



SAFETY DATA SHEET



JSC "Uralelectromed"

1. IDENTIFICATION OF THE SUBSTANCE\PREPARATION AND OF THE COMPANY\UNDERTAKING

Identification of the substance/preparation	Selenium
Trade name	Commercial selenium of ST0, ST1 grades
Use of the substance/preparation	for manufacturing of glass, paints, enamels, for production of pure selenium, in pharmaceuticals .
Version No.	01/2
Revision date	20-January-2010
SDS Number	PB-00194429-006-2010
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2. HAZARDS IDENTIFICATION

This substance is classified as dangerous according to Directive 67/548/EEC

Physical hazards	Not classified as a physical hazard.
Health hazards	Classified as a health hazard if inhaled or swallowed or in case of skin and eye contact
Environmental hazards	Classified as an environment hazard if improperly stored, handled, disposed and recycled or in the result of accident and emergency
Specific hazards	It is moderately hazardous for human exposure. It is accumulated in animal or plant tissues. It may pollute water basins and soil. Toxic for water inhabitants and flora.
Main symptoms	Irritation of mucous membranes of upper airways and eyes, dry coughing, running nose, nose burning effect, atony, headache, unpleasant taste, breathlessness, sickness, vomiting, garlic odour, edema, urticaria and dermatitis; lacrimation, conjunctivas.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS #	Percent	EC-No.	Classification
Selenium	7782-49-2	99.0- 99.8	231-957-4	T: R23/25 R33 R53

Composition comments All concentrations are in percent by weight . For more detailed chemical composition, refer to the certificate of analysis.

*) Decoding of hazard symbols is given in Section 16.

4. FIRST-AID MEASURES

Inhalation	Move to fresh air. Ensure rest, warmth, clean clothes. Dipsotherapy. Emergency hospitalization if required.
Skin contact	Wash skin with soap and running water. Get medical attention in case of burning, strong irritation or dermatitis.
Eye contact	Flush eyes thoroughly with running water. If discomfort continues, consult a physician.
Ingestion	Immediately get medical assistance.
General advice	Avoid hypothermia, restrict physical activity and water intake. Get medical attention. Show this safety data sheet to the doctor in attendance.
Notes to physician	Transport in horizontal position. Antishock actions.. Treat symptomatically. The effects might be delayed.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Depending on the main source of ignition.
Extinguishing media which must not be used for safety reasons	Depending on the main source of ignition.
Unusual fire & explosion hazards	Combustible.
Specific hazards	Package can be involved into fire that may lead to the product heating. It reacts with hydrogen at temperature over 200° C, hydrogen sulfide is formed in the result thereof. H ₂ S is a colourless gas with off-odour.
Special protective equipment for fire-fighters	Use flameproof clothes and personal protection equipment (respirator, gloves, safety shoes)
Fire fighting equipment/instructions	Move container from fire area if it can be done without risk. Use a special-purpose equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Ensure adequate ventilation. Avoid inhalation of dust and spray and contact with skin and eyes. Wear protective clothing as described in Section 8 of this safety data sheet.
Environmental precautions	Avoid release to the environment.
Methods for cleaning up	If spilled indoors, scrape up spilled material (powder or granules) into a suitable container for recycle. Collect dust or particulates using a vacuum cleaner with a HEPA filter. Wash place of spillage with water and dry with cleaning rag. If spilled outdoors and during transportation, dike the area of spillage. Avoid dusting and never put selenium into water basins, drain, water supply sources. Collect selenium into a suitable container for recycle.

7. HANDLING AND STORAGE

Handling	Provide adequate ventilation. Use sealed equipment, storage bins and package materials. Avoid spilling, generation and spreading of dust. Avoid inhalation of dust and contact with skin and eyes. Wear appropriate personal protective equipment. Ensure fire extinguishants. Observe fire safety rules.
Storage	Keep dry in supplier's package and away from incompatible materials. Avoid open flame and package damage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit values

United Kingdom

Components	Type	Value	Form
Selenium (7782-49-2)	STEL	-	
	TWA	0.1	

Exposure controls	Use local exhaust ventilation, sealed equipment and package or other exposure level control devices to maintain concentration in air below recommended exposure limits.
Occupational exposure controls	In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter (type P2). Seek advice from local supervisor.
Respiratory protection	
Hand protection	Wear suitable protective gloves to prevent cuts and abrasions; against fine dust use protective hydrophobic ointment, paste and cream. Apply cleansers and personal towels to remove ointment. Suitable gloves can be recommended by the glove supplier.
Eye protection	Wear dust-resistant safety goggles where there is danger of eye contact.
Skin and body protection	Wear suitable protective clothing.
General	Avoid direct contact with selenium. Use personal protective equipment when required. Select personal protective equipment according to the CEN standards; discuss protective equipment with the supplier.
Environmental exposure controls	Prevent releases and spillage. Observe national regulations on emissions.
Hygiene measures	Store and handle in accordance with good industrial hygiene and safety practices. Observe personal hygiene rules: take a shower after work, wash hands before lunch, do not store personal things and food within working place, do not eat at working places, do not smoke. Routinely wash work clothing and protective equipment to remove contaminants. Observe any medical surveillance requirements.

