SECTION 1. IDENTIFICATION

Product Identifier: (5N) 99.999% Zinc Phosphide Sputtering Target

Product Code: ZN-P-05-ST

CAS Number: 1314-84-7

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
GHS02 Flame
Water-react. 1 H260 In contact with water releases flammable gases which may ignite spontaneously.
GHS06 Skull and crossbones
Acute Tox. 2 H300 Fatal if swallowed.
Classification according to Directive 67/548/EEC or Directive 1999/45/EC
T+; Very toxic
R28: Very toxic if swallowed.
N; Dangerous for the environment
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R15/29-32: Contact with water liberates toxic, extremely flammable gas. Contact with acids liberates very toxic gas.
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

GHS02
GHS06
Signal word
Danger

Hazard statements
H260 In contact with water releases flammable gases which may ignite spontaneously.
H300 Fatal if swallowed.

Precautionary statements
P231+P232 Handle under inert gas. Protect from moisture.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P233 Keep container tightly closed.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification
B6 - Reactive flammable material
D1A - Very toxic material causing immediate and serious toxic effects
F - Dangerously reactive material

Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)
HEALTH
FIRE
REACTIVITY
3
0
3
Health (acute effects) = 3
Flammability = 0
Physical Hazard = 3
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:
1314-84-7 Zinc phosphide
Identification number(s):
EC number:
215-244-5
Index number:
015-006-00-9
SECTION 4. FIRST AID MEASURES

Description of first aid measures
General information
Immediately remove any clothing soiled by the product.
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
CO2, sand, extinguishing powder. Do not use water.
For safety reasons unsuitable extinguishing agents
Water
Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:
Metal oxide fume
Phosphorus oxides
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
Mount respiratory protective device.
Use personal protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep away from ignition sources
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:
Keep away from ignition sources.
Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
Prevention of secondary hazards:
Keep away from ignition sources.
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
Handle under dry protective gas.
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.
Do not store together with acids.
Store away from water/moisture.
Further information about storage conditions:
Store under dry inert gas.
This product is moisture sensitive.
Keep container tightly sealed.
Store in cool, dry conditions in well-sealed containers.
Protect from humidity and water.
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:
Not required.
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. 
Maintain an ergonomically appropriate working environment. 
Breathing equipment: 
Use suitable respirator when high concentrations are present. 
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 
Full face protection 
Body protection: 
Protective work clothing. 

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties 
Appearance: 
Form: Powder or solid 
Color: Dark grey 
Odor: Characteristic 
Odor threshold: No data available. 
P Ha: N/A 
Melting point/Melting range: 420 °C (788 °F) 
Boiling point/Boiling range: 1100 °C (2012 °F) 
Sublimation temperature / start: No data available 
Flammability (solid, gas) 
Contact with water liberates extremely flammable gases. 
Ignition temperature: No data available 
Decomposition temperature: No data available 
Autoignition: No data available. 
Danger of explosion: No data available. 
Explosion limits: 
Lower: No data available 
Upper: No data available 
Vapor pressure: N/A 
Density at 20 °C (68 °F): 4.55 g/cm³ (37.97 lbs/gal) 
Relative density 
No data available. 
Vapor density 
N/A 
Evaporation rate 
N/A 
Solubility in Water (H₂O): Contact with water releases flammable gases 
Partition coefficient (n-octanol/water): No data available. 
Viscosity: 
Dynamic: N/A 
Kinematic: N/A 
Other information
**SECTION 10. STABILITY AND REACTIVITY**

**Reactivity**
In contact with water releases flammable gases which may ignite spontaneously.
Contact with acids liberates very toxic gas.

**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**
Contact with water releases flammable gases
Contact with water releases toxic gases
Contact with acids releases toxic gases
Contact with acids liberates very toxic gas.

**Conditions to avoid**
No data available

**Incompatible materials:**
Acids
Water/moisture

**Hazardous decomposition products:**
Metal oxide fume
Phosphorus oxides (e.g. P2O5)

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**SECTION 11. TOXICOLOGICAL INFORMATION**

Information on toxicological effects

**Acute toxicity:**
Fatal if swallowed.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

**LD/LC50 values that are relevant for classification:**
Oral LD50 12 mg/kg (rat)

**Skin irritation or corrosion:**
May cause irritation

**Eye irritation or corrosion:**
May cause irritation

**Sensitization:**
No sensitizing effects 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:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.
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
UN1714

UN proper shipping name
DOT
Zinc phosphide
IMDG, IATA
ZINC PHOSPHIDE

Transport hazard class(es)
DOT
Class
4.3 Substances which, in contact with water, emit flammable gases.
Label
4.3+6.1
Class
4.3 (WT2) Substances which, in contact with water, emit flammable gases
Label
4.3+6.1
IMDG, IATA
Class
4.3 Substances which, in contact with water, emit flammable gases.
Label
4.3+6.1
Packing group
DOT, IMDG, IATA
I

Environmental hazards: Environmentally hazardous substance, solid
Special precautions for user
Warning: Substances which, in contact with water, emit flammable gases
EMS Number: F-G,S-N
Segregation groups
Heavy metals and their salts (including their organometallic compounds)

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":
UN1714, Zinc phosphide, 4.3 (6.1), I

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic
Substances Control Act Chemical substance Inventory.
All components of this product are listed on the Canadian Non-Domestic Substances List (NDSL).
SARA Section 313 (specific toxic chemical listings)
1314-84-7 Zinc phosphide
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 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.
REACH - Pre-registered substances
Substance is 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.