SECTION 1. IDENTIFICATION

Product Identifier: (5N) 99.999% Cadmium Antimonide Sputtering Target

Product Code: CD-SB-05-ST

CAS Number: 12050-27-0

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
Classification according to Regulation (EC) No 1272/2008
GHS07
Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H312 Harmful in contact with skin.
Acute Tox. 4 H332 Harmful if inhaled.
Classification according to Directive 67/548/EEC or Directive 1999/45/EC
Xn; Harmful
R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.
N; Dangerous for the environment
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Information concerning particular hazards for human and environment:
N/A
Hazards not otherwise classified
No data available

Label elements
Labelling according to Regulation (EC) No 1272/2008
The substance is classified and labeled according to the CLP regulation.

Hazard pictograms
**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substances  
CAS No. / Substance Name:  
12050-27-0 Cadmium antimonide  
Identification number(s):  
Index number: 048-001-00-5

**SECTION 4. FIRST AID MEASURES**

Description of first aid measures  
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:
Seek medical treatment.
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
Product is not flammable. Use fire-fighting measures that suit the surrounding fire.
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.
Do not allow product to enter drains, sewage systems, or other water courses.
Do not allow material to penetrate the ground or soil.
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.
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:
Antimony and antimony compounds

<table>
<thead>
<tr>
<th>Component</th>
<th>mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH TLV</td>
<td>0.5</td>
</tr>
<tr>
<td>Austria MAK</td>
<td>0.5</td>
</tr>
<tr>
<td>Belgium TWA</td>
<td>0.5</td>
</tr>
<tr>
<td>Denmark TWA</td>
<td>0.5</td>
</tr>
<tr>
<td>Finland TWA</td>
<td>0.5</td>
</tr>
<tr>
<td>France VME</td>
<td>0.5</td>
</tr>
<tr>
<td>Germany MAK (total dust)</td>
<td>0.5</td>
</tr>
<tr>
<td>Hungary TWA 0.5-STEL</td>
<td>0.5</td>
</tr>
<tr>
<td>Japan OEL 0.1; 2B Carcinogen</td>
<td>0.5</td>
</tr>
<tr>
<td>Korea TLV 0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Ireland TWA</td>
<td>0.5</td>
</tr>
<tr>
<td>Netherlands MAC-TGG</td>
<td>0.5</td>
</tr>
<tr>
<td>Norway TWA 0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Poland TWA 0.5; 1.5-STEL</td>
<td>0.5</td>
</tr>
<tr>
<td>Russia TWA 0.2; 0.5-STEL</td>
<td>0.5</td>
</tr>
<tr>
<td>Sweden NGV 0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Switzerland MAK-W 0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>United Nations TWA</td>
<td>0.5</td>
</tr>
<tr>
<td>USA PEL 0.5</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Cadmium and compounds, as Cd

<table>
<thead>
<tr>
<th>Component</th>
<th>mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH TLV 0.002(Cd); Suspected human carcinogen</td>
<td>0.002(Cd)</td>
</tr>
<tr>
<td>Austria Carcinogen</td>
<td>0.05</td>
</tr>
<tr>
<td>Belgium TWA 0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>Denmark TWA 0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Finland TWA 0.02; Carcinogen</td>
<td>0.02</td>
</tr>
<tr>
<td>France VME 0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>Germany Carcinogen</td>
<td>0.05</td>
</tr>
<tr>
<td>Ireland TWA 0.025; carcinogen</td>
<td>0.025</td>
</tr>
<tr>
<td>Japan OEL 0.05; Group 1 Carcinogen</td>
<td>0.05</td>
</tr>
<tr>
<td>Korea TLV 0.01; Suspected human carcinogen</td>
<td>0.01</td>
</tr>
</tbody>
</table>
Netherlands MAC-TGG 0.02; 0.1-MAC-K
Norway TWA 0.05
Poland TWA 0.02; 0.05-STE( fume)
0.04; 0.2-STE( dust)
Russia 0.01; 0.05-STE
Sweden NGV 0.05 (total dust)
TWA 0.01 (resp. dust)
Switzerland MAK-W 0.05; Carcinogen
United Kingdom TWA 0.025(Cd)
USA PEL (respirable) 0.2(Cd)
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.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.
Breathing equipment:
Use suitable respirator when high concentrations are present.
Refer to 29CFR1910.1027 for regulations on respiratory protection required during exposure to
 cadmium and cadmium compounds.
Protection of hands: Impervious gloves
Inspect gloves prior to use.
Suitability of gloves should be determined both by material and quality, the latter of which may vary by
manufacturer.
Penetration time of glove material (in minutes): No data available
Eye protection: Safety glasses
Body protection: Protective work clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
Appearance:
Form: Powder or solid in various forms
Color: Black
Odor: No data available
Odor threshold: No data available.
pH: N/A
Melting point/Melting range: No data available
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): 6.92 g/cm³ (57.747 lbs/gal)
Relative density: No data available.
Vapor density: N/A
Evaporation rate: N/A
Solubility in Water (H₂O): No data available
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:
Harmful if inhaled.
Harmful in contact with skin.
Harmful if swallowed.
Danger through skin absorption.
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:
IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity.
EPA-B1: Probable human carcinogen, limited evidence of carcinogenicity from epidemiologic studies.
ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans.
NTP-K: Known to be carcinogenic: sufficient evidence from human studies.
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:
Antimony compounds may cause metallic taste, gastrointestinal disturbances, vomiting, diarrhea, dizziness and systemic poisoning. Chronic exposure may cause liver and kidney damage. Dermatitis and eczematous skin eruptions may result from skin contact.
Cadmium compounds are highly toxic and experimental carcinogens. Exposure affects the respiratory tract, kidneys, and liver. Ingestion may cause nausea, salivation, vomiting and diarrhea. Ingestion or inhalation of cadmium compounds may be fatal.
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:
Very toxic for aquatic organisms
Additional ecological information:
Do not allow material to be released to the environment without official permits.
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.
May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.
Very toxic for aquatic organisms
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
UN2570
UN proper shipping name
DOT
Cadmium compounds (Cadmium antimonide)
IMDG, IATA
CADMIUM COMPOUND (Cadmium antimonide)
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
III
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":
UN2570, Cadmium compounds (Cadmium antimonide), 6.1, III

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
National regulations
This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act
Chemical Substance Inventory. Use of this product is restricted to research and development only.
This product must be used by or directly under the supervision of a technically qualified individual as
defined by TSCA. This product must not be used for commercial purposes or in formulations for
commercial purposes.
This product contains a chemical known to the state of California to cause cancer and/or reproductive
SARA Section 313 (specific toxic chemical listings)
12050-27-0 Cadmium antimonide
California Proposition 65
Prop 65 - Chemicals known to cause cancer
12050-27-0 Cadmium antimonide
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 antimony and is subject to the reporting requirements of section 313 of the
This product contains cadmium and is subject to the reporting requirements of section 313 of the
Other regulations, limitations and prohibitive regulations
Refer to 29CFR1910.1027 for regulations concerning cadmium and cadmium compounds.
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.
REACH - Pre-registered substances
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
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 1997-2019 AMERICAN ELEMENTS. LICENSED
GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.