SAFETY DATA SHEET
ZINC SELENIDE OPTICAL CRYSTAL
According to Regulation (EC) No.1907/2006 (REACH)

Revision 2015 : Issued 15th July 2015

1. IDENTIFICATION OF THE SUBSTANCE AND THE COMPANY
1.1. PRODUCT IDENTIFIERS:
Product Name: Zinc Selenide Optical Crystal
Synonyms, Trade Names: ZnSe, Infracrystal, Lasertran, Raytran, Intra4

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST
Identified Uses: Optical Material for manufacture of Optical Components.

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET
Company: CRYSTARAN LTD, 1 Broom Road Business Park, Poole, Dorset UK BH12 4PA
Telephone: +44 1202 307650

1.4. EMERGENCY TELEPHONE NUMBER
Emergency Phone: +44 1202 307650 (Monday to Friday 08:30 to 17:00 GMT)
Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department. The attending health professional will be able to contact the National Poisons Information Service.

2. HAZARDS IDENTIFICATION
2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE
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. Particular care must be exercised when machining and creating dust or particles. Symptoms include garlic odour on breath. Dangerous for the environment.

2.2. 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.

2.3. OTHER HAZARDS
None

3. COMPOSITION/INFORMATION ON INGREDIENTS
3.1. SUBSTANCES
Component Name: Zinc Selenide
CAS number: 1315-09-9
%: 100%
EC number (EINECS): 215-259-7
EU index: 034-002-00-8
UN number: 3283

4. FIRST AID MEASURES
4.1. 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 2 cups of water to drink. Do not give carbonated drinks. Never give anything by mouth to an unconscious person. Obtain medical attention immediately.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED
Refer to Section 2.2 and to section 11.

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED
No Data.

5. FIRE FIGHTING MEASURES
5.1. EXTINGUISHING MEDIA
This product does not burn.

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE
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.

5.3. ADVICE FOR FIREFIGHTERS
Use breathing apparatus if necessary.

6. ACCIDENTAL RELEASE MEASURES
6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES
Wear suitable protective clothing & equipment as listed under Section 8. Avoid making dust.

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

6.3. METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP
Take up and containerize for proper disposal. Containerize any cleaning materials used for proper disposal.

6.4. REFERENCE TO OTHER SECTIONS
Dispose as in Section 13.
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7. HANDLING AND STORAGE
7.1. PRECAUTIONS FOR SAFE HANDLING:
- 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 and strong bases.
7.3. SPECIFIC END USES
- Optical Material for Manufacture of Optical Components.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION
8.1. CONTROL PARAMETERS
- OCCUPATIONAL EXPOSURE LIMITS (OEL) = 0.1 mg/m³ as Se in 8 hour Time Weighted Average (TWA)
8.2. EXPOSURE CONTROLS
- Protective gloves made of PVA are required. 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 AND CHEMICAL PROPERTIES
9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES
- APPEARANCE: Reddish-yellow geometric shapes, no odour.
- BOILING POINT (760mm Hg): Not Applicable
- MELTING POINT: 1525°C *
- SPECIFIC GRAVITY: 5.27 g/mL
- SOLUBILITY IN WATER: Practically Insoluble
9.2. OTHER SAFETY INFORMATION
- Oxidises at 300°C, exhibits plastic deformation at 500°C and dissociates at about 700°C

10. STABILITY AND REACTIVITY
10.1. REACTIVITY
- Reacts with strong mineral acids and strong oxidising materials
10.2. CHEMICAL STABILITY
- Stable under normal conditions of storage and use
10.3. POSSIBILITY OF HAZARDOUS REACTIONS
- None known
10.4. CONDITIONS TO AVOID
- Can react with oxidising agents. Avoid strong acids
10.5. INCOMPATIBLE MATERIALS
- Strong Mineral Acids. Strong oxidising materials

11. TOXICOLOGICAL INFORMATION
11.1. 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
- MUTAGENICITY/TERATOGENICITY: Some evidence of reproductive effects.

12. ECOLOGICAL INFORMATION
12.1. TOXICITY
- Danger to drinking water. Poisonous to Fish
12.2. PERSISTENCE AND DEGRADABILITY
- No Data
12.3. BIOACCUMULATIVE POTENTIAL
- No Data

13. DISPOSAL CONSIDERATIONS
13.1. 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.

14. TRANSPORT INFORMATION
14.1. UN NUMBER: 3283
14.3. TRANSPORT HAZARD CLASS: 6.1
14.4. PACKING GROUP: III
14.5. ENVIRONMENTAL HAZARDS: Marine Pollutant
14.6. SPECIAL PRECAUTIONS FOR USER: None
14.7. TRANSPORT IN BULK MARPOL / IBC: No Data

15. REGULATORY INFORMATION
15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS / LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE
- 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

16. OTHER INFORMATION
REVISION DATE: 15th July 2015 ©2015 Crystran Ltd.
The above information is believed to be correct but does not purport to be all inclusive and must be used only as a guide.