H301  
STOT RE 2; H373  
Aquatic Acute 1; H400  
Aquatic Chronic 1; H410

Full text of hazard statements: see SECTION 16.

### 2.2. Label elements

#### Regulation (EC) No 1272/2008

Signal word: Danger

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#### Pictograms:



#### Hazard statements

H301+H331 Toxic if swallowed or if inhaled.  
H373 May cause damage to organs through prolonged or repeated exposure.  
H410 Very toxic to aquatic life with long lasting effects.

#### Precautionary statements

P273 Avoid release to the environment.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P314 Get medical advice/attention if you feel unwell.  
P308 IF exposed or concerned:  
P310 Immediately call a POISON CENTER/doctor.

#### 2.3. Other hazards

No data available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Sum formula: SeO<sub>2</sub>  
Molecular weight: 110,96 g/mol

#### Relevant ingredients

CAS No	Chemical name	Quantity
	EC No	Index No
	REACH No	
	Classification (Regulation (EC) No 1272/2008)	
7446-08-4	selenium dioxide	100 %
	231-194-7	034-002-00-8
	Acute Tox. 3, Acute Tox. 3, STOT RE 2, Aquatic Acute 1, Aquatic Chronic 1; H331 H301 H373 H400 H410	

Full text of H and EUH statements: see section 16.

#### Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
7446-08-4	231-194-7	selenium dioxide	100 %
	inhalation: ATE = 3 mg/l (vapours); inhalation: ATE = 0,5 mg/l (dusts or mists); oral: LD50 = 68,1 mg/kg		

#### Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General information

Self-protection of the first aider

#### After inhalation

Provide fresh air.  
If breathing is irregular or stopped, administer artificial respiration.

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Call a physician immediately.

#### After contact with skin

Take off immediately all contaminated clothing and wash it before reuse.  
Call a physician immediately.

#### After contact with eyes

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.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
Protect uninjured eye.

#### After ingestion

Rinse mouth immediately and drink plenty of water.  
Call a physician immediately.

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

Irritant  
Dyspnoea  
Cough  
Vomiting  
Gastrointestinal complaints  
Pulmonary oedema

#### 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

Co-ordinate fire-fighting measures to the fire surroundings.

##### Unsuitable extinguishing media

no restriction

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

Non-combustible solids

#### 5.3. Advice for firefighters

Avoid contact with skin, eyes and clothes.  
In case of fire: Wear self-contained breathing apparatus.

#### Additional information

Suppress gases/vapours/mists with water spray jet.  
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

## SECTION 6: Accidental release measures

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

##### For non-emergency personnel

Provide adequate ventilation.  
Use personal protection equipment.  
Avoid contact with skin, eyes and clothes.  
Remove persons to safety.  
Emergency procedures  
Do not breathe dust/fume/gas/mist/vapours/spray.

##### For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

#### 6.2. Environmental precautions

Do not allow to enter into surface water or drains.

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

##### **For containment**

- Cover drains.
- Prevent spread over a wide area (e.g. by containment or oil barriers).
- Collect in closed and suitable containers for disposal.
- Take up carefully when dry. Take up dust-free and set down dust-free.

##### **For cleaning up**

- Clean contaminated articles and floor according to the environmental legislation.

##### **Other information**

- Provide adequate ventilation.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wear breathing apparatus if exposed to vapours/dusts/aerosols.

#### **6.4. Reference to other sections**

- Safe handling: see section 7
- Personal protection equipment: see section 8
- Disposal: see section 13

## **SECTION 7: Handling and storage**

#### **7.1. Precautions for safe handling**

##### **Advice on safe handling**

- Avoid exposure - obtain special instructions before use.
- Read label before use. Handle and open container with care.
- Avoid dust formation. Do not breathe dust.
- When using do not eat, drink, smoke, sniff. Keep container tightly closed.
- Use personal protection equipment. Use extractor hood (laboratory).
- Provide adequate ventilation. Avoid contact with skin, eyes and clothes.

##### **Advice on protection against fire and explosion**

- Usual measures for fire prevention.

##### **Advice on general occupational hygiene**

- Keep away from food, drink and animal feedingstuffs. Make available sufficient washing facilities
- Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.
- Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

##### **Further information on handling**

- Draw up and observe skin protection programme.
- Wash hands and face before breaks and after work and take a shower if necessary.
- Take off immediately all contaminated clothing and wash it before reuse.
- If handled uncovered, arrangements with local exhaust ventilation have to be used.

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

##### **Requirements for storage rooms and vessels**

- Store in a well-ventilated place. Keep container tightly closed.
- Store in a place accessible by authorized persons only.

