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SAFETY DATA SHEET

Section 1- IDENTIFICATION		
COMPOSITION Se		PRODUCT NAME Selenium
SUPPLIER: Plasmaterials, Inc. 2268 Research Drive Livermore, CA 94550 Ph: 925-447-4030	RECOMMENDED USE: Laboratory Chemicals Scientific Research	EMERGENCY TELEPHONE NUMBERS US: 001-800-424-9300 Europe: 001-703-527-3887

Section 2- HAZARD(S) IDENTIFICATION	
Classification: This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)	
Acute Inhalation Toxicity (Dusts & Mists): Category 3 Acute Oral Toxicity: Category 3	
Specific Target Organ Toxicity (Repeated Exposure): Category 2	
LABEL ELEMENTS: Signal Word: Danger	Hazard Statements: -Toxic if swallowed -Toxic if inhaled -May cause damage to organs through prolonged or repeated exposure
	
<u>PRECAUTIONARY STATEMENTS</u>	
Prevention: -Wash face, hands and any exposed skin thoroughly after handling -Do not eat, drink or smoke when using this product -Wear protective gloves, protective clothing, eye protection and face protection -Do not breathe dust/fume/gas/mist/vapors/spray -Use only outdoors or in a well ventilated area	
Inhalation: -IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Center or doctor/physician.	
Ingestion: -IF SWALLOWED: Immediately call a Poison Center or doctor/physician if you feel unwell. Rinse mouth.	
Storage: -Store locked up. -Store in a well-ventilated place. Keep container tightly closed.	
Disposal: -Dispose of contents/containers to an approved waste disposal plant.	
Hazards not otherwise classified (HNOC): -May cause long lasting harmful effects to aquatic life	

Section 3- COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS-No	Weight%
Selenium	7782-49-2	>99.5

Section 4- FIRST AID MEASURES

INHALATION: Remove victim from exposure to fresh air; lie down and keep warm and quiet. Give oxygen if breathing is difficult. If not breathing, give artificial respiration. Immediate medical attention is required.

SKIN CONTACT: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

EYE CONTACT: Flush eyes with lukewarm water, lifting upper and lower lids, for at least 15 minutes.

INGESTION: Do not induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician immediately. If possibly drink milk afterwards.

MOST IMPORTANT SYMPTOMS/EFFECTS: No information available

NOTES TO PHYSICIAN: Treat symptomatically

Section 5- FIREFIGHTING MEASURES

Suitable Extinguishing Media:
Carbon Dioxide (CO₂); Dry Chemical, Water Spray, chemical foam

Unsuitable Extinguishing Media:
No Information Available

Flash Point: No Information Available
Method: No Information Available
Auto Ignition Temperature: No Information Available

Explosion Limits:
Upper: No Data Available
Lower: No Data Available
Sensitivity to Mechanical Impact: No Information Available
Sensitivity to Static Discharge: No Information Available

Specific Hazards Arising from the Chemical:

Vapors may form explosive mixtures with air.

Hazardous Combustion Products:

None known

Protective Equipment & Precautions for Firefighters:

As in any fire, Firefighters must wear full face, self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective clothing to prevent contact with skin and eyes.

NFPA:

Health	Flammability	Instability	Physical Hazards
3	0	0	N/A

Section 6- ACCIDENTAL RELEASE MEASURES

Personal Precautions: Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions: See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment & Clean Up: Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment.

Section 7- HANDLING AND STORAGE

Handling: Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Use only in area provided with appropriate exhaust ventilation.

Storage: Keep in a dry, cool and well ventilated place. Keep container tightly closed. Keep under nitrogen.

Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Selenium	TWA: 0.2 mg/m ³	(Vacated) TWA: 0.2 mg/m ³	IDLH: 1mg/m ³ TWA: 0.2mg/m ³	TWA: 0.2mg/m ³

Engineering Measures: Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment:

Eye/Face Protection: 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 and Body Protection: Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection: Use a NIOSH/MSHA approved air purifying dust or mist respirator or European Standard EN 149.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

Section 9- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder Solid

Appearance: Grey

Odor: No information available

Odor Threshold: No information available

pH: No information available

Melting Point/Range: 217-222°C / 422.6-431.6°F

Boiling Point/Range: 685°C / 1265°F

Flash Point: No information available

Evaporation Rate: No information available

Flammability (solid,gas): No information available

Flammability or Exposure Limits:

Upper: No data available

Lower: No data available

Vapor Pressure: 1 mmHg at 345°C

Vapor Density: No information available

Specific Gravity: 4.810

Solubility: No information available

Partition coefficient; n-octanol/water: No data available

Auto Ignition Temperature: No information available

Decomposition Temperature: No information available

Viscosity: No information available

Molecular Formula: Se

Molecular Weight: 78.96

Section 10- STABILITY AND REACTIVITY

Reactive Hazard: None known, based on information available.

