

Trade name: SELENIUM DIOXIDE**Current version :** 11.1.0, issued: 29.09.2017**Replaced version:** 11.0.1, issued: 12.06.2017**Region:** GB**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name****SELENIUM DIOXIDE**

Substance name SELENIUM DIOXIDE
REACH registration no. 01-2120089867-33-0000

Identification numbers

CAS no. 7446-08-4
EC no. 231-194-7
Index no. 034-002-00-8

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

For use in the galvanic industry

Uses advised against

No data available.

Reference to relevant exposure scenarios

For an overview of the exact titles of the relevant exposure scenarios please refer to section 16 of this SDS.

1.3 Details of the supplier of the safety data sheet**Address**

RETORTE GmbH Selenium Chemicals and Metals
Sulzbacher Str. 45
D-90552 Röthenbach a.d. Pegnitz

Telephone no. +49 (0)911 95 33 74 - 0

Fax no. +49 (0)911 57 66 59

Information provided by / telephone

+49 (0)911 95 33 74 - 0

Advice on Safety Data Sheet

selen@retorte.de

1.4 Emergency telephone number

+49 (0)152 09 87 2013, +49 (0)173 387 35 93

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****Classification in accordance with Regulation (EC) No 1272/2008 (CLP)**

Acute Tox. 2; H330
Acute Tox. 3; H301
Aquatic Acute 1; H400
Aquatic Chronic 1; H410
Eye Dam. 1; H318
Skin Corr. 1B; H314
STOT RE 2; H373

Classification information

aberrant from/in addition to the classification set out in Annex VI, this substance is classified according to European Regulation (EC) No 1272/2008 (CLP), Article 4 (3), paragraph 2.

Although the results of the toxicological tests do not lead to a classification, the harmonised classification was used for the hazard classification STOT RE.

2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008 (CLP Regulation)****Product identifier**

7446-08-4 (SELENIUM DIOXIDE)

Trade name: SELENIUM DIOXIDE

Current version : 11.1.0, issued: 29.09.2017

Replaced version: 11.0.1, issued: 12.06.2017

Region: GB

Hazard pictograms

GHS05



GHS06



GHS08



GHS09

Signal word

Danger

Hazard statement(s)

H301 Toxic if swallowed.
 H314 Causes severe skin burns and eye damage.
 H330 Fatal if inhaled.
 H373 May cause damage to liver and kidneys through prolonged or repeated exposure if swallowed.
 H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 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.
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
 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.
 P321 Specific treatment (see additional first aid advice on this label).
 P363 Wash contaminated clothing before reuse.
 P391 Collect spillage.
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store locked up.
 P501 Dispose of contents/container to a facility in accordance with local/regional/national/international regulations.

Supplemental label elements

Additional Information:

If SWALLOWED: Vomiting must be induced immediately: Rinse mouth, let drink at least one tablespoonful of ascorbic acid (vitamin C) dissolved in water and induce vomiting quickly. If no ascorbic acid is available, vomiting should be triggered immediately.

2.3 Other hazards

PBT assessment

The product is not considered to be a PBT.

vPvB assessment

The product is not considered to be a vPvB.

SECTION 3: Composition/information on ingredients**3.1 Substances****Chemical characterization**

Substance name SELENIUM DIOXIDE
 Formula SeO₂
 Molecular weight 110.96

Identification numbers

CAS no. 7446-08-4
 EC no. 231-194-7
 Index no. 034-002-00-8

3.2 Mixtures

Not applicable. The product is not a mixture.

Trade name: SELENIUM DIOXIDE

Current version : 11.1.0, issued: 29.09.2017

Replaced version: 11.0.1, issued: 12.06.2017

Region: GB

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

Remove contaminated clothing and shoes immediately, and launder thoroughly before reusing. In case of accident or if you feel unwell, seek medical advice immediately. If the patient is likely to become unconscious, place and transport in stable sideways position.

After inhalation

Remove affected person from the immediate area. Ensure supply of fresh air. Irregular breathing/no breathing: artificial respiration. Call a doctor immediately.

After skin contact

When in contact with the skin, clean with soap and water.

After eye contact

Separate eyelids, wash the eyes thoroughly with water (15 min.). Seek medical assistance.

After ingestion

Induce vomiting. Call a doctor immediately. Administer vitamin C as antidote and cause immediate vomiting. Toxic effect is superior to acid effect.

4.2 Most important symptoms and effects, both acute and delayed

No data available.

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

Product itself is non-combustible; adapt fire extinguishing measures to surrounding areas.

Unsuitable extinguishing media

Water

5.2 Special hazards arising from the substance or mixture

In case of combustion evolution of dangerous gases possible.

