

Selenium Dioxide

**Material Safety Data Sheet**

**Section 1. Product and Company Identification**

**Product Name** Selenium Dioxide

**Product Code** SX0115

**Manufacturer** EMD Chemicals Inc.  
P.O. Box 70  
480 Democrat Road  
Gibbstown, NJ 08027  
Prior to January 1, 2003 EMD Chemicals Inc. was  
EM Industries, Inc. or EM Science, Division of  
EM Industries, Inc.

**Effective Date** 3/3/2003

**For More Information Call**  
856-423-6300 Technical Service  
Monday-Friday: 8:00 AM - 5:00 PM

**In Case of Emergency Call**  
800-424-9300 CHEMTREC  
(USA)  
613-996-6666 CANUTEC  
(Canada)  
24 Hours/Day: 7 Days/Week

**Synonym** SELENIUM OXIDE  
**Material Uses** Analytical reagent.  
**Chemical Family** Oxide.

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**Section 2. Composition and Information on Ingredients**

<b>Component</b>	<b>CAS #</b>	<b>% by Weight</b>
SELENIUM DIOXIDE	7446-08-4	100

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**Section 3. Hazards Identification**

**Physical State and Appearance** Solid. (Solid crystalline powder.)

**Emergency Overview** DANGER!  
POISON!  
MAY BE FATAL IF INHALED, ABSORBED THROUGH SKIN OR SWALLOWED.  
CAUSES EYE AND SKIN BURNS.  
CAUSES RESPIRATORY TRACT IRRITATION.  
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: BLOOD, KIDNEYS, LIVER, RESPIRATORY TRACT, EYE, LENS OR CORNEA.  
MAY BE HARMFUL TO ENVIRONMENT IF RELEASED IN LARGE AMOUNTS.  
VERY TOXIC TO AQUATIC ORGANISMS.

**Routes of Entry** Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

**Potential Acute Health Effects**

**Eyes** Hazardous in case of eye contact (corrosive). Causes eye burns.  
**Skin** Extremely hazardous in case of skin contact (permeator). May be fatal if absorbed. Hazardous in case of skin contact (corrosive). Skin contact produces burns.

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**Inhalation** Extremely hazardous in case of inhalation. May be fatal if inhaled.  
Hazardous in case of inhalation (lung irritant).

**Ingestion** Extremely hazardous in case of ingestion. May be fatal if swallowed.

### Potential Chronic Health Effects

**Carcinogenic Effects** This material is not known to cause cancer in animals or humans.

Additional information See Toxicological Information (section 11)

**Medical Conditions Aggravated by Overexposure:** Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

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### Section 4. First Aid Measures

**Eye Contact** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

**Skin Contact** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

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

**Ingestion** If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

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### Section 5. Fire Fighting Measures

**Flammability of the Product** Non-flammable.

**Auto-ignition Temperature** Not applicable.

**Flash Points** Not applicable.

**Flammable Limits** Not applicable.

**Products of Combustion** Not available.

**Fire Hazards in Presence of Various Substances**

Not applicable.

**Explosion Hazards in Presence of Various Substances**

**Risks of explosion of the product in presence of static discharge:** No.

**Risks of explosion of the product in presence of mechanical impact:** No.

**Fire Fighting Media and Instructions** Not applicable.

**Protective Clothing (Fire)** Not applicable.

**Special Remarks on** Not available.

## Selenium Dioxide

### Fire Hazards

**Special Remarks on** Not available.

### Explosion Hazards

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#### Section 6. Accidental Release Measures

<b>Small Spill and Leak</b>	Use appropriate tools to put the spilled solid in a convenient waste disposal container.
<b>Large Spill and Leak</b>	Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.
<b>Spill Kit Information</b>	No specific spill kit required for this product.

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#### Section 7. Handling and Storage

<b>Handling</b>	Do not ingest. Avoid breathing dust. Use only with adequate ventilation. Do not get in eyes, on skin, or on clothing.
<b>Storage</b>	Keep container tightly closed. Keep container in a cool, well-ventilated area.