##### **Further information on storage conditions**

- Store in a dry place.
- storage temperature: < +30°C

#### **7.3. Specific end use(s)**

- Laboratory chemicals

## **SECTION 8: Exposure controls/personal protection**

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**8.1. Control parameters**

**DNEL/DMEL values**

CAS No	Substance	Exposure route	Effect	Value
7446-08-4	selenium dioxide			
Worker DNEL, long-term		inhalation	systemic	0,07 mg/m <sup>3</sup>
Worker DNEL, long-term		dermal	systemic	9,8 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	0,021 mg/m <sup>3</sup>
Consumer DNEL, long-term		dermal	systemic	6,02 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	0,00602 mg/kg bw/day

**PNEC values**

CAS No	Substance	Value
7446-08-4	selenium dioxide	
Freshwater		0,00374 mg/l
Freshwater (intermittent releases)		0,0077 mg/l
Marine water		0,0028 mg/l
Freshwater sediment		11,48 mg/kg
Marine sediment		8,68 mg/kg
Secondary poisoning		1,4 mg/kg
Micro-organisms in sewage treatment plants (STP)		10 mg/l
Soil		0,06 mg/kg

**8.2. Exposure controls**

**Appropriate engineering controls**

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Avoid dust formation. Do not breathe dust.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

goggles

Wear eye/face protection.

**Hand protection**

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: [vertrieb@kcl.de](mailto:vertrieb@kcl.de) With specification (test according to EN374):

By long-term hand contact

Trade name/designation KCL 741 Dermatril® L

Suitable material: NBR (Nitrile rubber) 0,11 mm

Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation KCL 741 Dermatril® L

Suitable material: NBR (Nitrile rubber) 0,11 mm

Wearing time with occasional contact (splashes): > 480 min

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The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet (>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

**Skin protection**

Wear suitable protective clothing.  
Take off immediately all contaminated clothing.  
Wash hands before breaks and after work.

**Respiratory protection**

Respiratory protection necessary at: dust formation

**Environmental exposure controls**

Do not allow to enter into surface water or drains.

**SECTION 9: Physical and chemical properties**

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

Physical state:	solid
Colour:	white
Odour:	odourless
Odour threshold:	No data available
Melting point/freezing point:	340 °C
Boiling point or initial boiling point and boiling range:	No data available
Flammability:	No data available
Lower explosion limits:	No data available
Upper explosion limits:	No data available
Flash point:	X
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
pH-Value (at 20 °C):	2 (10 g/l)
Viscosity / kinematic:	No data available
Water solubility:	No data available
Solubility in other solvents:	No data available
Dissolution rate:	No data available
Partition coefficient n-octanol/water:	No data available
Dispersion stability:	No data available
Vapour pressure:	<1 hPa
(at 20 °C)	
Vapour pressure:	No data available
Density (at 20 °C):	3,95 g/cm <sup>3</sup>
Relative density:	No data available
Bulk density:	No data available
Relative vapour density:	No data available
Particle characteristics:	No data available

**9.2. Other information**

**Information with regard to physical hazard classes**

Explosive properties:	No data available
Sustaining combustion:	No data available
Self-ignition temperature:	No data available
Gas:	No data available

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Oxidizing properties  
No data available

#### Other safety characteristics

Evaporation rate:	No data available
Solvent separation test:	No data available
Solvent content:	No data available
Solid content:	100%
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
No data available:	
Viscosity / dynamic:	No data available
Flow time:	No data available

#### Further Information

No data available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No data available

### 10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

### 10.3. Possibility of hazardous reactions

Exothermic reaction with:  
Oxidising agent  
Reducing agent

### 10.4. Conditions to avoid

No data available

### 10.5. Incompatible materials

No data available

### 10.6. Hazardous decomposition products

No data available

#### Further information

No data available

## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Toxicokinetics, metabolism and distribution

Avoid exposure - obtain special instructions before use.

#### Acute toxicity

Toxic if swallowed.  
Toxic if inhaled.  
Pulmonary oedema

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
7446-08-4	selenium dioxide				
	oral	LD50 68,1 mg/kg	Rat	Indian Journal of Pharmacology 23(3):153	Method not specified GLP compliance: not
	inhalation vapour	ATE 3 mg/l			
	inhalation dust/mist	ATE 0,5 mg/l			

**Irritation and corrosivity**

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

**Sensitising effects**

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

**Carcinogenic/mutagenic/toxic effects for reproduction**

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

**STOT-single exposure**

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

**STOT-repeated exposure**

May cause damage to organs through prolonged or repeated exposure. (selenium dioxide)

**Aspiration hazard**

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

**Information on likely routes of exposure**

No data available

**Specific effects in experiment on an animal**

No data available

**Additional information on tests**

No data available

**Practical experience**

No data available

**11.2. Information on other hazards**

**Endocrine disrupting properties**

No data available

**Other information**

Causes damage to organs.  
(Liver and kidney damage, Gastrointestinal complaints, Spleen, heart)  
Danger of cumulative effects.

