

SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Identifier: (5N) 99.999% Thallium Selenide Sputtering Target

Product Code: TL-SE-05-ST

CAS Number: 15572-25-5

Relevant identified uses of the substance: Scientific research and development

Supplier details:

American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351
Emergency telephone number:
+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)

GHS06 Skull and crossbones

Acute Tox. 2 H300 Fatal if swallowed.

Acute Tox. 2 H330 Fatal if inhaled.

GHS08 Health hazard

STOT RE 2 H373 May cause damage to the central nervous system, the liver, the digestive system and the blood through prolonged or repeated exposure. Route of exposure: Oral, Inhalative.

Hazards not otherwise classified No data available

GHS label elements, including precautionary statements



Hazard pictograms

GHS06 GHS08

Signal word Danger

Hazard statements

H300+H330 Fatal if swallowed or if inhaled.

H373 May cause damage to the central nervous system, the liver, the digestive system and the blood through prolonged or repeated exposure. Route of

exposure: Oral, Inhalative.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapors/spray.

P284 [In case of inadequate ventilation] wear respiratory protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor

P320 Specific treatment is urgent (see on this label).

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

D1A - Very toxic material causing immediate and serious toxic effects

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

Health (acute effects) = 3

Flammability = 0

Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment

PBT: N/A

vPvB: N/A

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

CAS No. / Substance Name:

15572-25-5 Thallium (I) selenide

Identification number(s):

EC number: 239-627-1

Index number: 081-002-00-9

SECTION 4. FIRST AID MEASURES

Description of first aid measures

General information

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

If inhaled:

Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

In case of skin contact:

Immediately wash with soap and water; rinse thoroughly.

Seek immediate medical advice.

In case of eye contact:

Rinse opened eye for several minutes under running water. Consult a physician.

If swallowed:

Do not induce vomiting; immediately call for medical help.

Information for doctor

Most important symptoms and effects, both acute and delayed:

No data available

Indication of any immediate medical attention and special treatment needed:
No data available

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing agents Use carbon dioxide, extinguishing powder or foam. Water may be ineffective but may be used for cooling exposed containers.

Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:

Toxic metal oxide fume

Advice for firefighters

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Environmental precautions: Do not allow material to be released to the environment without official permits.

Methods and materials for containment and cleanup:

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Prevention of secondary hazards: No special measures required.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

Handling

Precautions for safe handling

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

Information about protection against explosions and fires: The product is not flammable

Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and receptacles: No special requirements.

Information about storage in one common storage facility: Store away from oxidizing agents.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well-sealed containers.

Specific end use(s) No data available

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters

Components with limit values that require monitoring at the workplace:

Selenium and selenium compounds (as Se)

mg/m³

ACGIH TLV 0.2

Austria MAK 0.1

Belgium TWA 0.2

Denmark TWA 0.1

Finland TWA 0.1; 0.3-STEL

Germany MAK 0.1

Hungary 0.1-STEL

Japan OEL 0.1

Korea TLV 0.2

Netherlands MAC-TGG 0.2

Poland TWA 0.1; 0.3-STEL

Sweden NGV 0.1

Switzerland MAK-W 0.1

United Kingdom TWA 0.1

USA PEL 0.2

Thallium and soluble thallium compounds (as Tl)

mg/m³

ACGIH TLV 0.1 (skin)

Austria MAK 0.1

Belgium TWA 0.1 (skin)

Finland TWA 0.1 (skin)

France VME 0.1

Germany MAK 0.1

Netherlands MAC-TGG 0.1 (skin)

Norway TWA 0.1

Poland TWA 0.1; 0.3-STEL

Switzerland MAK-W 0.1 (skin)

United Kingdom 0.1-LTEL (skin)

USA PEL 0.1 (skin)

15572-25-5 Thallium (I) selenide (100.0%)

PEL (USA) Long-term value: 0.2 mg/m³
as Se

REL (USA) Long-term value: 0.2 mg/m³
as Se

TLV (USA) Long-term value: 0.2 mg/m³
as Se

EL (Canada) Long-term value: 0.1 mg/m³
as Se

Additional information: No data

Exposure controls

Personal protective equipment

Follow typical protective and hygienic practices for handling chemicals.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Use self-contained respiratory protective device in emergency situations.
Protection of hands:
Impervious gloves
Inspect gloves prior to use.
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
Eye protection: Safety glasses
Body protection: Protective work clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
Appearance:
Form: Lump
Odor: No data available
Odor threshold: No data available.
pH: N/A
Melting point/Melting range: 340 °C (644 °F)
Boiling point/Boiling range: No data available
Sublimation temperature / start: No data available
Flash point: N/A
Flammability (solid, gas) No data available.
Ignition temperature: No data available
Decomposition temperature: No data available
Autoignition: No data available.
Danger of explosion: Product does not present an explosion hazard.
Explosion limits:
Lower: No data available
Upper: No data available
Vapor pressure: N/A

