SAFETY DATA SHEET

JSC “Uralelectromed”

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

Identification of the substance/preparation	Tellurium
Trade name	High purity tellurium of grades T-U, T-sT, T-Ch (ingots), T-sM (powder)
Use of the substance/preparation	High purity tellurium is used in semiconductor technology, for manufacturing of thermoelectrical alloys, paints and for other purposes.
Version No.	01/2
Revision date	18-January-2010
SDS Number	PB-00194429-005-2010
Manufacturer/Supplier	JSC “Uralelectromed” 1, Lenin Str., Verkhnyaya Pyshma, 624091 Sverdlovsk region, Russia Tel. +7 34368 47199, +7 34368 46193; fax: +7 34368 46039 Contact person: Elena Kapustina Email: reach@ugmk.com; e.kapustina@ugmk.com http: www.elem.ru
Emergency	Emergency phone (Access code): +7 34368 47199
Only representative	Halma Export & Import GmbH Reichstratsstrasse 11/3A A-1010 Vienna Austria Contact: Dr. Bernhard Goetsch Phone: +43 (0) 1 533 56 80 Fax: +43 (0) 1 533 56 80 30 e-mail: bernhard.goetsch@halma.co.at

2. HAZARDS IDENTIFICATION

This substance is not 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 inhalated or swallowed or skin and eyes contact
Environmental hazards	Not classified as an environment hazard. It may be environmental hazard if improperly stored, handled, disposed and recycled or in the result of emergency
Specific hazards	It presents high human exposure. Irritating. It may cause acute and chronic poisoning. Combustible.
Main symptoms	Heavy breathing, coughing, atony, fever, steep temperature rise, sickness, vomiting, garlic odor, edema, hyperemia, lacrimation, reddening, edema of eye mucous membrane. In worse cases- convulsions, back pain. Paraplegia, faintness are possible, sometimes- coma state.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS #	Percent	EC-No.	Classification
Tellurium	13494-80-9	97.0- 99.999	236-813-4	T R: 25 S: 22-24/25

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. Artificial respiration and emergency hospitalization if required. In case of inhalation toxicity- inject unithiol, glucose with ascorbic acid, breath with resuscitation oxygen.
Skin contact	Get off dirty clothes. Wash skin with soap and running water. Get medical attention if irritation develops or persists.
Eye contact	Flush eyes thoroughly with running water. If discomfort continues, consult a physician.
Ingestion	Immediately get medical assistance.
General advice	Get medical attention if any discomfort develops. Show this safety data sheet to the doctor in attendance.
Notes to physician	Treat symptomatically. The effects might be delayed

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Powder extinguishants.
Extinguishing media which must not be used for safety reasons	Water and water-based extinquishants are not recommended.
Unusual fire & explosion hazards	Combustible.
Specific hazards	Solid metal is not combustible. However, powder tellurium is combusted if heated in oxygen environment and tellurium dioxide (very dangerous substance) is formed in the result thereof. Powder tellurium reacts with water at 100°C-160°C and tellurium dioxide is formed and hydrogen is released.
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 into a suitable container for recycle or disposal. 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 transfer of tellurium into water basins, water supply sources. Must never be put to drain. Collect powder tellurium into a suitable container for recycle or disposal.

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.
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	Comments
Tellurium (13494-80-9)	STEL	-	
	TWA	0.1 mg/m3	

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	
Respiratory protection	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.
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 tellurium. Use personal protective equipment when required. Select personal protective equipment according to the CEN standards; discuss protective equipment with the supplier.
Environmental exposure controls	Contain spills and prevent releases. 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 smoking. Routinely wash work clothing and protective equipment to remove contaminants. Observe any medical surveillance requirements.

9. PHYSICAL NAD CHEMICAL PROPERTIES

Appearance	Ingots/powder
Physical state	Solid
Form	Truncated cone/ powder of particles less 1 mm
Colour	Silver-gray/ dark gray or black
Odour	Odourless
Odour threshold	Not applicable
pH	Not applicable
Boiling point	900°C
Dehydration point	Not applicable
Flash point	Not available
Flammability	Not available
Vapour pressure	Not available
Apparent density	6 g/cm^3
Specific area of particles	Not available
Electrical resistivity	Not available
Solubility (water)	Insoluble in water and oils
Partition coefficient (n-octano/water	Not available
Viscosity	Not available
Vapour density	Not available
Evaporation rate	Not available
Melting point	449.8°C
Freezing point	Not available

Auto-ignition temperature	Aerosol- 340°C, aerosuspension- 550°C
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	Tellurium is stable under normal conditions of use, storage and transportation.
Materials to avoid	Acids. Alkalis. Organics.
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 irritate upper respiratory ways, eyes and skin. Inhalation of tellurium aerosol and fumes may cause bronchitis, pneumonia, pneumosclerosis, nucleic protein metabolism disorder.
Sensitization	Not sensitizing and not percutaneous
Carcinogenicity	No researches
Mutagenicity	Not stated
Reproductivity	Reproductive hazard.
Epidemiology	Based on epidemiological studies, it causes acute and chronic poisoning with affection of nervous system, blood, kidneys, gastrointestinal tract, respiratory tract. It permeates through blood-brain and placental barriers. Embriotoxic.
Local effects	May cause irritation on skin, upper respiratory tract and eye mucous membrane.
Further information	Toxic. It is classified as thiolic poison. Irritating.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Tellurium may pollute soil and water as well as atmosphere.
Ecotoxicity factors	Effects on model ecosystems: 28 days LC_{50} (for trout) 21.6 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 not bioaccumulating.
Aquatic toxicity	If tellurium presents in water basins, it changes organoleptic properties of water and sanitary regime of water basins. It forms sediments.
Mobility	Tellurium is not altered in the environment. It is highly stable within abiotic environment.

13. DISPOSAL CONSIDERATIONS

Disposal instructions	Dispose in accordance with European Waste Classification Catalogue. EWC code 06 04 05.

14. TRANSPORT INFORMATION

ADR	UN reference number is not available
IATA	Not regulated as dangerous goods.
IMDG	Not classified as dangerous.
SMGS(Agreement on International Goods	Not classified as dangerous.

Transport by Rail Road)

15. REGULATORY INFORMATION

Labeling	T; R25; S:22-24/25
Contains	High purity tellurium of grades T-U, T-sT, T-Ch (ingots), T-sM (powder)
EC Number	236-813-4
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 and phrases	T- toxic R: 25- toxic if ingested S: 22-24/25- avoid inhalation, avoid contact with skin and eyes. RTECS:WY2625000
Issue date	20-January-2010