

TELLURIUM METAL POWDER

GHS Safety Data Sheet

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

TELLURIUM METAL POWDER.

OTHER NAMES

Te, "aurum paradoxum", "metallum problematum"

PROPER SHIPPING NAME

FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S.(contains tellurium)

PRODUCT USE

Occurs as tellurides in combination with other metals in the minerals tetradytmite, altaite, coloradolite. Alloys with marked electrical resistance (tellurium-lead, stainless steel, iron castings), colouring agent in porcelains, enamels, chinaware, glass. Produces black finish in silver-ware. Secondary rubber vulcanising agent. Manufacture of iron and stainless steel castings, thermoelectric devices, catalysts and with lithium in storage batteries.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V.Ind.Estate,

248, Worli Road,

Mumbai- 400030, India

www.sdfine.com

Telephone: 91- 22 24959898/99

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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity Category 3

Flammable Solid Category 1



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria

H228

Flammable solid.

H301

Toxic if swallowed.

PRECAUTIONARY STATEMENTS

Prevention

Code

P210

Phrase

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

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Section 2 - HAZARDS IDENTIFICATION

P240	Ground/bond container and receiving equipment.
P241	Use explosion- proof electrical/ventilating/lighting/ ... /equipment
P264	Wash ... thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
Response Code	Phrase
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P330	Rinse mouth.
Storage Code	Phrase
P405	Store locked up.
Disposal Code	Phrase
P501	Dispose of contents/container to ...

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
tellurium	13494-80-9	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

- Give a slurry of activated charcoal in water to drink. NEVER GIVE AN UNCONSCIOUS PATIENT WATER TO DRINK.
- At least 3 tablespoons in a glass of water should be given.
- Although induction of vomiting may be recommended (IN CONSCIOUS PERSONS ONLY), such a first aid measure is dissuaded due to the risk of aspiration of stomach contents. (i) It is better to take the patient to a doctor who can decide on the necessity and method of emptying the stomach. (ii) Special circumstances may however exist; these include non- availability of charcoal and the ready availability of the doctor.

NOTE: If vomiting is induced, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

EYE

- If this product comes in contact with the eyes:
- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- DO NOT attempt to remove particles attached to or embedded in eye .
- Lay victim down, on stretcher if available and pad BOTH eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye.
- Seek urgent medical assistance, or transport to hospital.

SKIN

- If skin or hair contact occurs:
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

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Section 4 - FIRST AID MEASURES

NOTES TO PHYSICIAN

■ Copper, magnesium, aluminium, antimony, iron, manganese, nickel, zinc (and their compounds) in welding, brazing, galvanising or smelting operations all give rise to thermally produced particulates of smaller dimension than may be produced if the metals are divided mechanically. Where insufficient ventilation or respiratory protection is available these particulates may produce "metal fume fever" in workers from an acute or long term exposure.

- Onset occurs in 4-6 hours generally on the evening following exposure. Tolerance develops in workers but may be lost over the weekend. (Monday Morning Fever)

- Pulmonary function tests may indicate reduced lung volumes, small airway obstruction and decreased carbon monoxide diffusing capacity but these abnormalities resolve after several months.

BAL appears to be contraindicated for tellurium poisonings as when given before tellurium, in test animals, it appears to intensify the effect. Ascorbate has had only equivocal effects in acutely poisoned animals.

[GOSSELIN & HODGE: Clinical Toxicology of Commercial Products].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

■ Metal dust fires need to be smothered with sand, inert dry powders.

DO NOT USE WATER, CO2 or FOAM.

- Use DRY sand, graphite powder, dry sodium chloride based extinguishers, G-1 or Met L-X to smother fire.

- Confining or smothering material is preferable to applying water as chemical reaction may produce flammable and explosive hydrogen gas.

- DO NOT use halogenated fire extinguishing agents.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.

- Wear full body protective clothing with breathing apparatus.

- Prevent, by any means available, spillage from entering drains or water course.

- Fight fire from a safe distance, with adequate cover.

FIRE/EXPLOSION HAZARD

- DO NOT disturb burning dust. Explosion may result if dust is stirred into a cloud, by providing oxygen to a large surface of hot metal.

