



MATERIAL SAFETY DATA SHEET

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Selenium
88643

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name: Selenium

Catalog Numbers:
S/0440, S/0441

Synonyms:
None

Company Identification: Fisher Scientific UK
Bishop Meadow Road
Loughborough, Leicestershire
LE11 5RG, UK

For information, call: 01509 231166
For emergencies, call: 01509 231166

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	:	7782-49-2
Chemical Name	:	Selenium
%	:	100
EINECS#	:	231-957-4
Haz Symbols	:	T
Risk Phrases	:	23/25 33 53

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Toxic by inhalation and if swallowed. Danger of cumulative effects.
May cause long-term adverse effects in the aquatic environment.

Potential Health Effects

Eye:

Causes eye irritation. May result in corneal injury. May cause pink, puffy eyelids due to an allergic reaction.

Skin:

May cause skin irritation. Prolonged and/or repeated contact may cause irritation and/or dermatitis. May be absorbed through the skin. Contact with the skin may cause the skin to appear to be blue and the nails brittle and yellow.

Ingestion:

May cause irritation of the digestive tract. May cause liver and kidney damage. May be harmful if swallowed. May cause alopecia (loss of hair). May cause spleen damage. May cause blood abnormalities. Effects may be delayed. May cause garlic smell on the breath and

body.

Inhalation:

Causes respiratory tract irritation. May cause effects similar to those described for ingestion. May produce anemia, leucocytosis (increase in the white blood cell count) , cloudy swelling and fatty degeneration of the viscera.

Chronic:

Prolonged or repeated skin contact may cause dermatitis. May cause reproductive and fetal effects. 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:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed.

Skin:

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

Ingestion:

Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation:

Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician:

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. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use extinguishing media appropriate to the surrounding fire. Substance is noncombustible.

Extinguishing Media:

Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. Use water spray, dry chemical, carbon dioxide, or chemical foam.

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. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid contact with skin and eyes. Keep container tightly closed. Avoid ingestion and inhalation. Use with adequate ventilation.

Storage:

Store in a tightly closed container. Store in a cool, dry, well-ventilated 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 process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.

Personal Protective Equipment

Eyes:

Not available.

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. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Color: black-red

Odor: Not available.

pH: Not available.

Vapor Pressure: Not available.

Viscosity: Not available.

Boiling Point: 690 deg C

Freezing/Melting Point: 220-222C

Autoignition Temperature: Not applicable.

Flash Point: Not applicable.

Explosion Limits, lower: Not available.
Explosion Limits, upper: Not available.
Decomposition Temperature: Not available.
Solubility in water: Insoluble in water
Specific Gravity/Density: Not available.
Molecular Formula: Se
Molecular Weight: 78.96

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

Incompatible materials, dust generation, excess heat.

Incompatibilities with Other Materials:

Strong oxidizing agents, acids, metal oxides, carbides, fluorine, oxygen, potassium.

Hazardous Decomposition Products:

Irritating and toxic fumes and gases, selenium/selenium oxides.

Hazardous Polymerization: Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

RTECS#:

CAS# 7782-49-2: VS7700000

LD50/LC50:

CAS# 7782-49-2: Oral, rat: LD50 = 6700 mg/kg.

Carcinogenicity:

Selenium -

Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Other:

See actual entry in RTECS for complete information.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:

algae: IC50 (72h): 38 mg/l daphnia: EC50 (48h): >100 mg/l fish: LC50 (96h): >100 mg/l

SECTION 13 - DISPOSAL CONSIDERATIONS

Products which are considered hazardous for supply are classified as Special Waste and the disposal of such chemicals is covered by regulations which may vary according to location. Contact a specialist disposal company or the local waste regulator for advice. Empty containers must be decontaminated before returning for recycling.

SECTION 14 - TRANSPORT INFORMATION

IATA

Shipping Name: TOXIC SOLID, INORGANIC, N.O.S. (SELENIUM)

Hazard Class: 6.1

UN Number: 3288

Packing Group: III

IMO

Shipping Name: TOXIC SOLID, INORGANIC, N.O.S. (SELENIUM)

Hazard Class: 6.1
UN Number: 3288
Packing Group: III

RID/ADR

Shipping Name: TOXIC SOLID, INORGANIC, N.O.S. (SELENIUM)
Hazard Class: 6.1
UN Number: 3288
Packing group: III

SECTION 15 - REGULATORY INFORMATION

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: T

Risk Phrases:

R 23/25 Toxic by inhalation and if swallowed.
R 33 Danger of cumulative effects.
R 53 May cause long-term adverse effects in the aquatic environment.

Safety Phrases:

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

WGK (Water Danger/Protection)

CAS# 7782-49-2: 2

United Kingdom Occupational Exposure Limits

CAS# 7782-49-2: OES-United Kingdom, TWA 0.1 mg/m³ TWA

United Kingdom Maximum Exposure Limits

Canada

CAS# 7782-49-2 is listed on Canada's DSL List.
CAS# 7782-49-2 is listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 7782-49-2: OEL-ARAB Republic of Egypt:TWA 0.2 mg/m³
OEL-AUSTRALIA:TWA 0.2 mg(Se)/m³
OEL-AUSTRALIA:TWA 0.2 mg/m³
OEL-BELGIUM:TWA 0.2 mg/m³
OEL-DENMARK:TWA 0.1 mg/m³
OEL-FINLAND:TWA 0.1 mg/m³;STEL 0.3 mg/m³
OEL-GERMANY:TWA 0.1 mg/m³
OEL-HUNGARY:STEL 0.1 mg/m³
OEL-THE NETHERLANDS:TWA 0.2 mg/m³
OEL-THE PHILIPPINES:TWA 0.2 mg/m³
OEL-POLAND:TWA 0.1 mg/m³
OEL-SWEDEN:TWA 0.1 mg/m³
OEL-SWITZERLAND:TWA 0.1 mg/m³
OEL-TURKEY:TWA 0.2 mg/m³
OEL-UNITED KINGDOM:TWA 0.1 mg/m³
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

US FEDERAL

TSCA

CAS# 7782-49-2 is listed on the TSCA inventory.

SECTION 16 - ADDITIONAL INFORMATION

MSDS Creation Date: 6/23/2004 Revision #0 Date: Original.

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