5.3 Advice for firefighters

Use self-contained breathing apparatus. The product is highly hygroscopic. Wear protective clothing. Contact with water causes the formation of selenous acid, which is also toxic and has a caustic effect. Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Refer to protective measures listed in sections 7 and 8. Remove persons to safety. Avoid dust formation. Use breathing apparatus if exposed to vapours/dust/aerosol.

For emergency responders

No data available. Personal protective equipment (PPE) - see Section 8.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Take up mechanically. Send in suitable containers for recovery or disposal.

6.4 Reference to other sections

No data available.

Trade name: SELENIUM DIOXIDE

Current version : 11.1.0, issued: 29.09.2017

Replaced version: 11.0.1, issued: 12.06.2017

Region: GB

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Provide good ventilation at the work area (local exhaust ventilation, if necessary). Avoid the formation and deposition of dust. If workplace exposure limits are exceeded, respiratory protection approved for this particular job must be worn.

General protective and hygiene measures

Do not eat, drink or smoke during work time. Keep away from foodstuffs and beverages. Wash hands before breaks and after work. Do not inhale dust. Store work clothing separately. Avoid contact with eyes and skin. Provide eye wash fountain in work area. Have emergency shower available.

Advice on protection against fire and explosion

Avoid formation of dust. Keep away from sources of heat and ignition.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Keep container tightly closed and dry in a cool, well-ventilated place. Protect from atmospheric moisture and water. Product is hygroscopic.

Requirements for storage rooms and vessels

Store product in closed containers. Keep only in the original container.

Advice on storage assembly

Do not store together with foodstuffs. Keep away from water.

7.3 Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values

No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
List of approved workplace exposure limits (WELs) / EH40			
Selenium compounds, except hydrogen selenide			
	TWA	0.1	mg/m ³

DNEL, DMEL and PNEC values

DNEL values (worker)

No	Substance name			CAS / EC no	
	Route of exposure	Exposure time	Effect	Value	
1	SELENIUM DIOXIDE			7446-08-4 231-194-7	
	dermal	Long term (chronic)	systemic	9.8	mg/kg/day
	inhalative	Long term (chronic)	systemic	0.07	mg/m ³

DNEL value (consumer)

No	Substance name			CAS / EC no	
	Route of exposure	Exposure time	Effect	Value	
1	SELENIUM DIOXIDE			7446-08-4 231-194-7	
	oral	Long term (chronic)	systemic	6.02	µg/kg/day
	dermal	Long term (chronic)	systemic	6.02	mg/kg/day
	inhalative	Long term (chronic)	systemic	0.021	mg/m ³

Trade name: SELENIUM DIOXIDE

Current version : 11.1.0, issued: 29.09.2017

Replaced version: 11.0.1, issued: 12.06.2017

Region: GB

PNEC values

No	Substance name		CAS / EC no	
	ecological compartment	Type	Value	
1	SELENIUM DIOXIDE		7446-08-4 231-194-7	
	water	fresh water	3.74	µg/l
	water	marine water	2.8	µg/l
	water	Aqua intermittent	7.7	µg/l
	water	fresh water sediment	11.48	mg/kg dry weight
	water	marine water sediment	8.68	mg/kg dry weight
	soil	-	0.06	mg/kg dry weight
	sewage treatment plant	-	10	mg/l
	secondary poisoning	-	1.4	mg/kg food

8.2 Exposure controls**Appropriate engineering controls**

No data available.

Personal protective equipment**Respiratory protection**

If workplace exposure limits are exceeded, a respiration protection approved for this particular job must be worn. Short term: filter apparatus, Filter P3

Eye / face protection

Tightly fitting safety glasses (EN 166).

Hand protection

Sufficient protection is given wearing suitable protective gloves checked according to i.e. EN 374, in the event of risk of skin contact with the product. Check in any case suitability of protective glove for the specific workplace conditions (e.g. mechanical resistance, product compatibility, antistatic properties). Adhere to the manufacturer's instructions and information relating to the use, storage, care and replacement of protective gloves.