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#### Section 8. Exposure Controls/Personal Protection

<b>Engineering Controls</b>	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
<b>Personal Protection</b>	
<b>Eyes</b>	Splash goggles.
<b>Body</b>	Synthetic apron.
<b>Respiratory</b>	Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
<b>Hands</b>	Gloves.
<b>Feet</b>	Not applicable.
<b>Protective Clothing (Pictograms)</b>	
<b>Personal Protection in Case of a Large Spill</b>	Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
<b>Product Name</b>	<b>Exposure Limits</b>
SELENIUM DIOXIDE	<b>EH40-OES (United Kingdom (UK), 1997).</b> TWA: 0.1 mg/m <sup>3</sup> <b>BMWA_MAK (Austria, 2001).</b> STEL: 0.3 mg/m <sup>3</sup> 4 times per shift, TWA: 0.1 mg/m <sup>3</sup> <b>Lijst Grenswaarden (Belgium, 1998).</b> VL: 0.2 mg/m <sup>3</sup> <b>SUVA (Switzerland, 2001). Notes: Not Temporary</b> Kurzezeitgrenzwerte: 0.1 mg/m <sup>3</sup> Form: Dust MAK: 0.05 mg/m <sup>3</sup> Form: Dust

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### **MAK–Werte Liste (Germany, 2000).**

Spitzenbegrenzung: 0.1 mg/m<sup>3</sup> 4 times per shift, Period: 30 minute(s). Form: Inhalable fraction

MAK: 0.05 mg/m<sup>3</sup> Form: Inhalable fraction

### **TRGS900 (Germany, 2000). Notes: Not Tentative**

Spitzenbegrenzung: 0.4 mg/m<sup>3</sup>

MAK: 0.1 mg/m<sup>3</sup>

### **Arbejdstilsynet (Denmark, 2000).**

GV: 0.1 mg/m<sup>3</sup>

### **Tyterveyslaitos (Finland, 2001).**

STEL: 0.3 mg/m<sup>3</sup>

TWA: 0.1 mg/m<sup>3</sup>

### **NAOSH (Ireland, 1999).**

OEL: 0.1 mg/m<sup>3</sup>

### **Nationale MAC–lijst (Netherlands, 2001). Notes: Legal**

TGG 8 uur: 0.1 mg/m<sup>3</sup>

### **ACGIH TLV (United States, 2000).**

TWA: 0.2 mg/m<sup>3</sup>

### **OSHA PEL 1989 (United States, 1989).**

TWA: 0.2 mg/m<sup>3</sup>

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## Section 9. Physical and Chemical Properties

<b>Odor</b>	Not available.
<b>Color</b>	White.
<b>Physical State and Appearance</b>	Solid. (Solid crystalline powder.)
<b>Molecular Weight</b>	110.96 g/mole
<b>Molecular Formula</b>	O <sub>2</sub> -Se
<b>pH</b>	Not available.
<b>Boiling/Condensation Point</b>	Not available.
<b>Melting/Freezing Point</b>	Sublimation temperature: 314.9°C (598.8°F)
<b>Specific Gravity</b>	3.95 (Water = 1)
<b>Vapor Pressure</b>	Not available.
<b>Vapor Density</b>	Not available.
<b>Odor Threshold</b>	0.0002 ppm
<b>Evaporation Rate</b>	Not available.
<b>LogKow</b>	Not available.
<b>Solubility</b>	Soluble in water.

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## Section 10. Stability and Reactivity

<b>Stability and Reactivity</b>	The product is stable.
<b>Conditions of Instability</b>	Not available.
<b>Incompatibility with Various Substances</b>	Not available.
<b>Rem/Incompatibility Hazardous</b>	Not available. Se

## Selenium Dioxide

**Decomposition  
Products  
Hazardous  
Polymerization**

Will not occur.

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### Section 11. Toxicological Information

**RTECS Number:**

Selenium Dioxide VS8575000

**Toxicity**

LD50: Not available.  
LC50: Not available.

**Chronic Effects on  
Humans**

Not available.

**Acute Effects on  
Humans**

Hazardous in case of eye contact (corrosive). Causes eye burns. Extremely hazardous in case of skin contact (permeator). May be fatal if absorbed. Hazardous in case of skin contact (corrosive). Skin contact produces burns. Extremely hazardous in case of inhalation. May be fatal if inhaled. Hazardous in case of inhalation (lung irritant). Extremely hazardous in case of ingestion. May be fatal if swallowed.