Stability: Stable under normal conditions

Conditions to Avoid: Incompatible products.

Incompatible Materials: Strong oxidizing agents, acids, fluorine, oxygen, metals

Hazardous Decomposition Products: None under normal use conditions

Hazardous Polymerization: Hazardous polymerization does not occur

Hazardous Reactions: None under normal processing

Section 11- TOXICOLOGICAL INFORMATION

Acute Toxicity:

Product Information: No acute toxicity information is available for this product.

Toxicological Synergistic Products: No information available

Component Information:

Component	CAS-No	LD50 Oral	LD50 Dermal	LC50 Inhalation
Se	7782-49-2	LD50=6700 mg/kg (Rat)	Not Listed	Not Listed

Delayed and immediate effects as well as chronic effects from short and long term exposure:

Irritation: No information available

Sensitization: No information available

Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Se	7782-49-2	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed

Mutagenic Effects: No information available

Reproductive Effects: No information available

Development Effects: No information available

Teratogenicity: No information available

STOT – single exposure: None known

STOT – repeated exposure: None known

Aspiration Hazard: No information available

Symptoms/effects, both acute & delayed: No information available

Endocrine Disruptor: No information available

Other Adverse Effects: The toxicological properties have not been fully investigated.

Section 12- ECOLOGICAL INFORMATION

Ecotoxicity: Do not empty into drains

Persistence and Degradability: No information available

Bioaccumulation/Accumulation: No information available

Mobility: No information available

Section 13- DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional and national hazardous waste regulations to ensure complete and accurate classification.

Section 14- TRANSPORT INFORMATION

DOT: UN-No: UN3283
Hazard Class: 6.1
Packing Group: III

TDG: UN-No: UN3283
Hazard Class: 6.1
Packing Group: III

IATA: UN-No: 3283
Proper Shipping Name: Selenium Compound, Solid, N.O.S.
Hazard Class: 6.1
Packing Group: III

IMDG/IMO: UN-No: 3283
Proper Shipping Name: Selenium Compound, Solid, N.O.S.
Hazard Class: 6.1
Packing Group: III

Section 15- REGULATORY INFORMATION

International Inventories:

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Selenium	X	X	-	231-957-4	-		X	-	X	X	X

Legend:

X – Listed

E – Indicates a substance that is subject of a Section 5(e) Consent order under TSCA.

F – Indicates a substance that is subject of a Section 5(f) Rule under TSCA.

N – Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P – Indicates a commenced PMN substance.

R – Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S – Indicates a substance that is identified in a proposed or final Significant New Use Rule.

T – Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU – Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 – Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 – Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

US Federal Regulations:

TSCA 12(b): Not applicable

SARA 313:

Component	CAS-No	Weight %	SARA 313 – Threshold Values %
Selenium	7782-49-2	>99.5	1.0

SARA 311/312 Hazardous Categorization:

Acute Health Hazard: Yes

Chronic Health Hazard: Yes

Fire Hazard: No

Sudden Release of Pressure Hazard: No

Reactive Hazard: No

Clean Water Act:

Component	CWA – Hazardous Substances	CWA – Reportable Quantities	CWA – Toxic Pollutants	CWA – Priority Pollutants
Selenium	-	-	X	X

Clean Air Act:

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Selenium	X		-

OSHA (Occupational Safety and Health Administration): Not applicable

CERCLA: This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Selenium	100 lb	-

California Proposition 65: This product does not contain any Proposition 65 chemicals

US State Right-to-Know:

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Selenium	X	X	X	X	X

US Department of Transportation:

Reportable Quantity (RQ): N

DOT Marine Pollutant: N

DOT Severe Marine Pollutant: N

US Department of Homeland Security: This product does not contain any DHS chemicals.

Other International Regulations:

Mexico – Grade: No information available

Section 16- OTHER INFORMATION

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulations are subject to change, the conditions of handling and use, or misuse are beyond our control, Plasmaterials, Inc. makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Users should satisfy themselves that they have all current data relevant to their particular use.

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