Appropriate Material

Neoprene category III, EN 374 AKL, EN388:2003 3121

Other

Acid-resistant protective clothing

Environmental exposure controls

No data available.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

Form/Colour	
crystalline powder	
white	
Odour	
odourless	
Odour threshold	
No data available	
pH value	
No data available	
Boiling point / boiling range	
No data available	
Melting point / melting range	
Value	340 °C
Source	CSR

Trade name: SELENIUM DIOXIDE

Current version : 11.1.0, issued: 29.09.2017

Replaced version: 11.0.1, issued: 12.06.2017

Region: GB

Sublimation point / sublimation range	
Value	315 °C
Source	CSR
Decomposition point / decomposition range	
No data available	
Flash point	
Not applicable	
Auto-ignition temperature	
No data available	
Oxidising properties	
not oxidizing	
Method	440/2008/EC, A.17.
Explosive properties	
Not applicable	
Flammability (solid, gas)	
The product is NOT highly flammable according to Regulation (EG) Nr. 440/2008 , method EC A.10 (flammability, solids)	
Source	CSR
Lower flammability or explosive limits	
No data available	
Upper flammability or explosive limits	
No data available	
Vapour pressure	
Value	0.133 Pa
Reference temperature	°C
Source	CSR
Vapour density	
No data available	
Evaporation rate	
No data available	
Relative density	
No data available	
Density	
Value	3.95 g/cm ³
Reference temperature	20 °C
Source	CSR
Solubility in water	
Value	1353 g/l
Reference temperature	19 °C
Source	CSR
Solubility(ies)	
No data available	
Partition coefficient: n-octanol/water	
No data available	
Viscosity	
No data available	

9.2 Other information

Other information
No data available.

Trade name: SELENIUM DIOXIDE

Current version : 11.1.0, issued: 29.09.2017

Replaced version: 11.0.1, issued: 12.06.2017

Region: GB

SECTION 10: Stability and reactivity**10.1 Reactivity**

No data available.

10.2 Chemical stability

Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

None, if handled according to order.

10.4 Conditions to avoid

The product is highly hygroscopic. Contact with water causes the formation of selenous acid, which is also toxic and has a caustic effect.

10.5 Incompatible materials

Water

10.6 Hazardous decomposition products

No hazardous decomposition products known.

SECTION 11: Toxicological information**11.1 Information on toxicological effects**

Acute oral toxicity			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
LD50		68.1	mg/kg bodyweight
Species		rat	
Source		CSR	

Acute dermal toxicity			
No data available			

Acute inhalational toxicity			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
LC50		0.052 - 0.51	mg/l
Duration of exposure		4	h
State of aggregation		Dust	
Species		rat	
Source		CSR	

Skin corrosion/irritation			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
Source		CSR	
Evaluation		corrosive	
Evaluation/classification		Based on available data, the classification criteria are met.	

Serious eye damage/irritation			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
Source		CSR	
Evaluation		corrosive	
Evaluation/classification		Based on available data, the classification criteria are met.	

Respiratory or skin sensitisation			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
Route of exposure		Skin	
Source		CSR	
Evaluation/classification		Based on available data, the classification criteria are not met.	

Trade name: SELENIUM DIOXIDE

Current version : 11.1.0, issued: 29.09.2017

Replaced version: 11.0.1, issued: 12.06.2017

Region: GB

Germ cell mutagenicity			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
Source		CSR	
Evaluation/classification		Based on available data, the classification criteria are not met.	

Reproduction toxicity			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
Source		CSR	
Evaluation/classification		Based on available data, the classification criteria are not met.	

Carcinogenicity			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
Source		CSR	
Evaluation/classification		Based on available data, the classification criteria are not met.	

STOT - single exposure			
No data available			

STOT - repeated exposure			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
Evaluation/classification		Based on available data, the classification criteria are not met.	

Aspiration hazard			
No data available			

Symptoms related to the physical, chemical and toxicological characteristics			
The product can cause skin and eye irritation.			

Delayed and immediate effects as well as chronic effects from short and long-term exposure			
Contact with water causes the formation of selenous acid, which is also toxic and has a caustic effect.			

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish (acute)			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
LC50		2884	µg/l
Duration of exposure		96	h
Species		freshwater fish	
Source		CSR	

Toxicity to fish (chronic)			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
NOEC		14	µg/l
Species		freshwater fish	
Source		CSR	

Toxicity to Daphnia (acute)			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
EC50		770	µg/l
Duration of exposure		48	h
Species		freshwater invertebrates	
Source		CSR	

Trade name: SELENIUM DIOXIDE

Current version : 11.1.0, issued: 29.09.2017

Replaced version: 11.0.1, issued: 12.06.2017

Region: GB

Toxicity to Daphnia (chronic)			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
NOEC		98	µg/l
Species		freshwater invertebrates	
Source		CSR	

Toxicity to algae (acute)			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
EC50		61.94	mg/l
Duration of exposure		72	h
Species		fresh water algae	
Source		CSR	

Toxicity to algae (chronic)			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
NOEC		0.276	mg/l
Species		fresh water algae	
Source		CSR	

Bacteria toxicity			
No data available			

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

Bioconcentration factor (BCF)			
No	Substance name	CAS no.	EC no.
1	SELENIUM DIOXIDE	7446-08-4	231-194-7
BCF		944	
Source		CSR	

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	
PBT assessment	The product is not considered to be a PBT.
vPvB assessment	The product is not considered to be a vPvB.