- DO NOT use water or foam as generation of explosive hydrogen may result. <</>.

Decomposition may produce toxic fumes of: metal oxides.

FIRE INCOMPATIBILITY

- Reacts with acids producing flammable / explosive hydrogen (H2) gas.

None known.

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources.

- DO NOT touch or walk through spilled material.

- Clean up all spills immediately.

- Avoid contact with skin and eyes.

MAJOR SPILLS

- Clear area of personnel and move upwind.

- Alert Fire Brigade and tell them location and nature of hazard.

- DO NOT touch or walk through spilled material.

- Wear full protective clothing and breathing apparatus.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

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Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of overexposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.

SUITABLE CONTAINER

- CARE: Packing of high density product in light weight metal or plastic packages may result in container collapse with product release.

- Heavy gauge metal packages / Heavy gauge metal drums.

For low viscosity materials and solids:

Drums and jerricans must be of the non-removable head type.

Where a can is to be used as an inner package, the can must have a screwed enclosure.<</>.

STORAGE INCOMPATIBILITY

- Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.
 - These trifluorides are hypergolic oxidisers. They ignite on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.
 - The state of subdivision may affect the results.
 - Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid.
- Metals exhibit varying degrees of activity. Reaction is reduced in the massive form (sheet, rod, or drop), compared with finely divided forms.
- can react exothermically with oxidising acids to form noxious gases.
 - catalyse polymerisation and other reactions, particularly when finely divided.
 - Many metals in elemental form react exothermically with compounds having active hydrogen atoms (such as acids and water) to form flammable hydrogen gas and caustic products.
 - Elemental metals may react with azo/diazo compounds to form explosive products.
 - Some elemental metals form explosive products with halogenated hydrocarbons.
 - Reacts with acids producing flammable / explosive hydrogen (H₂) gas.
- Incompatible with zinc, cadmium, sodium and potassium.

STORAGE REQUIREMENTS

■ FOR MINOR QUANTITIES:

- Store in an indoor fireproof cabinet or in a room of noncombustible construction.
- Provide adequate portable fire-extinguishers in or near the storage area.

FOR PACKAGE STORAGE:

- Store in original containers in approved flame-proof area.
- No smoking, naked lights, heat or ignition sources.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- tellurium:

CAS:13494- 80- 9

MATERIAL DATA

TELLURIUM:

- Acute oral or parenteral intoxication with tellurium and its compounds produces cyanosis, restlessness, tremor, diminished reflex, paralysis, convulsions, somnolence, hepatic damage, coma and death. Foundry workers exposed to tellurium fume for 22 months at concentrations between 0.01 to 0.1 mg/m³ showed no adverse effects in 97% of cases.

PERSONAL PROTECTION

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION



EYE

- Safety glasses with side shields
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

HANDS/FEET

■ The selection of the suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:.

- Protective gloves eg. Leather gloves or gloves with Leather facing.
- Wear physical protective gloves, e.g. leather.
- Wear safety footwear.

OTHER

- Overalls.
- Eyewash unit.
- Barrier cream.
- Skin cleansing cream.
- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

ENGINEERING CONTROLS

- For large scale or continuous use:
 - Spark-free, earthed ventilation system, venting directly to the outside and separate from usual ventilation systems
 - Provide dust collectors with explosion vents.
- Metal dusts must be collected at the source of generation as they are potentially explosive.
- Avoid ignition sources.
 - Good housekeeping practices must be maintained.
 - Dust accumulation on the floor, ledges and beams can present a risk of ignition, flame propagation and secondary explosions.
 - Do not use compressed air to remove settled materials from floors, beams or equipment.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Greyish-white, lustrous, brittle, crystalline powder.

PHYSICAL PROPERTIES

Does not mix with water.

Sinks in water.

Toxic or noxious vapours/gas.

