SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Identifier: (5N) 99.999% Zinc Germanium Phosphide Granule

Product Code: ZN-GEP-05-GR

CAS Number: N/A

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

CLP Classification - Regulation (EC) No 1272/2008
Physical hazards:
Substances/mixtures which, in contact with water, emit flammable gases Category 1 (H260)
Health hazards:
Acute oral toxicity Category 2 (H300)
Environmental hazards:
Acute aquatic toxicity Category 1 (H400)
Chronic aquatic toxicity Category 1 (H410)



Signal Word: Danger
Hazard Statements:
H260 - In contact with water releases flammable gases which may ignite spontaneously
H300 - Fatal if swallowed
H410 - Very toxic to aquatic life with long lasting effects
EUH029 - Contact with water liberates toxic gas
EUH032 - Contact with acids liberates very toxic gas
Precautionary Statements:
P231 + P232 - Handle under inert gas. Protect from moisture

P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P335 + P334 - Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages
P264 - Wash face, hands and any exposed skin thoroughly after handling
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician
P330 - Rinse mouth
Other hazards:
No information available

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS-No / Component:
1314-84-7 / Zinc Phosphide
Germanium Phosphide

SECTION 4. FIRST AID MEASURES

General Advice:
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Eye Contact:
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Skin Contact:
Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Ingestion:
Do not induce vomiting. Call a physician or Poison Control Center immediately.
Inhalation:
Move to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
Self-Protection of the First Aider:
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
Most important symptoms and effects, both acute and delayed:
None reasonably foreseeable
Indication of any immediate medical attention and special treatment needed:
Notes to Physician Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media
Suitable Extinguishing Media:
Carbon dioxide (CO2). Dry chemical. Dry sand.
Extinguishing media which must not be used for safety reasons:
Water. Contact with water liberates toxic gas.
Special hazards arising from the substance or mixture:
Contact with water liberates toxic gas. Do not allow run-off from fire fighting to enter drains or water courses
Hazardous Combustion Products:
Phosphine, oxides of phosphorus, Zinc oxide.

Advice for firefighters:
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.
Environmental precautions:
Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.
Methods and material for containment and cleaning up:
Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Do not expose spill to water.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:
Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe vapors/dust. Do not ingest. Do not allow contact with water.
Hygiene Measures:
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.
Conditions for safe storage, including any incompatibilities:
Keep away from water.
Specific end use(s):
Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure limits
List source(s):
Biological limit values:
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies
Monitoring methods:
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust
Derived No Effect Level (DNEL):
No information available
Route of exposure:
Oral
Dermal

Inhalation
Predicted No Effect Concentration (PNEC):
No information available
Exposure controls:
Engineering Measures:
Ensure adequate ventilation, especially in confined areas. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source
Personal protective equipment
Eye Protection:
Safety glasses with side-shields (European standard - EN 166)
Hand Protection:
Protective gloves
Glove material: Natural rubber, Nitrile rubber, Neoprene, PVC
Breakthrough time: See manufacturer's reccomendations
Glove thickness:
EU standard: EN 374
Glove comments: (minimum requirement)
Skin and body protection:
Long sleeved clothing
Respiratory Protection:
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
Large scale/emergency use:
Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Particulates filter conforming to EN 143
Small scale/Laboratory use:
Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Particle filtering: EN149:2001
When RPE is used a face piece Fit Test should be conducted
Environmental exposure controls:
Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder
Odor: Characteristic
Odor Threshold: No data available
pH: No information available
Melting Point/Range: No data available
Softening Point: No data available
Boiling Point/Range: No data available
Flash Point: No information available
Evaporation Rate: Not applicable
Flammability (solid,gas): No information available
Explosion Limits: No data available
Vapor Pressure: No data available
Vapor Density: Not applicable

Specific Gravity / Density: No data available
Bulk Density: No data available
Water Solubility: No information available
Solubility in other solvents: No information available
Partition Coefficient (n-octanol/water)
Autoignition Temperature: No data available
Decomposition Temperature: No data available
Viscosity: Not applicable
Explosive Properties: No information available
Oxidizing Properties: No information available
Other information:
Molecular Formula: ZnGeP2

SECTION 10. STABILITY AND REACTIVITY

Reactivity:
Yes Contact with acids liberates very toxic gas
Chemical stability:
Stable under normal conditions
Possibility of hazardous reactions:
Hazardous Polymerization: No information available.
Hazardous Reactions: None under normal processing.
Conditions to avoid:
Exposure to moist air or water. Exposure to moisture.
Incompatible materials:
None known.
Hazardous decomposition products:
Phosphine. oxides of phosphorus. Zinc oxide

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Product Information:
(a) acute toxicity;
Oral Category 2
Dermal Based on available data, the classification criteria are not met
Inhalation Based on available data, the classification criteria are not met
Component: Zinc phosphide
LD50 Oral: LD50 = 12 mg/kg (Rat); LD50 = 42.6 mg/kg (Rat)
LD50 Dermal: LD50 = 2 g/kg (Rabbit); LD50 = 1123 mg/kg (Rat)
(b) skin corrosion/irritation; No data available
(c) serious eye damage/irritation; No data available
(d) respiratory or skin sensitization;
Respiratory No data available
Skin No data available
(e) germ cell mutagenicity; No data available
(f) carcinogenicity; No data available
There are no known carcinogenic chemicals in this product
(g) reproductive toxicity; No data available
(h) STOT-single exposure; No data available
(i) STOT-repeated exposure; No data available

Target Organs None known.
(j) aspiration hazard; Not applicable

SECTION 12. ECOLOGICAL INFORMATION

Toxicity
Ecotoxicity effects:
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.
Persistence and degradability:
No information available
Degradability:
Not relevant for inorganic substances.
Degradation in sewage treatment plant:
Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.
Bioaccumulative potential:
No information available
Mobility in soil:
No information available
Results of PBT and vPvB assessment:
No data available for assessment.
Other adverse effects:
Endocrine Disruptor Information:
This product does not contain any known or suspected endocrine disruptors
Persistent Organic Pollutant:
This product does not contain any known or suspected substance
Ozone Depletion Potential:
This product does not contain any known or suspected substance

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SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Waste from Residues / Unused Products:
Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging:
Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.
European Waste Catalogue (EWC):
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Other Information:
Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be incinerated, when in compliance with local regulations. Do not let this chemical enter the environment. Do not empty into drains.

SECTION 14. TRANSPORT INFORMATION

IMDG/IMO
UN number UN1714
UN proper shipping name ZINC PHOSPHIDE
Transport hazard class(es) 4.3
Subsidiary Hazard Class 6.1
Packing group I
ADR
UN number UN1714
UN proper shipping name ZINC PHOSPHIDE
Transport hazard class(es) 4.3
Subsidiary Hazard Class 6.1
Packing group I
IATA
UN number UN1714
UN proper shipping name ZINC PHOSPHIDE
Transport hazard class(es) 4.3
Subsidiary Hazard Class 6.1
Packing group I
Environmental hazards:
Dangerous for the environment
Product is a marine pollutant according to the criteria set by IMDG/IMO
Special precautions for user:
No special precautions required
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:
Not applicable, packaged goods

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:
Component: Zinc phosphide
EINECS: 215-244-5
ELINCS: -
NLP
TSCA: X
DSL: -
NDSL: X
PICCS: X
ENCS: X
IECSC: X
AICS: X
KECL: X
WGK Classification Water endangering class = 3 (self classification)
Component: Zinc phosphide
Germany - Water Classification (VwVwS): WGK 3
Germany - TA-Luft Class

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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.