

SUPPLIER



MATERIAL SAFETY DATA SHEET

GENERATED 01/16/2012, **REVISION** 10/19/2011, **SUPERCEDES REVISION** 09/09/1998,
DATE CREATED 08/11/1989

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Selenium, powder and pieces

PRODUCT CODE: S-MSDS0045

PRODUCT NAME: Selenium, powder and pieces

REFERENCE #: 7782-49-2

MANUFACTURER INFORMATION

COMPANY NAME: Materion Advanced Chemicals Inc.
 1316 W. St. Paul Avenue
 Milwaukee, WI 53233

EMERGENCY CONTACT: CHEMTREC (800)424-9300

ALTERNATE EMERGENCY CONTACT: Materion Advanced Chemicals Inc. (414)289-9800

CHEMICAL FAMILY: Non-metal

CAS NUMBER: 7782-49-2

SYNONYMS

Selenium; colloidal selenium; elemental selenium

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Selenium, powder and pieces

Hazardous Components (Chemical Name)	CAS# / EC#	Concentration	OSHA PEL	ACGIH TLV	Other Limits
Selenium	7782-49-2 231-957-4	0.0 -100.0 %	0.2 mg/ m3	0.2 mg/m3	NE

See SECTION 16- Other Information	NA NA	0.0 -100.0 %
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SECTION 3. HAZARDS IDENTIFICATION

Selenium, powder and pieces

EMERGENCY OVERVIEW

Poison by inhalation.

ROUTE(S) OF ENTRY:

Inhalation? Yes , Skin? Yes , Eyes? Yes , Ingestion? Yes

Other: N

POTENTIAL HEALTH EFFECTS (ACUTE AND CHRONIC)

Selenium compounds are poison by inhalation and intravenous routes. Some selenium compounds are experimental carcinogens. Long-term exposure may be a cause of amyotrophic lateral sclerosis in humans, just as it may cause "blind staggers" in cattle. Elemental selenium has low acute systemic toxicity, but dust or fumes can cause serious irritation of the respiratory tract. Inorganic selenium compounds can cause dermatitis. Garlic odor of breath is a common symptom. Pallor, nervousness, depression, digestive disturbances and death have been reported in cases of chronic exposure. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

INHALATION:

Acute: May cause irritation to the respiratory tract and acute selenium poisoning.

Chronic: May cause chronic selenium poisoning. Continued intoxication may cause loss of nails and hair, hemolytic anemia, and kidney, liver and spleen damage.

INGESTION:

Acute: May cause gastrointestinal disturbances.

Chronic: May cause chronic selenium toxicity.

SKIN: Acute: May cause irritation.

Chronic: May cause dermatitis.

EYE:

Acute: May cause irritation.

Chronic: No chronic health effects recorded.

TARGET ORGANS: Upper respiratory system, eyes, skin, liver, kidneys and blood.

RECOMMENDED EXPOSURE LIMITS

See "Section II"

LD 50 / LC 50

orl-rat LD50: 6700 mg/kg

SIGNS AND SYMPTOMS OF EXPOSURE

INHALATION: Acute selenium poisoning may cause: nervousness, fever, vomiting, somnolence, drop in blood pressure, labored breathing and toxic action on the nervous system may lead to respiratory failure. Chronic selenium poisoning may cause: depression, marked pallor, coated tongue, gastrointestinal disorders, garlic odor of the breath.

INGESTION: Chronic selenium toxicity may cause: alkali disease, loss of vitality, lameness, atrophy, cirrhosis of the liver, degeneration and necrosis of the myocardium.

SKIN: May cause redness, itching, inflammation and burning.

EYE: May cause redness, itching, burning and watering.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Pre-existing respiratory and skin disorders.

SECTION 4. FIRST AID MEASURES
Selenium, powder and pieces

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention.

INGESTION: Seek 1-2 glasses of milk or water and induce vomiting; keep warm and quite; seek medical attention. Never give anything by mouth or induce vomiting to an unconscious person.

SKIN: Remove contaminated clothing; brush material off skin; wash affected area with mild soap and water; seek medical attention if symptoms persists.

EYE: Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persists.

SECTION 5. FIRE FIGHTING MEASURES
Selenium, powder and pieces

FLASH PT:

N.A. Method Used: Unknown

EXPLOSIVE LIMITS:

LEL: NA UEL: NA

AUTOIGNITION PT:

FIRE FIGHTING INSTRUCTIONS

Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

FLAMMABLE PROPERTIES AND HAZARDS

When heated to decomposition, selenium may emit toxic fumes of selenium.

May react with metal amides to form explosive products.

May react violently with barium carbide, bromine pentafluoride, calcium carbide, chlorates, chlorine trifluoride, chronic oxide, fluorine, lithium carbide, lithium silicon, metals nickel, nitric acid, sodium, nitrogen trichloride, oxygen, potassium, potassium bromate, rubidium carbide, zinc, silver bromate, strontium carbide, thorium carbide and uranium.

HAZARDOUS COMBUSTION PRODUCTS

EXTINGUISHING MEDIA

USE: Not applicable. Use suitable extinguishing media for surrounding materials and type of fire.