**Synergetic Products  
(Toxicologically)**

Not available.

**Irritancy**

Draize Test: Not available.

**Sensitization**

Not available.

**Carcinogenic  
Effects**

This material is not known to cause cancer in animals or humans.

**Toxicity to  
Reproductive  
System**

Tests on laboratory animals for reproductive effects are cited in Registry of Toxic Effects on Chemical Substances (RTECS).

**Teratogenic Effects**

Not available.

**Mutagenic Effects**

Tests on laboratory animals for mutagenic effects are cited in Registry of Toxic Effects of Chemical Substances (RTECS).

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### Section 12. Ecological Information

**Ecotoxicity**

Not available.

**BOD5 and COD**

Not available.

**Toxicity of the  
Products of  
Biodegradation**

The products of degradation are less toxic than the product itself.

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### Section 13. Disposal Considerations

**EPA Waste  
Number**

D010 U204

**Treatment**

Specified Technology – Incineration to a level below TCA (Total Constituent Analyses) levels. Contact your local permitted waste disposal site (TSD) for permissible treatment sites. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations..

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### Section 14. Transport Information

**DOT Classification** Not available.

**TDG Classification** Not available.

## Selenium Dioxide

<b>IMO/IMDG Classification</b>	Not available.
<b>ICAO/IATA Classification</b>	Not available.

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### Section 15. Regulatory Information

<b>U.S. Federal Regulations</b>	<p>TSCA 8(b) inventory: SELENIUM DIOXIDE</p> <p>SARA 302/304/311/312 extremely hazardous substances: No products were found.</p> <p>SARA 302/304 emergency planning and notification: No products were found.</p> <p>SARA 302/304/311/312 hazardous chemicals: SELENIUM DIOXIDE</p> <p>SARA 311/312 MSDS distribution – chemical inventory – hazard identification: SELENIUM DIOXIDE : Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard</p> <p>SARA 313 toxic chemical notification and release reporting: SELENIUM DIOXIDE</p> <p>Clean Water Act (CWA) 307: SELENIUM DIOXIDE</p> <p>Clean Water Act (CWA) 311: SELENIUM DIOXIDE</p> <p>Clean air act (CAA) 112 accidental release prevention: No products were found.</p> <p>Clean air act (CAA) 112 regulated flammable substances: No products were found.</p> <p>Clean air act (CAA) 112 regulated toxic substances: No products were found.</p>
<b>WHMIS (Canada)</b>	<p>Class D–1A: Material causing immediate and serious toxic effects (VERY TOXIC).</p> <p>CLASS E: Corrosive solid.</p> <p>CEPA DSL: SELENIUM DIOXIDE</p> <p>This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.</p>
<b>International Regulations</b>	
<b>EINECS</b>	SELENIUM DIOXIDE 231–194–7
<b>DSCL (EEC)</b>	R23/25– Toxic by inhalation and if swallowed. R33– Danger of cumulative effects. R50/53– Very toxic to aquatic organisms, may cause long–term adverse effects in the aquatic environment.
<b>International Lists</b>	<p>Australia (NICNAS): SELENIUM DIOXIDE</p> <p>China: SELENIUM DIOXIDE</p> <p>Germany water class: SELENIUM DIOXIDE</p>

## Selenium Dioxide

Japan (MITI): SELENIUM DIOXIDE

Korea (TCCL): SELENIUM DIOXIDE

Philippines (RA6969): SELENIUM DIOXIDE

China: SELENIUM DIOXIDE

### State Regulations

Pennsylvania RTK: SELENIUM DIOXIDE

: (environmental hazard, generic environmental hazard)

Massachusetts RTK: SELENIUM DIOXIDE

New Jersey: SELENIUM DIOXIDE

California prop. 65: No products were found.

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### Section 16. Other Information

**National Fire  
Protection  
Association  
(U.S.A.)**

**0 Fire  
30 Hazard**

**Health**

**Reactivity**

**Specific  
Hazard**

**Changed Since Last  
Revision** +

#### Notice to Reader

The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.

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