Material Safety Data Sheet
Selenium Standard, 1000ppm

Section 1 - Chemical Product and Company Identification

MSDS Name:
Selenium Standard, 1000ppm

Catalog Numbers:
LC22370

Synonyms:
None.

Company Identification:
LabChem Inc
200 William Pitt Way
Pittsburgh, PA 15238

Company Phone Number:
(412) 826-5230

Emergency Phone Number:
(800) 424-9300

CHEMTREC Phone Number:
(800) 424-9300

Section 2 – Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name:</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>7783-00-8</td>
<td>Selenium dioxide</td>
<td>0.13</td>
</tr>
<tr>
<td>7732-18-5</td>
<td>Water</td>
<td>balance</td>
</tr>
</tbody>
</table>

ISO9001:2000 Certified

Section 3 - Hazards Identification

Emergency Overview

Appearance: Clear, colorless liquid

Caution. May cause eye irritation. This is expected to be a low hazard for usual industrial handling.

Target Organs: No information found.

Potential Health Effects

Eye:
May cause eye irritation.

Skin:
May cause skin irritation. Low hazard for usual industrial handling.

Ingestion:
Ingestion of large amounts may cause gastrointestinal irritation. Low hazard for usual industrial handling. May cause alopecia (loss of hair). May cause pallor, nervousness, depressions, digestive tract disturbances and possible death.

Inhalation:
May cause respiratory tract irritation.
Chronic:
Chronic exposure to selenium may cause central nervous system effects, digestive tract
disturbances, pallor, garlic breath. Chronic exposure to selenium may cause pallor, garlic breath,
metallic taste, anemia, liver and spleen damage. Chronic selenium poisoning is characterized by loss
of hair and nails, skin lesions, and abnormalities of the nervous system.

Section 4 - First Aid Measures

Eyes:
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower
eyelids. Get medical aid.

Skin:
Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing
contaminated clothing and shoes. Wash clothing before reuse.

Ingestion:
Call a poison control center. 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:
Remove from exposure and move to fresh air immediately. 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.

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

Autoignition Temperature:
Not available

Flash Point:
Not available.

NFPA Rating:
(estimated) Health: 1; Flammability: 0; Instability: 0

Explosion Limits:
Lower: n/a Upper: n/a

Section 6 - Accidental Release Measures

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

Spills/Leaks:
Clean up spills immediately, observing precautions in the Protective Equipment section. Provide
ventilation.
Section 7 - Handling and Storage

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale.

Storage:
Keep containers tightly closed. Store in a cool, dry area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selenium dioxide</td>
<td>0.2 mg/m3 TWA (as Se) (listed under Selenium compounds).</td>
<td>0.2 mg/m3 TWA (as Se, except Selenium hexafluoride) (listed under Selenium compounds).</td>
<td>0.2 mg/m3 TWA (as Se) (listed under Selenium compounds).</td>
</tr>
<tr>
<td>Water</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Clear, colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>None reported</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not available</td>
</tr>
</tbody>
</table>
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Vapor Density: 0.7
Evaporation Rate: >1 (ether = 1)
Viscosity: Not available
Boiling Point: 100 °C
Freezing/Melting Point: 0 °C
Decomposition Temperature: Not available
Solubility in water: Soluble
Specific Gravity/Density: 1.0
Molecular Formula: Not applicable
Molecular Weight: Not applicable

Section 10 - Stability and Reactivity

Chemical Stability:
Stable under normal temperatures and pressures.

Conditions to Avoid:
None reported.

Incompatibilities with Other Materials:
None reported.

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

Hazardous Polymerization:
Has not been reported.

Section 11 - Toxicological Information

RTECS:
CAS# 7783-00-8: VS7175000.
CAS# 7732-18-5: ZC0110000.

LD50/LC50:
CAS# 7783-00-8:
Not available
CAS# 7732-18-5:
Oral, rat: LD50 = >90 mL/kg

Carcinogenicity:
CAS# 7783-00-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 7732-18-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology:
The epidemiologic data provide no evidence that selenium is carcinogenic in humans.

Teratogenicity:
No information found.

Reproductive:
No information found.

Mutagenicity:
No information found.

Neurotoxicity:
No information found.
Section 12 - Ecological Information
No information found.

Section 13 - Disposal Considerations
Dispose of in accordance with Federal, State, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: Not regulated
Hazard Class:
UN Number:
Packing Group:

Section 15 - Regulatory Information

US Federal
TSCA:
CAS# 7783-00-8 is listed on the TSCA inventory.
CAS# 7732-18-5 is listed on the TSCA Inventory.
SARA Reportable Quantities (RQ):
CAS# 7783-00-8: 10 lb. final RQ; 4.54 kg final RQ
CERCLA/SARA Section 313:
This material contains Selenium dioxide (listed as Selenium compounds), 0.13%, (CAS# 7783-00-8) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
OSHA - Highly Hazardous:
None of the chemicals in this product are considered highly hazardous by OSHA.

US State
State Right to Know:
CAS# 7783-00-8 can be found on the following state right to know lists: California (listed as Selenium compounds), New Jersey, Pennsylvania, Massachusetts.
CAS# 7732-18-5 is not listed on the following state right to know lists: California, Florida, New Jersey, Pennsylvania, Minnesota, Massachusetts.
California Regulations:
None of the chemicals in this product are listed.

European/International Regulations
Canadian DSL/NDSL:
CAS# 7783-00-8 is listed on Canada's DSL List.
CAS# 7732-18-5 is listed on Canada’s DSL List.
Canada Ingredient Disclosure List:
CAS# 7732-18-5 is not listed on the Canadian Ingredient Disclosure List.
CAS# 7783-00-8 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Other Information

MSDS Creation Date: November 20, 2007
Revision Date: November 26, 2007

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