Safety Data Sheet

1 Identification of the substance and the company

Description:
Product name: Zinc Selenide (Te) crystal
Trade names/synonyms: ZSX scintillation metamaterial
REACH Reg.-No.: exempted from registration in accordance with REACH.
Application:
Inorganic Scintillation Detector Crystal.
Company identifier:

Hilger Crystals
Unit R1 Westwood Estate Margate Kent CT9 4JL UK
Tel.: +44 (0) 1843 231166 email Sales@hilger-crystals.co.uk
Web: www.hilger-crystals.co.uk

Emergency information:
Contact as above (Mon-Thurs 8.00 – 17.00, Fri 8.00- 12:00)
In the event of a medical enquiry please contact your local doctor or hospital A&E department.

2 Hazards Identification

Classification of the substance:
Class 6.1 Poison. Toxic by ingestion and inhalation with a danger of cumulative effects. Liberates highly toxic hydrogen selenide in contact with gastric juices. Dermatitis may result from prolonged contact. Care must be exercised when machining and creating dust or particles. Symptoms include garlic odour on breath. Dangerous for the environment.
Label elements:
Signal Word: Danger
H301 Toxic if swallowed
H331 Toxic if inhaled
H410 Very toxic to aquatic life with long lasting effects
Precautionary Statements:
P262 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink, or smoke when handling this product
P273 Avoid release to the environment.
P301+P310 IF SWALLOWED: Immediately call a poison centre or doctor. Rinse mouth.
P304+P312 IF INHALED: Call a poison centre or doctor/physician if you feel unwell.

Other hazards:
None

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3 Composition/Information on Ingredients

Substances

Component Name	CAS number	%	EC number	EU index	UN number
Zinc Selenide	1315-09-9	100%	215-259-7	034-002-00-8	3283

4 First-aid measures

Description of first-aid measures:

GENERAL: Consult a doctor for specific advice.
EYES: Irrigate thoroughly with water for at least 15 minutes. Obtain medical attention.
SKIN: Wash thoroughly with soap and water. Dry area with clean towel. Remove contaminated clothing and wash clothing before re-use.
INHALATION: Remove to fresh air. Perform artificial respiration if breathing has stopped. When breathing is difficult, properly trained personnel may administer oxygen. Keep affected person warm and at rest. Obtain medical attention.
INGESTION: Do not induce vomiting. Wash out mouth thoroughly with water and give two cups of water to drink. Do not give carbonated drinks. Never give anything by mouth to an unconscious person. Obtain medical attention immediately.

Most important symptoms and effects, both acute and delayed: Refer to Section 2 and Section 11.
Indication of any immediate medical attention and special treatment required:
No Data.

5 Firefighting measures

Extinguishing media:

This product does not burn.

Special hazards arising from the substance:

Material may evolve toxic fumes in a fire, with decomposition at temperatures greater than 400°C in air and greater than 800°C in an inert atmosphere. The material sublimes into Zinc & Selenium fumes.

Advice for firefighters:

Use breathing apparatus if necessary.

6 Accidental release measures

Emergency procedures, personal precautions and protective equipment:

Wear suitable protective clothing & equipment as listed under Section 8. Avoid making dust.

Environmental precautions:

Prevent further leakage or spillage. Do not let product enter drains. Do not discharge to the environment.

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Methods and materials for the containment and cleaning up:
Take up and containerise for proper disposal. Containerise any cleaning materials used for proper disposal.

7 Handling & storage

Precautions for safe handling:
Use with adequate ventilation. Keep away from heat. Avoid contact with skin and eyes. Protect against physical damage. Avoid generating dust.
Conditions for safe storage including any incompatibilities:
Keep away from foodstuffs. Keep away from acids strong bases.
Specific application:
Scintillation crystal material for radiation detection components.

8 Exposure controls/personal protection

Control parameters:
Occupational Exposure Limits (OEL) = 0.1 mg/m^3 as Se in 8-hour Time Weighted Average (TWA)
Exposure controls:
Protective PVA gloves and an N95 mask are required, and the use of a laboratory coat is suggested. Safety goggles or safety glasses with side shields are required if there is any possibility of chipping or dust creation. Respirators must be worn when the threshold limit is exceeded. Provide adequate general mechanical ventilation, and local exhaust ventilation. Wash hands immediately after handling the product.

9 Physical & chemical properties

Information on basic physical and chemical properties
Appearance: Reddish-yellow, no odour
Flash point: Not applicable
Boiling point: (760mm Hg) Not Applicable
Flammability: Not Applicable
Melting point: 1525 °C
Explosive properties: Not Applicable
Specific gravity: 5.27g/mL
Vapour pressure: Negligible at 25 °C
Solubility in water: Practically insoluble
pH in aqueous solution: Not determined

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Other safety information: * Oxidises at 300°C, exhibits plastic deformation at 500°C and dissociates at about 700°C

10 Stability & reactivity

Reactivity: Reacts with strong mineral acids and strong oxidising materials
Chemical stability: Stable under normal conditions of storage and use.
Possibility of hazardous reactions: None known
Conditions to avoid: Can react with oxidising agents. Avoid strong acids.
Incompatible materials: Strong Mineral Acids. Strong oxidising materials.
Hazardous decomposition products: Decomposition product is Hydrogen Selenide gas.

11 Toxicological information

Information on toxicological effects:
Toxic by ingestion and inhalation of dust, with a cumulative effect. Affects nervous system. Particular care must be exercised when machining and creating dust or particles. Inhalation of dust may irritate respiratory system.
Toxic dose
LD50 > 5 g/kg

Carcinogenicity:
No evidence of carcinogenic properties.

Mutagenicity/teratogenicity:
Some evidence of reproductive effects.

12 Ecological information

Toxicity: Danger to drinking water. Poisonous to Fish.
Persistence and degradability: No Data
Bioaccumaltive potential: No Data
Mobility in soil: No Data
Results of PBT and vPvB assessment: Not required or conducted
Other adverse effects: Do not allow product to reach ground water, water course or sewage system. Only release to environment with proper government permit.

13 Disposal considerations

Waste treatment methods:
Chemical residues are generally classified as special waste and are covered by regulations which vary according to location. Contact your local waste disposal authority for advice or pass to a chemical disposal company.

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14 Transport information

UN Number: 3283
UN Proper shipping name: Selenium compound, solid N.O.S (Zinc Selenide)
Transport hazard class: 6.1
Packing group: III
Environmental hazards: Marine pollutant
Special user precautions: None
Transport in bulk Marpol / IBC: No Data

15 Regulatory information

Safety, health and environmental regulations/legislation for the substance: TSCA:
Listed in the TSCA inventory
SARA: 302/304: Not Listed
SARA: 311/312: Acute health hazard, Chronic health hazard.
SARA (TITLE 313): Zinc Selenide
WHMIS: This is a controlled product under the Canadian Workplace Hazardous Materials Information System
OSHA: Hazardous product under the OSHA Hazard Communication Standard (29 CFR 1910.1200)

16 Other information

Revision date: August 2022
The above information is believed to be true and correct and is supplied as a guide for information only, it does not purport to be all inclusive.