

# Material Safety Data Sheet

## Selenium(IV) oxide

ACC# 97232

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Selenium(IV) oxide

**Catalog Numbers:** AC190510000, AC190511000, AC193980000, AC193980100, AC193980500, AC200000000 AC200000000, AC200000100, AC200001000, AC200005000

**Synonyms:** Selenious acid anhydride; Selenium oxide; Selenium(IV) oxide; Selenium dioxide.

**Company Identification:**

Acros Organics N.V.  
One Reagent Lane  
Fair Lawn, NJ 07410

**For information in North America, call:** 800-ACROS-01

**For emergencies in the US, call CHEMTREC:** 800-424-9300

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7446-08-4	Selenium dioxide	99	231-194-7

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: white to off-white to pink crystalline powder.

**Danger!** May cause severe eye irritation and possible injury. Harmful if swallowed, inhaled, or absorbed through the skin. May cause allergic skin reaction. Causes skin and respiratory tract irritation. May cause nervous system effects. Danger of cumulative effects. Hygroscopic (absorbs moisture from the air).

**Target Organs:** Central nervous system, eyes, skin.

#### Potential Health Effects

**Eye:** May result in corneal injury. May cause pink, puffy eyelids due to an allergic reaction. Vapors may cause eye injury.

**Skin:** Causes skin burns. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Causes redness and pain. May be harmful if absorbed through the skin. May cause excruciating pain if allowed to penetrate under the free edge of the fingernails. SeO2 burns are rarely severe and if properly treated will heal without scarring.

**Ingestion:** Harmful if swallowed.

**Inhalation:** Harmful if inhaled. Causes respiratory tract irritation. Irritation may lead to chemical pneumonitis and pulmonary edema.

**Chronic:** Adverse reproductive effects have been reported in animals. Symptoms demonstrated by humans suffering from chronic selenium intoxication, selenosis, include depression, languor, nervousness, dermatitis, gastrointestinal disturbances, giddiness, garlic odor of the breath and sweat, moderate emotional instability, excess dental caries, and in extreme cases, loss of fingernails and partial alopecia (hair loss).

### Section 4 - First Aid Measures

**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

**Skin:** Get medical aid immediately. In case of contact, immediately wipe away excess material with a dry cloth while removing contaminated clothing and shoes. Under safety shower, wash affected areas thoroughly with large amounts of water, and soap if available, for at least 15 minutes. Discard or decontaminate clothing and shoes.

**Ingestion:** If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Treat symptomatically and supportively.

### Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Reacts with water to form corrosive acids. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products.

**Extinguishing Media:** Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 3; Flammability: 0; Instability: 0

### Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Inform laundry personnel of contaminant's hazards.

**Storage:** Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep containers tightly closed. Store protected from moisture.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Selenium dioxide	0.2 mg/m3 TWA (as Se) (listed under Selenium compounds).	0.2 mg/m3 TWA (as Se, except Selenium hexafluoride) (listed under Selenium compounds).	0.2 mg/m3 TWA (as Se) (listed under Selenium compounds).

**OSHA Vacated PELs:** Selenium dioxide: No OSHA Vacated PELs are listed for this chemical.

### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Crystalline powder

**Appearance:** white to off-white to pink

**Odor:** pungent sour

**pH:** acidic in aq soln

**Vapor Pressure:** 12.5 mm Hg @ 70 deg C

**Vapor Density:** Not available.

**Evaporation Rate:** Not available.

**Viscosity:** Not available.

**Boiling Point:** 315 deg C (sublimes)

**Freezing/Melting Point:** 340 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Soluble.

**Specific Gravity/Density:** 3.954

**Molecular Formula:** SeO<sub>2</sub>

**Molecular Weight:** 110.96

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Dust generation, confined spaces, moisture, high humidity.

**Incompatibilities with Other Materials:** Strong reducing agents, attacks metals in the presence of moisture.

**Hazardous Decomposition Products:** Selenium/selenium oxides, selenious acid.

**Hazardous Polymerization:** Will not occur.

## Section 11 - Toxicological Information

### RTECS#:

CAS# 7446-08-4: VS8575000

### LD50/LC50:

CAS# 7446-08-4:

Oral, mouse: LD50 = 23300 ug/kg;

Oral, rat: LD50 = 68100 ug/kg;

### Carcinogenicity:

CAS# 7446-08-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** The epidemiologic data provide no evidence that selenium is carcinogenic in humans. There is extensive literature on the

clinical toxicology and the incidence of selenium poisoning as a result of ingestion of seleniferous grains and other foodstuffs; however, there have been no reports of disabling chronic disease or death from industrial exposures.

**Teratogenicity:** No data available.

**Reproductive Effects:** Administration of SeO<sub>2</sub> to male rats produced dose-dependent testicular injury. An elevated intake of selenium was associated with a decrease in sperm mobility.

**Mutagenicity:** No data available.

**Neurotoxicity:** No data available.

**Other Studies:**

## Section 12 - Ecological Information

No information available.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	SELENIUM COMPOUND, N.O.S.	SELENIUM COMPOUNDS, NOS (SELENIUM IV OXIDE)
<b>Hazard Class:</b>	6.1	6.1
<b>UN Number:</b>	UN3283	UN3283
<b>Packing Group:</b>	III	III

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 7446-08-4 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

CAS# 7446-08-4: 10 lb final RQ; 4.54 kg final RQ

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

#### SARA Codes

CAS # 7446-08-4: immediate, delayed.

#### Section 313

This material contains Selenium dioxide (listed as Selenium compounds), 99%, (CAS# 7446-08-4) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

#### Clean Air Act:

CAS# 7446-08-4 (listed as Selenium compounds) is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

#### Clean Water Act:

CAS# 7446-08-4 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA. CAS# 7446-08-4 is listed as a Toxic Pollutant under the Clean Water Act.

#### OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

#### STATE

CAS# 7446-08-4 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

#### California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

### European/International Regulations

#### European Labeling in Accordance with EC Directives

#### Hazard Symbols:

T N

#### Risk Phrases:

R 23/25 Toxic by inhalation and if swallowed.

R 33 Danger of cumulative effects.

R 50/53 Very toxic to aquatic organisms, may cause long-term

adverse effects in the aquatic environment.

**Safety Phrases:**

- S 20/21 When using do not eat, drink or smoke.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 60 This material and its container must be disposed of as hazardous waste.
- S 28A After contact with skin, wash immediately with plenty of water
- S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

**WGK (Water Danger/Protection)**

CAS# 7446-08-4: 2

**Canada - DSL/NDSL**

CAS# 7446-08-4 is listed on Canada's DSL List.

**Canada - WHMIS**

not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 7446-08-4 is listed on the Canadian Ingredient Disclosure List.

<b>Section 16 - Additional Information</b>
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**MSDS Creation Date:** 9/30/1998

**Revision #4 Date:** 4/21/2004

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