9. PHYSICAL NAD CHEMICAL PROPERTIES

Appearance	Ingots/powder/granules
Physical state	Solid
Form	Truncated pyramid/ powder with particles less 1 mm/ semisphere
Colour	gray
Odour	Odourless
Odour threshold	Not applicable
pH	Not applicable
Boiling point	684.8° C- 688° C
Dehydration point	Not applicable
Flash point	Not available
Flammability	Not available
Vapour pressure	Not available
Apparent density	4.79 g/cm ³ –crystalline; 4.28 g/cm ³ - non-crystalline
Specific area of particles	Not available
Electrical resistivity	Not available
Solubility (water)	Insoluble
Partition coefficient (n-octano/water)	Not available
Viscosity	Not available
Vapour density	Not available
Evaporation rate	Not available
Melting point	217°C
Freezing point	Not available
Auto-ignition temperature	Not available
VOC	Not available
Bulk density	Not available
Percent volatile	Not available

10. STABILITY AND REACTIVITY

Conditions to avoid	Contact with incompatible materials.
Hazardous decomposition products	Not available
Stability	Selenium is stable under normal conditions of use, storage and transportation. Inorganic acids (nitric, sulfur). Oxidizers. Halogens. Alkalis.
Materials to avoid	
Hazardous polymerisation	Not applicable

11. TOXICOLOGICAL INFORMATION

Acute toxicity	Inhalation of dust may cause acute and chronic poisoning with various clinical symptoms.
Routes of exposure	Inhalation. Skin contact. Eye contact. Ingestion.
Chronic toxicity	Prolonged inhalation may cause collapse.
Sensitization	Sensitizing. Percutaneous action is not stated.
Carcinogenicity	Data on carcinogenicity are conflicting.
Mutagenicity	Data on mutagenicity are conflicting.
Reproductivity	Reproductive hazard.
Epidemiology	Based on epidemiological studies, it is polytropic and mainly exposes on liver, kidneys and the central nervous system. It may accumulate in organism. It is classified as thiotic poison.
Local effects	May cause irritation on skin, upper respiratory tract and eye mucous membrane.
Further information	Moderately hazardous (toxic) substance. Irritating.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Selenium may pollute soil and water as well as atmosphere. It is cumulated by soil and plants, flora and fauna hazard.
Ecotoxicity effects	Toxic concentration: LC ₅₀ (for fish) 0.25 mg/l ≤ LC ₅₀ ≤ 12 mg/l; 96 hr EC ₅₀ (for Daphnia) ≤ 1 mg/l.
Environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence and degradability	The product is not degradable if stored correctly.
Bioaccumulation	The product is bioaccumulating.
Aquatic toxicity	If selenium presents in water basins, it changes organoleptic properties of water and sanitary regime of water basins. Toxic for fish and lower water organisms. Selenium is not altered in the environment. It is highly stable within abiotic environment.
Mobility	

13. DISPOSAL CONSIDERATIONS

Disposal instructions Dispose in accordance with applicable regulations. EWC code 06 04 05.

14. TRANSPORT INFORMATION

ADR UN reference number is not available

IATA Not regulated as dangerous goods.

IMDG Goods are not classified as dangerous.

SMGS(Agreement on Goods are not classified as dangerous.
International Goods

Transport by Rail Road)

15. REGULATORY INFORMATION

Labeling Pictograms: "skull and crossbones"; "health hazard"
T
R: 23/25-33-53
S: 20/21-28-45-61
Signal word: "Dangerous"

Contains Commercial selenium of ST0, ST1 grades (ingots, powders, granules)

EC Number 231-957-4
The product shall be labeled in accordance with Directive 67/548 EEC.

Regulatory information This Safety Data Sheet complies with the requirements of Regulation (EC) №
1907/2006.

16. OTHER INFORMATION

Disclaimer This Safety Data Sheet is specifically designed to comply with the requirements of the
EU Regulation called REACH – Registration, Evaluation and Authorization of
Chemicals (EC № 1907/2006 of the European Parliament and of the Council of 18
December 2006) and the corresponding country law, and may not comply with the
requirements of any other regulations for safe product handling.

Risk and safety codes T- toxic
and phrases R: 23/25-33-53 – toxic by inhalation, toxic if swallowed, danger of cumulative effects,
may cause long-term adverse effects in the aquatic environment.
S: 20/21-28-45-61 – when using do not eat or drink; when using do not smoke; after
contact with skin wash immediately with plenty of water and use soap; in case of
accident or if you feel unwell seek medical advice immediately (show the label where
possible); avoid release to the environment. Refer to special instructions (Safety Data
Sheet).

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