UNSUITABLE EXTINGUISHING MEDIA

SECTION 6. ACCIDENTAL RELEASE MEASURES

Selenium, powder and pieces

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Wear appropriate respiratory and protective equipment specified in section VIII-control measures. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

SECTION 7. HANDLING AND STORAGE

Selenium, powder and pieces

HAZARD LABEL INFORMATION:

Store in cool, dry area Store in tightly sealed container Wash thoroughly after handling

PRECAUTIONS TO BE TAKEN IN HANDLING

None

PRECAUTIONS TO BE TAKEN IN STORING

OTHER PRECAUTIONS

None

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Selenium, powder and pieces

PROTECTIVE EQUIPMENT SUMMARY - HAZARD LABEL INFORMATION:

NIOSH approved respirator Impervious gloves Safety glasses Clothes to prevent skin contact

RESPIRATORY EQUIPMENT (SPECIFY TYPE)

NIOSH approved respirator

EYE PROTECTION

Safety glasses

PROTECTIVE GLOVES

Rubber gloves

OTHER PROTECTIVE CLOTHING

Protective gear suitable to prevent contamination

ENGINEERING CONTROLS (VENTILATION ETC.)

Local Exhaust: Local exhaust ventilation may be necessary to control any air contaminants to within their PEL's and TLVs during the use of this product.

Special: None

Mechanical (Gen): Ventilation is normally required when handling or using this product to keep exposure to airborne contaminants below the exposure limit. Other: None

WORK/HYGIENIC/MAINTENANCE PRACTICES

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Selenium, powder and pieces

<u>PHYSICAL STATES:</u>	[] Gas [] Liquid [X] Solid
<u>MELTING POINT:</u>	170.00 C - 217.00 C
<u>BOILING POINT:</u>	690.00 C
<u>FLASH PT:</u>	N.A. Method Used: Unknown
<u>EXPLOSIVE LIMITS:</u>	LEL: NA UEL: NA
<u>SPECIFIC GRAVITY (WATER = 1):</u>	4.26 gm/cc
<u>VAPOR PRESSURE (VS. AIR OR MM HG):</u>	1 mm at 356.0 C
<u>VAPOR DENSITY (VS. AIR = 1):</u>	
<u>EVAPORATION RATE (VS BUTYL ACETATE=1):</u>	
<u>SOLUBILITY IN WATER:</u>	insoluble
<u>PERCENT VOLATILE:</u>	N.A.
<u>FORMULA:</u>	Se
<u>MOLECULAR WEIGHT:</u>	78.96
<u>APPEARANCE AND ODOR</u>	

Steel gray non-metallic powder and pieces, no odor.

SECTION 10. STABILITY AND REACTIVITY

Selenium, powder and pieces

STABILITY:Unstable [☐] Stable [☒]**CONDITIONS TO AVOID - INSTABILITY**

None

INCOMPATIBILITY - MATERIALS TO AVOID

Strong acids, metal amides, barium carbide, bromine pentafluoride, calcium carbide, lithium silicon, metals, nickel, nitric acid, sodium, nitrogen trichloride, oxygen, potassium, potassium bromate, rubidium carbide, zinc, silver bromate, strontium carbide, thorium carbide, uranium.

HAZARDOUS DECOMPOSITION OR BYPRODUCTSH₂Se, SeO₂**HAZARDOUS POLYMERIZATION:**Will occur [☐] Will not occur
[☒]**CONDITIONS TO AVOID - HAZARDOUS POLYMERIZATION**

None

SECTION 11. TOXICOLOGICAL INFORMATION

Selenium, powder and pieces

orl-mus TDLo: 134 mg/kg (MGN):TER

orl-mus TDLo: 480 mg/kg/60D-C:ETA

ihl-rat LDLo: 33 mg/kg/8H

ivn-rat LD50: 6 mg/kg

ivn-rbt LDLo: 2500 ug/kg

CHRONIC TOXICOLOGICAL EFFECTS**CARCINOGENICITY/OTHER INFORMATION**

IARC Cancer Review: Group 3 IMEMDT 7,56,87

CARCINOGENICITY:NTP? No
No

IARC Monographs? No

OSHA Regulated?

SECTION 12. ECOLOGICAL INFORMATION

Selenium, powder and pieces

Ecotoxicity: Not Established

SECTION 13. DISPOSAL CONSIDERATIONS
Selenium, powder and pieces

WASTE DISPOSAL METHOD

Dispose of in accordance with local, state and federal regulations.

SECTION 14. TRANSPORT INFORMATION
Selenium, powder and pieces

LAND TRANSPORT (US DOT)

DOT PROPER SHIPPING NAME

Not Regulated

LAND TRANSPORT (EUROPEAN ADR/RID)

AIR TRANSPORT (ICAO/IATA)

ICAO/IATA SHIPPING NAME

Not Regulated

ADDITIONAL TRANSPORT INFORMATION

SECTION 15. REGULATORY INFORMATION
Selenium, powder and pieces

EUROPEAN COMMUNITY HAZARD SYMBOL CODES

EUROPEAN COMMUNITY RISK AND SAFETY PHRASES

SECTION 16. OTHER INFORMATION
Selenium, powder and pieces

Control of Substances Hazardous to Health Regulations EH40 Occupational Exposure Limits
SELENIUM & COMPOUNDS
Maximum Exposure Limit: NE
Occupational Exposure Standard: 0.1 mg/m³

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