State
Melting Range (°C)

DIVIDED SOLID
449.8

Molecular Weight
Viscosity

127.6
Not Applicable

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Boiling Range (°C)	989.9	Solubility in water (g/L)	Immiscible
Flash Point (°C)	Not Applicable	pH (1% solution)	Not applicable
Decomposition Temp (°C)	Not Applicable	pH (as supplied)	Not applicable
Autoignition Temp (°C)	Not available	Vapour Pressure (kPa)	Negligible
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	6.11- 6.27
Lower Explosive Limit (%)	Not available	Relative Vapour Density (air=1)	Not applicable
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

Health hazard summary table:

Acute toxicity	Acute Tox. (oral) 3
Skin corrosion/irritation	Not applicable
Serious eye damage/irritation	Not applicable
Respiratory or skin sensitization	Not applicable
Germ cell mutagenicity	Not applicable
Carcinogenicity	Not applicable
Reproductive toxicity	Not applicable
STOT- single exposure	Not applicable
STOT- repeated exposure	Not applicable
Aspiration hazard	Not applicable

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.

EYE

- Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterised by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result.
- Contact with the eye by metal dusts may cause mechanical abrasion or foreign body penetration of the eyeball.

SKIN

- Skin contact is not thought to produce harmful health effects (as classified under EC Directives using animal models). Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions or abrasions.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

- The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of dusts, or fumes, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.
- Inhalation of dusts, generated by the material during the course of normal handling, may produce serious damage to the health of the individual.
- Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

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Section 11 - TOXICOLOGICAL INFORMATION

If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.

■ The inhalation of small particles of metal oxide results in sudden thirst, a sweet, metallic foul taste, throat irritation, cough, dry mucous membranes, tiredness and general unwellness.

Headache, nausea and vomiting, fever or chills, restlessness, sweating, diarrhoea, excessive urination and prostration may also occur.

■ A symptom of exposure to tellurium fumes or dust is a garlic-like odour in the breath or sweat.

This may persist for days after exposure.

CHRONIC HEALTH EFFECTS

■ Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Metallic dusts generated by the industrial process give rise to a number of potential health problems. The larger particles, above 5 micron, are nose and throat irritants. Smaller particles however, may cause lung deterioration. Particles of less than 1.5 micron can be trapped in the lungs and, dependent on the nature of the particle, may give rise to further serious health consequences.

Persons exposed to tellurium for long periods of time show mild digestive upset, a characteristic garlic odour, dry mouth, a constant metallic taste and sleepiness. Present exposure standards are many times greater than the concentrations which cause garlic odour in the breath. Tellurium can cause birth defects including water on the brain.

TOXICITY AND IRRITATION

No data for this material.

Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
tellurium	HIGH	No Data Available	LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
 - Where possible retain label warnings and MSDS and observe all notices pertaining to the product.
- Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction.
- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

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Section 14 - TRANSPORTATION INFORMATION



Labels Required: FLAMMABLE SOLID, TOXIC

HAZCHEM: 1X

Land Transport UNDG:

Class or division:	4.1	Subsidiary risk:	6.1
UN No.:	3179	UN packing group:	II
Shipping Name: FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. (contains tellurium)			

Air Transport IATA:

ICAO/IATA Class:	4.1	ICAO/IATA Subrisk:	6.1
UN/ID Number:	3179	Packing Group:	II
Special provisions:	A3		

Shipping name: FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. (contains tellurium)

Maritime Transport IMDG:

IMDG Class:	4.1	IMDG Subrisk:	6.1
UN Number:	3179	Packing Group:	II
EMS Number:	F- A, S- G	Special provisions:	274 915
Limited Quantities:	1 kg		
Shipping name: FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S. (contains tellurium)			

Section 15 - REGULATORY INFORMATION

REGULATIONS

tellurium (CAS: 13494-80-9) is found on the following regulatory lists;

"FisherTransport Information", "India Chemical Accidents Rules - Schedule 1: List of Hazardous Chemicals", "India Hazardous Wastes (Management, Handling and Transboundary Movement) Rules - Schedule 2: List of Wastes Constituents with Concentration Limits", "India Manufacture, Storage and Import of Hazardous Chemical Rules - Schedule 1: List of Hazardous and Toxic Chemicals", "Sigma-AldrichTransport Information"

Section 16 - OTHER INFORMATION

■ Classification of the preparation and its individual components has drawn on official and authoritative sources using available literature references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

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Section 16 - OTHER INFORMATION

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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