SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Identifier: (3N) 99.9% Tin Phosphide Sputtering Target

Product Code: SN-P-03-ST

CAS Number: 25324-56-5

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

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
GHS07



Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H332 Harmful if inhaled.
Classification according to Directive 67/548/EEC or Directive 1999/45/EC
Xn; Harmful
R20/22: Harmful by inhalation and if swallowed.
R32: Contact with acids liberates very toxic gas.
Information concerning particular hazards for human and environment: Not applicable
Other hazards that do not result in classification No information known.
2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labelled according to the CLP regulation.
Hazard pictograms
GHS07
Signal word Warning

Hazard statements
H302 Harmful if swallowed.
H332 Harmful if inhaled.
Precautionary statements
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash thoroughly after handling.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/…/if you feel unwell.
P312 Call a POISON CENTER/doctor/…/if you feel unwell.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
Additional information:
EUH032 Contact with acids liberates very toxic gas.
2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
CAS# Designation:
25324-56-5 Tin phosphide
Identification number(s):
EC number: 246-848-7

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures
After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
Seek immediate medical advice.
After skin contact
Instantly wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
After eye contact Rinse opened eye for several minutes under running water. Then consult doctor.
After swallowing Seek medical treatment.
4.2 Most important symptoms and effects, both acute and delayed No further relevant information available.
4.3 Indication of any immediate medical attention and special treatment needed No further relevant information available.

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing agents CO2, sand, extinguishing powder. Do not use water.
5.2 Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:
Metal oxide

Hydrogen phosphide
Phosphorus oxides
5.3 Advice for firefighters
Protective equipment:
Wear self-contained breathing apparatus.
Wear full protective suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

7.1 Precautions for safe handling
Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.
Information about protection against explosions and fires: May react with water or acids to produce phosphine gas which is toxic and flammable.
7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers: No special requirements.
Information about storage in one common storage facility: Do not store together with acids.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
7.3 Specific end use(s) No further relevant information available.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.
Information about protection against explosions and fires: May react with water or acids to produce phosphine gas which is toxic and flammable.
7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers: No special requirements.
Information about storage in one common storage facility: Do not store together with acids.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
7.3 Specific end use(s) No further relevant information 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.
8.1 Control parameters
Components with critical values that require monitoring at the workplace:
Tin metal, oxide and inorganic compounds, except tin hydride, as Sn
mg/m3

ACGIH TLV 2
Austria MAK 2
Belgium TWA 2
Denmark TWA 2
Finland TWA 2
Germany MAK 2
Hungary TWA 1; 2-STEL (skin)
Korea TLV 2
Netherlands MAC-TGG 2
Norway TWA 1
Poland TWA 2
Switzerland MAK-W 2; 4-KZG-W
United Kingdom TWA 2; 4-STEL
USA PEL 2
Additional information: No data
8.2 Exposure controls
Personal protective equipment
General protective and hygienic measures
The usual precautionary measures should be adhered to in handling the chemicals.
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Use breathing protection with high concentrations.
Protection of hands:
Check protective gloves prior to each use for their proper condition.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Material of gloves Impervious gloves
Eye protection: Safety glasses
Body protection: Protective work clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
General Information
Appearance:
Form: Powder
Colour: White
Smell: Not determined
Odour threshold: Not determined.
pH-value: Not applicable.
Change in condition
Melting point/Melting range: Not determined
Boiling point/Boiling range: Not determined
Sublimation temperature / start: Not determined
Flash point: Not applicable
Inflammability (solid, gaseous) May react with water or acids to produce phosphine gas which is toxic and flammable.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Self-inflammability: Not determined.
Danger of explosion: Product is not explosive.

Critical values for explosion:
Lower: Not determined
Upper: Not determined
Steam pressure: Not applicable.
Density Not determined
Relative density Not determined.
Vapour density Not applicable.
Evaporation rate Not applicable.
Solubility in / Miscibility with
Water: Decomposes
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
dynamic: Not applicable.
kinematic: Not applicable.
9.2 Other information No further relevant information available.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity Contact with acids liberates very toxic gas.
10.2 Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.
10.3 Possibility of hazardous reactions
May react with water or acids to produce phosphine gas which is toxic and flammable.
Contact with acids liberates very toxic gas.
10.4 Conditions to avoid No further relevant information available.
10.5 Incompatible materials: Acids
10.6 Hazardous decomposition products:
Metal oxide
Hydrogen phosphide
Phosphorus oxides (e.g. P2O5)

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity:
Harmful if inhaled.
Harmful if swallowed.
LD/LC50 values that are relevant for classification: No data
Skin irritation or corrosion: Irritant for skin and mucous membranes.
Eye irritation or corrosion: Irritant effect.
Sensitization: No sensitizing effect known.
Germ cell mutagenicity: No effects known.
Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
Reproductive toxicity: No effects known.
Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure: No effects known.
Aspiration hazard: No effects known.
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

12.1 Toxicity
Aquatic toxicity: No further relevant information available.
12.2 Persistence and degradability No further relevant information available.
12.3 Bioaccumulative potential No further relevant information available.
12.4 Mobility in soil No further relevant information available.
Additional ecological information:
General notes:
Do not allow material to be released to the environment without proper governmental permits.
Water hazard class 1 (Self-assessment): slightly hazardous for water.
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.
Avoid transfer into the environment.
12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
12.6 Other adverse effects No further relevant information available.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Recommendation
Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.
Consult state, local or national regulations for proper disposal.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

UN-Number
ADR, IMDG, IATA UN3288
14.2 UN proper shipping name
ADR 3288 TOXIC SOLID, INORGANIC, N.O.S. (Tin phosphide)
IMDG, IATA TOXIC SOLID, INORGANIC, N.O.S. (Tin phosphide)
14.3 Transport hazard class(es)
ADR
Class 6.1 (T5) Toxic substances.
Label 6.1
IMDG, IATA
Class 6.1 Toxic substances.
Label 6.1
Packing group
ADR, IMDG, IATA II
14.5 Environmental hazards: Not applicable.
14.6 Special precautions for user Warning: Toxic substances.
Kemler Number: 60

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.
Transport/Additional information:
ADR
Excepted quantities (EQ): E4
Limited quantities (LQ) 500 g
Transport category 2
Tunnel restriction code D/E
UN "Model Regulation": UN3288, TOXIC SOLID, INORGANIC, N.O.S. (Tin phosphide), 6.1, II

SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Australian Inventory of Chemical Substances Substance is not listed.
Standard for the Uniform Scheduling of Drugs and Poisons Substance is not listed.
National regulations
Information about limitation of use:
Employment restrictions concerning young persons must be observed.
For use only by technically qualified individuals.
Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
Other regulations, limitations and prohibitive regulations
ELINCS (European List of Notified Chemical Substances) Substance is not listed.
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.
15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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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 properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.