

# SAFETY DATA SHEET

SDS No.6220-0004

Date

June 13, 2023

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## 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : Optical crystal, KRS-5  
NAME OF SUPPLIER : GL Sciences Inc.  
ADDRESS : 22-1 Nishishinjuku 6-chome Shinjuku-ku Tokyo 163-1130, Japan  
CHARGE SECTION : International Sales Section  
TELEPHONE No. : +81-3-5323-6620  
FACSIMILE No. : +81-3-5323-6621  
PRODUCT No. : 6220-10061, 6220-10062, 6220-10063, 6220-10064, 6220-10070, 6220-11061, 6220-11063, 6220-11064, 6220-11070, 6220-12063, 6220-12064, 6220-12065, 6220-12070, 6220-12071, 6220-13006, 6220-13026, 6220-14065, 6220-20206, 6220-20226, 6220-20363, 6220-20365, 6220-20366, 6220-20368, 6220-20369, 6220-20436, 6220-20446, 6220-20456, 6220-20466, 6220-20706, 6220-20726, 6220-20746, 6220-20826, 6220-20846, 6220-  
SDS No. : 6220-0004  
Research use only.

## 2. HAZARDS IDENTIFICATION

GHS CLASSIFICATION : Acute toxicity - oral - : Category 2  
Acute toxicity - inhalation - : Category 2  
Skin sensitization : Category 1  
Hazardous to the aquatic environment, long-term (chronic) : Category Chronic2

HAZARDS SYMBOL :



SIGNAL WORD : Danger

HAZARD STATEMENTS :

H300 Fatal if swallowed  
H330 Fatal if inhaled  
H317 May cause an allergic skin reaction  
H411 Toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENTS :

[Prevention]

P260 Do not breathing dust/fume/gas/mist/vapours/spray.  
P264 Wash hands thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P272 Contaminated work clothing should be allowed out of the workplace.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P284 [In case of inadequate ventilation] wear respiratory protection.  
P273 Avoid release to the environment.

[Response]

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor.  
P330 Rinse mouth.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P310 Immediately call a POISON CENTER or doctor.  
P302+P352 IF ON SKIN: Wash with plenty of water.  
P333+P313 If skin irritation or rash occurs: Get medical attention.  
P362+P364 Take off contaminated clothing and wash it before reuse.  
P391 Collect spillage.

[Storage]

P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.

[Disposal]

P501

Dispose of contents/container in accordance with all applicable regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE / MIXTURE : Mixture  
 CHEMICAL IDENTITY : Optical crystal, KRS-5  
 SYNONYMS : - - -

CHEMICAL NAME	CONTENT	CHEMICAL FORMULA	CAS RN	TSCA INVENTORY	EINECS No.
Thallium bromide	45.7 %	TIBr	7789-40-4	Listed	232-163-0
Thallium iodide	54.3 %	TII	7790-30-9	Listed	232-199-7

4. FIRST AID MEASURES

GENERAL ADVICE : Wash off with soap and plenty of water. In the case of respirable dust and/or fumes, use self-contained breathing apparatus and dust impervious protective suit. Use personal protective equipment.

INHALATION : Move victim to fresh air and gargle. If breathing is difficult, give oxygen. If irritation persists, consult a physician.

SKIN CONTACT : Remove contaminated clothes and shoes, rinse skin with plenty of water or shower, or wipe off cleansing cream with coating, tender cloth. Use soap to help assure removal. If irritation persists, consult a physician.

EYE CONTACT : Remove any contact lenses at once. Flush eyes well with flooding large amounts of running water for at least 15 minutes. Assure adequate flushing by separating the eyelids with sterile fingers. If irritation persists, consult a physician.

INGESTION : Rinse mouth, give plenty of water to vomit. Never give anything by mouth to an unconscious person. If feel unwell, consult a physician.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA : Carbon dioxide, dry chemical powder, foam, water spray

FIRE & EXPLOSION HAZARDS : Toxic and irritating dust, fumes or smoke may be emitted. Use cylinder-type air respiratory apparatus at the fire extinguishing in the room. Pay attention to shatter-resistant this product.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS : Fireman should wear normal protective equipment (full bunker gear) and positive-pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS : In case of insufficient ventilation, wear suitable respiratory equipment. Avoid raising dust and avoid contact with skin and eyes.

ENVIRONMENTAL PRECAUTIONS : Prevent spills from entering sewers, watercourses or low areas. Comply with local disposal regulations.

METHODS FOR CLEANING UP : Do not touch spilled material without suitable protection. After material is completely picked up, wash the spill site with soap and water and ventilate the area. Pull all wastes in a plastic bag for disposal and seal it tightly. Remove, clean, or dispose contaminated clothing.

7. HANDLING AND STORAGE

HANDLING : Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Handle this product with appropriate protective equipment.

STORAGE : Store away from sunlight in a cool well-ventilated dry place. Keep container tightly closed.

INCOMPATIBLE PRODUCTS : Oxidizers and Alkali metals

8. EXPOSURE CONTROL/PERSONAL PROTECTION

ENGINEERING MEASURES : Use exhaust ventilation to keep airborne concentrations below exposure limits. Use adequate ventilation.