12.6 Other adverse effects

No data available.

12.7 Other information

Other information
Do not discharge into the drains or waters and do not store on public depositories.

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Product**

Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company.

Packaging

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse. Packaging that cannot be cleaned should be disposed of in agreement with the regional waste disposal company.

Trade name: SELENIUM DIOXIDE**Current version :** 11.1.0, issued: 29.09.2017**Replaced version:** 11.0.1, issued: 12.06.2017**Region:** GB**SECTION 14: Transport information****14.1 Transport ADR/RID/ADN**

Class	6.1
Classification code	T5
Packing group	I
Hazard identification no.	60
UN number	UN3283
Technical name	SELENIUM COMPOUND, SOLID, N.O.S.
Danger releasing substance	SELENIUM DIOXIDE
Tunnel restriction code	C/E
Label	6.1
Environmentally hazardous substance mark	Symbol "fish and tree"

14.2 Transport IMDG

Class	6.1
Packing group	I
UN number	UN3283
Proper shipping name	SELENIUM COMPOUND, SOLID, N.O.S.
Danger releasing substance	SELENIUM DIOXIDE
EmS	F-A+S-A
Label	6.1
Marine pollutant mark	Symbol "fish and tree"

14.3 Transport ICAO-TI / IATA

Class	6.1
Packing group	I
UN number	UN3283
Proper shipping name	Selenium compound, solid, n.o.s.
Danger releasing substance	SELENIUM DIOXIDE
Label	6.1

14.4 Other information

No data available.

14.5 Environmental hazards

Information on environmental hazards, if relevant, please see 14.1 - 14.3.

14.6 Special precautions for user

No data available.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not relevant

Trade name: SELENIUM DIOXIDE

Current version : 11.1.0, issued: 29.09.2017

Replaced version: 11.0.1, issued: 12.06.2017

Region: GB

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)

In accordance with the Reach regulation (EC) 1907/2006, the product does not contain any substances that are considered as subject to listing in annex XIV, inventory of substances requiring authorisation.

REACH candidate list of substances of very high concern (SVHC) for authorisation

In accordance with article 57 and article 59 of the Reach regulation (EC) 1907/2006, this substance is not considered as subject to listing in annex XIV, inventory of substances requiring authorisation ("Authorization list").

Regulation (EC) No 1907/2006 (REACH) Annex XVII: RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, PREPARATIONS AND ARTICLES

The substance is not subject to the provisions of annex XVII (restriction entries) of the Reach regulation (EC) 1907/2006.

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances

This product is subject to Part I of Annex I, risk category: E1, H2

If the properties of the substance/product give rise to more than one classification, for the purposes of 2012/18/UE, the lowest qualifying quantities set out in Part 1 and Part 2 of Annex I shall apply.

Other regulations

Adhere to the national sanitary and occupational safety regulations when using this product.

15.2 Chemical safety assessment

A chemical safety assessment has been carried out for this substance.

SECTION 16: Other information

Sources of key data used to compile the data sheet:

Regulation (EC) No 1907/2006 (REACH), 1272/2008 (CLP) as amended in each case.

EC Directives 2000/39/EC, 2006/15/EC, 2009/161/EU

National Threshold Limit Values of the corresponding countries as amended in each case.

Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.

The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding chapter.

Full text of the H- and EUH- phrases drawn up in sections 2 and 3 (provided not already drawn up in these sections)

H318 Causes serious eye damage.
H400 Very toxic to aquatic life.

List of existing exposition scenarios

ES001 Formulation and (re)packing of substance and mixtures - industrial use
ES002 Use as an intermediate, process chemical - industrial use
ES003 Metal surface treatment in electroplating (solid) - industrial use

Department issuing safety data sheet

UMCO GmbH

Georg-Wilhelm-Str. 187, D-21107 Hamburg

Tel.: +49 40 / 555 546 300 Fax: +49 40 / 555 546 357 e-mail: umco@umco.de

This information is based on our present knowledge and experience.

The safety data sheet describes products with a view to safety requirements.

It does not however, constitute a guarantee for any specific product properties and shall not establish a legally valid contractual relationship.

Alterations/supplements:

Alterations to the previous edition are marked in the left-hand margin.

Document protected by copyright. Alterations or reproductions require the express written permission of UMCO GmbH.

Prod-ID 12336