**Further information**

Irritant  
Dyspnoea  
Cough  
Vomiting  
Gastrointestinal complaints  
Pulmonary oedema

**SECTION 12: Ecological information**

**12.1. Toxicity**



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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]   [d]	Species	Source	Method
7446-08-4	selenium dioxide					
	Acute fish toxicity	LC50 3,3 mg/l	96 h	Morone saxatilis	Publication (1992)	other: ASTM methods for acute testing
	Acute algae toxicity	ErC50 mg/l 44,24	72 h	Pseudokirchneriella subcapitata	Study report (1992)	OECD Guideline 201
	Acute crustacea toxicity	EC50 mg/l 0,55	48 h	Daphnia magna	Environmental Toxicology and Chemistry 1	other: EPA-660/3-75-00 9: Methods for Acu
	Fish toxicity	NOEC mg/l 0,01	258 d	Lepomis macrochirus	Environmental Toxicology and Chemistry 1	Year long study investigating the effect
	Algae toxicity	NOEC mg/l 0,995	10 d	Anabaena flos-aquae	Archives of Environmental Contamination	10-d experiment on the toxicity of selen
	Crustacea toxicity	NOEC mg/l 0,07	28 d	Daphnia magna	Department of Entomology, Fisheries and	OECD Guideline 211
	Acute bacteria toxicity	EC50 mg/l ( ) > 3200	3 h	activated sludge of a predominantly domestic sewage	Study report (2012)	OECD Guideline 209

**12.2. Persistence and degradability**

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

**12.3. Bioaccumulative potential****BCF**

CAS No	Chemical name	BCF	Species	Source
7446-08-4	selenium dioxide	755	periphyton	Environmental Pollut

**12.4. Mobility in soil**

No data available

**12.5. Results of PBT and vPvB assessment**

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

**12.6. Endocrine disrupting properties**

This substance does not have endocrine disrupting properties with respect to non-target organisms.

**12.7. Other adverse effects**

Discharge into the environment must be avoided.

**Further information**

Do not allow to enter into surface water or drains.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods****Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

Do not mix with other wastes.

Do not allow to enter into surface water or drains.

**Contaminated packaging**

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific

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to the industry and process.

Handle contaminated packages in the same way as the substance itself.

## SECTION 14: Transport information

## Land transport (ADR/RID)

<b>14.1. UN number or ID number:</b>	UN 3283
<b>14.2. UN proper shipping name:</b>	SELENIUM COMPOUND, SOLID, N.O.S. (selenium dioxide)
<b>14.3. Transport hazard class(es):</b>	6.1
<b>14.4. Packing group:</b>	II
Hazard label:	6.1
Classification code:	T5
Special Provisions:	274 563
Limited quantity:	500 g
Excepted quantity:	E4
Transport category:	2
Hazard No:	60
Tunnel restriction code:	D/E

## Inland waterways transport (ADN)

<b>14.1. UN number or ID number:</b>	UN 3283
<b>14.2. UN proper shipping name:</b>	SELENIUM COMPOUND, SOLID, N.O.S. (selenium dioxide)
<b>14.3. Transport hazard class(es):</b>	6.1
<b>14.4. Packing group:</b>	II
Hazard label:	6.1
Classification code:	T5
Special Provisions:	274 563 802
Limited quantity:	500 g
Excepted quantity:	E4

## Marine transport (IMDG)

<b>14.1. UN number or ID number:</b>	UN 3283
<b>14.2. UN proper shipping name:</b>	SELENIUM COMPOUND, SOLID, N.O.S. (selenium dioxide)selenium dioxide
<b>14.3. Transport hazard class(es):</b>	6.1
<b>14.4. Packing group:</b>	II
Hazard label:	6.1
Special Provisions:	274
Limited quantity:	500 g
Excepted quantity:	E4
EmS:	F-A, S-A

## Air transport (ICAO-TI/IATA-DGR)

<b>14.1. UN number or ID number:</b>	UN 3283
<b>14.2. UN proper shipping name:</b>	SELENIUM COMPOUND, SOLID, N.O.S. (selenium dioxide)
<b>14.3. Transport hazard class(es):</b>	6.1
<b>14.4. Packing group:</b>	II
Hazard label:	6.1
Special Provisions:	A3 A5
Limited quantity Passenger:	1 kg
Passenger LQ:	Y644
Excepted quantity:	E4
IATA-packing instructions - Passenger:	669
IATA-max. quantity - Passenger:	25 kg
IATA-packing instructions - Cargo:	676
IATA-max. quantity - Cargo:	100 kg

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#### 14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: Yes  
Danger releasing substance: selenium dioxide

### SECTION 15: Regulatory information

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

##### EU regulatory information

Information according to Directive 2012/18/EU (SEVESO III): H2 ACUTE TOXIC  
Additional information: E1

##### National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.  
Water hazard class (D): 2 - obviously hazardous to water

### SECTION 16: Other information

#### Changes

This data sheet contains changes from the previous version in section(s): 12.

#### Abbreviations and acronyms

Acute Tox: Acute toxicity  
STOT RE: Specific target organ toxicity - repeated exposure  
Aquatic Acute: Acute aquatic hazard  
Aquatic Chronic: Chronic aquatic hazard

#### Relevant H and EUH statements (number and full text)

H301 Toxic if swallowed.  
H301+H331 Toxic if swallowed or if inhaled.  
H331 Toxic if inhaled.  
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.

#### Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.  
The receiver of our product is singularly responsible for adhering to existing laws and regulations.