VENTILATION : Local Exhaust ; Necessary, Mechanical(General) ; Recommended

**CONTROL PARAMETERS**

CHEMICAL NAME	ACGIH TLV	OSHA Final Limits	NIOSH REL
Thallium bromide	0.02 mg/m <sup>3</sup>	Not established	
Thallium iodide	0.02 mg/m <sup>3</sup>	Not established	

**PERSONAL PROTECTION**

- RESPIRATORY PROTECTION : Half or full face piece respirator, self-contained breathing apparatus, supplied air respirator, etc. Use respirators approved under appropriate government standards and follow all regulations.
- HAND PROTECTION : Safety gloves
- EYE PROTECTION : Safety glasses(goggles)
- SKIN PROTECTION : Protective clothing

**9. PHYSICAL AND CHEMICAL PROPERTIES**

- PHYSICAL STATE : Solid, crystal
- COLOUR : Red to orange
- ODOR : Odorless
- MELTING POINT / FREEZING POINT : 415 °C
- BOILING POINT OR INITIAL BOILING POINT AND BOILING RANGE : 500 ~ 600 °C
- FLAMMABILITY : Non-inflammability, incombustibility
- LOWER AND UPPER EXPLOSION LIMIT / FLAMMABILITY LIMIT : Non-inflammability, incombustibility
- FLASH POINT : Non-inflammability, incombustibility
- AUTO-IGNITION TEMPERATURE : No data available
- DECOMPOSITION TEMPERATURE : No data available
- pH : No data available
- KINEMATIC VISCOSITY : Not applicable
- SOLUBILITY
- Water : Slightly soluble
- Organic solvent : No data available
- PARTITION COEFFICIENT
- n-octanol/water (log value) : No data available
- VAPOUR PRESSURE : No data available
- DENSITY AND/OR RELATIVE DENSITY : 7.4
- RELATIVE VAPOUR DENSITY : No data available
- PARTICLE CHARACTERISTICS : Crystal

**10. STABILITY AND REACTIVITY**

- REACTIVITY : May react with oxidizers and alkali metals.
- CHEMICAL STABILITY : Stable under recommended storage conditions.
- CONDITION TO AVOID : High temperature, heat(above 392 °C), contact with incompatible materials
- INCOMPATIBLE MATERIALS : Oxidizers, alkali metals
- HAZARDOUS DECOMPOSITION PRODUCTS : Toxic fume (Thallium oxides, hydrogen bromide, hydrogen iodide etc.)

**11. TOXICOLOGICAL INFORMATION**

- ACUTE TOXICITY (Oral) : TIBr; 5mg/kg, TII; LDLo=55mg/kg
- ACUTE TOXICITY (Dermal) : No data available
- ACUTE TOXICITY (Inhalation) : TIBr; 0.05mg/L
- SKIN CORROSION/IRRITATION : No data available
- EYE DAMAGE/EYE IRRITATION : No data available
- RESPIRATORY SENSITIZATION : No data available
- SKIN SENSITIZATION : May cause allergic skin reaction due to skin contact.
- GERM CELL MUTAGENICITY : No data available

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CARCINOGENICITY	: No data available
REPRODUCTIVE TOXICITY	: There is a report that ingestion of thallium compounds causes trans placental alopecia in humans (ACGIH,2001).
SPECIFIC TARGET ORGAN TOXICITY	
Single exposure	: It seems that the main symptoms of thallium poisoning are Gastroenteritis, polyneuropathy and hair loss (EHC39, 1984).
SPECIFIC TARGET ORGAN TOXICITY	
Repeated exposure	: No data available
ASPIRATION TOXICITY	: No data available

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**12. ECOLOGICAL INFORMATION****HAZARDOUS TO THE AQUATIC ENVIRONMENT**

: Thallium; LC(EC)50 <=100 mg/L, but the behavior as a compound is unknown.

BIODEGRADABILITY : No data available

BIOACCUMULATION POTENTIAL : No data available

MOBILITY IN SOIL : No data available

**HAZARDOUS TO THE OZONE LAYER**

: The ingredients which are included in this product is not listed in Annex of the Montreal Protocol.

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**13. DISPOSAL INFORMATION**

Dispose in a hazardous-waste site in accordance with all applicable regulations. Any disposal practice must be in compliance with country, local, state, and federal laws and regulations (contact country, local or state environment agency for specific rules).

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**14. TRANSPORT INFORMATION**

## International Regulations

Maritime regulations : Conform to the provisions of IMO.

UN No. : 1707

Proper Shipping Name : THALLIUM COMPOUND, N.O.S.

Class : 6.1

Packing Group : II

Marine Pollutant : Applicable

Aviation regulations : Conform to the provisions of ICAO/IATA.

UN No. : 1707

Proper Shipping Name : Thallium compound, n.o.s.

Class : 6.1

Packing Group : II

Emergency Response Guide Number : 151

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**15. REGULATORY INFORMATION**

For classification and labeling of chemicals in accordance with the applicable rules and regulations in the EU or each country, refer to GHS classification of this product (See Section 2).

US REGULATION : OSHA HCS 2012/29 CFR 1910.1200

EU REGULATION : CLP Regulation ((EC) No. 1272/2008)

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**16. OTHER INFORMATION****NOTICE:**

The information contained in the SDS description is applicable exclusively to the chemical substance identified herein and for its intended use as an analytical reference standard or reagent and to the unit quantity intended for that purpose. The information does not relate to, and may not be appropriate for, any application or larger quantity of the substance described. Our products are intended for the use by individuals possessing sufficient technical skill and qualification on use the material potential hazardous chemical. Accordingly, no representation or warranty, express or implied, with respect to merchantability and fitness for a particular purpose is made with respect to the information contained herein.

**Attention:**

This product in terms of chemical identity and the unit amount provide is intended for use in chemical analysis and not for human consumption, nor any other purpose.