Density at 20 °C (68 °F): 9.05 g/cm³ (75.522 lbs/gal)
Relative density No data available.
Vapor density N/A
Evaporation rate N/A
Solubility in / Miscibility with
Water: Insoluble
Partition coefficient (n-octanol/water): No data available.
Viscosity:
Dynamic: N/A
Kinematic: N/A
Other information No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity No data available
Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored

according to specifications.
Possibility of hazardous reactions No dangerous reactions known
Conditions to avoid No data available
Incompatible materials: Oxidizing agents
Hazardous decomposition products: Toxic metal oxide fume

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity:

Fatal if inhaled.

Fatal if swallowed.

LD/LC50 values that are relevant for classification: No data

Skin irritation or corrosion: Irritant to skin and mucous membranes.

Eye irritation or corrosion: Irritating effect.

Sensitization: No sensitizing effects known

Germ cell mutagenicity: No effects known.

Carcinogenicity:

EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.

IARC-3: Not classifiable as to carcinogenicity to humans.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure:

May cause damage to the central nervous system, the liver, the digestive system and the blood through prolonged or repeated exposure. Route of exposure: Oral, Inhalative.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: No effects known.

Subacute to chronic toxicity:

The main symptoms of thallium poisoning are peripheral neuropathy and loss of hair. Acute poisoning causes paresthesias, ataxia, alopecia, fever, coryza, abdominal pain, nausea and vomiting. May progress to lethargy, speech disorders, tremors, convulsions, cyanosis, pulmonary edema, bronchopneumonia and death. Kidney, liver and brain damage may occur. During the first trimester of pregnancy, thallium poisoning can cause skeletal deformities, alopecia, low birth weight and premature birth. Chronic exposure may produce alopecia, salivation, a blue line on the gums and disturbances of the gastrointestinal, endocrine system and kidneys.

Selenium may cause amyotrophic lateral sclerosis, bronchial irritation, gastrointestinal distress, vasopharyngeal irritation, garlic odor on breath and sweat, metallic taste, pallor, irritability, excessive fatigue, loss of fingernails and hair, pulmonary edema, anemia and weight loss.

Subacute to chronic toxicity: No effects known.

Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity: No data available

Persistence and degradability No data available

Bioaccumulative potential No data available
Mobility in soil No data available
Ecotoxicological effects:
Remark: Toxic for aquatic organisms
Additional ecological information:
Do not allow material to be released to the environment without official permits.
Toxic for aquatic organisms
Do not allow product to reach groundwater, water courses, or sewage systems, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Toxic to aquatic life.
May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.
Results of PBT and vPvB assessment
PBT: N/A
vPvB: N/A
Other adverse effects No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Recommendation Consult official regulations to ensure proper disposal.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

UN-Number
DOT, IMDG, IATA UN1707
UN proper shipping name
DOT Thallium compounds, n.o.s. (Thallium (I) selenide)
IMDG, IATA THALLIUM COMPOUND, N.O.S. (Thallium (I) selenide)
Transport hazard class(es)
DOT
Class 6.1 Toxic substances.
Label 6.1
Class 6.1 (T5) Toxic substances
Label 6.1
IMDG, IATA
Class 6.1 Toxic substances.
Label 6.1
Packing group
DOT, IMDG, IATA II
Environmental hazards: Environmentally hazardous substance, solid
Special precautions for user Warning: Toxic substances
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code N/A
Transport/Additional information:
DOT
Marine Pollutant (DOT): No
UN "Model Regulation": UN1707, Thallium compounds, n.o.s. (Thallium (I) selenide), 6.1, II

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
GHS label elements, including precautionary statements

Hazard pictograms

GHS06 GHS08

Signal word Danger

Hazard statements

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Precautionary statements

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P320 Specific treatment is urgent (see on this label).

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National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

SARA Section 313 (specific toxic chemical listings)

15572-25-5 Thallium (I) selenide

California Proposition 65

Prop 65 - Chemicals known to cause cancer Substance is not listed.

Prop 65 - Developmental toxicity Substance is not listed.

Prop 65 - Developmental toxicity, female Substance is not listed.

Prop 65 - Developmental toxicity, male Substance is not listed.

Information about limitation of use:

For use only by technically qualified individuals.

This product contains selenium and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

Other regulations, limitations and prohibitive regulations

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the

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