

## MATERIAL SAFETY DATA SHEET

PRODUCT NAME: POLYCRYSTALLINE SILVER HALIDE INFRARED PIR-FIBER PRODUCT

DESCRIPTION: infrared transmitting glass fiber

CAS No.: None established.

INGREDIENTS (Typical Values - Not Specifications):

Silver Chloride (CAS 7783-90-6)

Silver Bromide (CAS 7785-23-1)

PRODUCT CLASSIFIED AS: NON-HAZARDOUS

DOT WARNING STATEMENT: NONE CONSIDERED NECESSARY

IDENTIFIED USES : main component of IR-transmitting fiber optica cables, bundles, probes

DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET:

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## SECTION 1 - PHYSICAL DATA

BOILING POINT: n.a.

VAP. PRESSURE: n.a.

VAP. DENSITY (AIR=1): n.a.

APPEARANCE: Slightly transparent greenish-yellow glassy looking fiber.

SOL. IN WATER: INSOLUBLE

SOLUBILITY: insoluble in alcohol, most acids, sparingly soluble in ammonia, soluble in alkali cyanide solutions

% VOLATILE (BY VOL.): 0

## SECTION 2 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: n.a. EXTINGUISHING MEDIA: n.a.

FLAMMABLE LIMITS (STP IN AIR): LFL, n.a.; UFL, n.a.

SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: None special techniques required. Use extinguisher type suitable for surrounding fire.

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## **SECTION 3 - REACTIVITY DATA**

STABILITY: Stable Compound

INCOMPATIBILITY: Metals and metal dust (except: Au, Ag, Ti, Nb, Ta, Pt) and SO<sub>2</sub>- containing reactants.

HAZARDOUS DECOMPOSITION PRODUCTS: See Section 8.

HAZARDOUS POLYMERIZATION: n.a.

## **SECTION 4 - SPILL, LEAK AND DISPOSAL PROCEDURES**

ACTION TO TAKE FOR SPILLS: Contain spill. Clean up and transfer spilled material to separate container for recovery or disposal.

WASTE DISPOSAL METHOD: Due to value of scrap material, waste should be collected and returned to a vendor for salvage and/or reclamation. Non-reclaimable material should be disposed of in accordance with appropriate local, state or federal regulations.

## **SECTION 5 - HEALTH HAZARD DATA**

THRESHOLD LIMIT VALUE (TLV): A TLV has not been established for POLYCRYSTALLINE SILVER HALIDE INFRARED FIBER. Recommended exposure levels for individual components are as follows:

Silver Compounds: 10 micrograms (as Ag) per cubic meter of air determined as a time-weighted average (TWA) exposure for up to eight hours. (Source: OSHA 1910.1000, Subpart z, Table Z-1-A).

Chlorine Compounds: 3 milligrams (as Cl) per cubic meter of air determined as a TWA exposure of up to eight hours. (Source: OSHA 1910.1000, Subpart Z, Table Z-1-A).

Bromine Compounds: 700 micrograms (as Br) per cubic meter of air determined as a TWA exposure of up to eight hours. (Source: OSHA 1910.1000, Subpart Z, Table Z-1-A).

POSSIBLE EFFECTS OF OVEREXPOSURE: No adverse health effects should occur from exposure to POLYCRYSTALLINE SILVER HALIDE INFRARED FIBER. Under extreme conditions, individual components of POLYCRYSTALLINE SILVER HALIDE INFRARED FIBER material could possibly (although not likely) cause non-specific symptoms, such as nausea, vomiting, diarrhea, hot flashes and progressive anxiety. However, separation of the individual components of POLYCRYSTALLINE SILVER HALIDE INFRARED FIBER is not expected to occur.

## **SECTION 6 - FIRST AID**

EYES: Flush with flowing water for 15 minutes after contact with dust or fumes.

SKIN: Flush with plenty of water after contact with dust or fumes.

INHALATION: If ill effects or symptoms develop, remove affected person to fresh air, keep person warm and quiet. Seek medical help immediately.

INGESTION: Should not be a problem. If material is swallowed, induce vomiting. Seek medical help.

## **SECTION 7 - SPECIAL HANDLING INFORMATION**

**VENTILATION:** Ventilation should be provided sufficient to remove any dusts, mists or odors that may evolve during processing. Local exhaust air of 100 lineal feet per minute (lfm) face velocity should be adequate. Avoid breathing any fumes or dusts that may be generated.

**RESPIRATORY PROTECTION:** Ordinarily, respiratory protection is not required if adequate ventilation is provided.

**PROTECTIVE CLOTHING:** Rubber gloves and plastic aprons should be provided.

**EYE PROTECTION:** Chemical workers goggles or plastic face shields should be used to provide eye protection from dusts, fumes, mists or flying particles should product break or fragment during processing operations.

## **SECTION 8-SPECIAL PRECAUTIONS & ADDITIONAL INFORMATION**

Special safety precautions are required in handling, storing or processing POLYCRYSTALLINE SILVER HALIDE INFRARED PIR-FIBER:

- The storage room and workplaces should be free of metal dust and SO<sub>2</sub>- containing reactants.
- Prevent any contact of the fibre with metals to avoid a chemical reaction which will damage the fibre and the metal surface! The contact with the following materials, some metals as well, won't cause any damages:
  - polymer, dielectrics
  - Au, Ag, Ti, Nb, Ta, Pt
- Do not expose the fibre in visible and especially in UV-irradiation, including luminescent light, due to irreversible silver colloids formation in these photographic crystals! To keep the optical parameters of fibre like total transmittance please storage it in dry and dark conditions. It is recommended to put the fibre in black loose polymer tubes.
- Prevent the heating of the fiber over 140C as it results in its irreversible damage. Heating over 230C results in chemical reaction even with allowed metals Ti, Mo, Ta, Nb.
- Protect the optical connectors of cables and probes by intransparent caps against UV- and visible light irradiation, against any contamination and mechanical damage. Remove the caps only for necessary operations (better under red or yellow light);
- Prevent multiple bending of fibre with a radius less than elastic minimal R=100 Ø (Ø- fibre diameter) - otherwise plastic deformation will be induced. Do not bend the fibre with the radius less than 60 mm. Plastic deformation of the fibre occurs at small radius bending which results in transmission drop.
- If some contamination is on the fibre surface then wipe it carefully with isopropanol or acetone.

Plastic coating materials, sometimes used to coat the glass fiber to provide flexibility, may decompose at elevated temperatures and emit ammonia-like odors. This does not cause a significant exposure or represent a health hazard. Increasing the local exhaust ventilation *will* remove any odor problem.

### **NOTES:**

- a. Specific percentage is considered proprietary.
- b. n.a. means "Not Applicable."
- c. This data is furnished gratuitously, independent of any sale of the product only for your investigation and independent verification. While the information is believed to be correct, art photonics GmbH makes no representation as to the accuracy of the information contained herein.

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