

MSDS**Material Safety Data Sheet**24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300National Response in Canada
CANUTEC: 613-996-6666Outside U.S. and Canada
Chemtec: 703-527-3887**NOTE:** CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

Selenium

MSDS Number: S1106 --- *Effective Date: 08/02/00*

1. Product Identification

Synonyms: Elemental Selenium; Selen; C.I. 77805**CAS No.:** 7782-49-2**Molecular Weight:** 78.96**Chemical Formula:** Se**Product Codes:** 3395

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Selenium	7782-49-2	90 - 100%	Yes

3. Hazards Identification

Emergency Overview

WARNING! CAUSES SEVERE IRRITATION TO EYES, SKIN AND RESPIRATORY TRACT. HARMFUL IF SWALLOWED OR INHALED. AFFECTS LIVER, KIDNEYS, BLOOD, SPLEEN.**J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)**

Health Rating: 3 - Severe (Life)

Flammability Rating: 0 - None

Reactivity Rating: 1 - Slight

Contact Rating: 2 - Moderate

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES

Storage Color Code: Blue (Health)

Potential Health Effects

Inhalation:

Severe irritant to the respiratory system. Soreness, coughing, labored breathing are symptoms which may subside and return. Lung edema may occur in acute cases. Cases with flu-like symptoms resembling metal fume fever within 24 hours of exposure have been reported.

Ingestion:

May cause severe irritation to the mouth and throat. Gastrointestinal disturbances may be expected with nausea, abdominal pain, and vomiting.

Skin Contact:

Causes severe irritation. Symptoms include redness, itching and pain.

Eye Contact:

May cause severe irritation, redness, pain.

Chronic Exposure:

Chronic exposure may cause odor of garlic on breath, fatigue, irritability, respiratory tract irritation, gastrointestinal irritation, metallic taste, and allergic eye reaction. Based on animal studies, may cause blood, liver, kidney and spleen effects.

Aggravation of Pre-existing Conditions:

Person with a history of asthma, allergies, or known sensitization to selenium, or with a history of other chronic respiratory disease, gastrointestinal disturbances, disorders of the liver or kidneys, or recurrent dermatitis would be expected to be at increased risk from exposure.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Do NOT induce vomiting. Give large amounts of water. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with

full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):

0.2 mg/m³, Selenium Compounds, as Se

-ACGIH Threshold Limit Value (TLV):

0.2 mg/m³, Selenium & Compounds, as Se

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Small blue-black metallic shot.

Odor:

Odorless.

Solubility:

Insoluble in water.

Specific Gravity:

4.26-4.81

pH:

No information found.

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

690C (1274F)

Melting Point:

170 - 217C (338 - 423F)

Vapor Density (Air=1):

Not applicable.

Vapor Pressure (mm Hg):

Not applicable.

Evaporation Rate (BuAc=1):

Not applicable.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Toxic oxides of selenium form when heated to decomposition.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Strong oxidizers, strong acids, and a wide range of other materials.

Conditions to Avoid:

Moisture and incompatibles.

11. Toxicological Information

Toxicological Data:

Oral Rat LD50: 6700 mg/kg. Investigated as a tumorigen and a reproductive effector.

Carcinogenicity:

EPA / IRIS classification: Group D1 - Not classifiable as a human carcinogen.

-----\Cancer Lists\-----			
Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	

Selenium (7782-49-2)	No	No	3

12. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

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-----\Chemical Inventory Status - Part 1\-----
Ingredient                                     TSCA  EC   Japan  Australia
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Selenium (7782-49-2)                          Yes   Yes   No     Yes

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-----\Chemical Inventory Status - Part 2\-----
Ingredient                                     Korea  --Canada--  Phil.
                                     Korea  DSL   NDSL
-----
Selenium (7782-49-2)                          Yes   Yes   No     Yes

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-----\Federal, State & International Regulations - Part 1\-----
Ingredient                                     -SARA 302-  -SARA 313-
                                     RQ   TPQ   List  Chemical Catg.
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Selenium (7782-49-2)                          No    No    No    Selenium cmp

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-----\Federal, State & International Regulations - Part 2\-----
Ingredient                                     -RCRA-  -TSCA-
                                     CERCLA  261.33  8(d)
-----
Selenium (7782-49-2)                          100     No     No

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Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
 SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
 Reactivity: No (Pure / Solid)

Australian Hazchem Code: 2Z

Poison Schedule: No information found.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: **2** Flammability: **0** Reactivity: **0**

Label Hazard Warning:

WARNING! CAUSES SEVERE IRRITATION TO EYES, SKIN AND RESPIRATORY TRACT. HARMFUL IF SWALLOWED OR INHALED. AFFECTS LIVER, KIDNEYS, BLOOD, SPLEEN.

Label Precautions:

Avoid contact with eyes, skin and clothing.

Wash thoroughly after handling.

Avoid breathing dust.

Do not breathe mist.

Use only with adequate ventilation.

Label First Aid:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

Product Use:

Laboratory Reagent.

Revision Information:

No changes.

Disclaimer:

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Prepared by: Environmental & Health & Safety

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