



MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Chalcogenide Glass IG 6
Chemical Formula: As_2Se_3

SECTION 1 – POSSIBLE DANGERS

The glass is not toxic. Improper handling by heating to over 150°C or contact with strong acids and basic compounds can result in the formation of toxic compounds. Temperatures above 500°C on air can cause chemical decomposition resulting in the formation of toxic compounds As_2O_3 ; SeO_2 . Strong acids or bases may cause the formation of soluble Arsenic and Selenium compounds.

SECTION 2 – EMERGENCY AND FIRST AID PROCEDURES

Inhalation: Move subject directly into fresh air and if symptoms develop, seek immediate medical attention. If subject is not breathing provide immediate artificial respiration preferably by mouth.

Skin Contact: contaminated clothing and shoes. Wash affected area with mild soap and plenty of water. If irritation develops, consult a physician.

Eye Contact: Flush eyes with plenty of water. If irritation develops, consult a physician.

Ingestion: Do not induce vomiting. Rinse mouth with copious amounts of water and give water to drink. Do not give carbonated drinks. Call a poison control center, emergency room, or a physician.

Note to Physician: With eye and skin contact other than possible mechanical irritation, no significant adverse effects are expected. Exposure by ingestion is unlikely. High airborne levels of dust can cause nose and throat irritation.

SECTION 3 – FIRE FIGHTING PROCEDURES

Fire Fighting: all, privileged CO_2 and foam.

Behaviour: Keep all but critical fire fighting personnel from the immediate scene. Fire can result in the formation of Arsenic and Selenium Oxides. Breathing apparatus to be worn by fire fighting personnel.

SECTION 4 – SPILL AND LEAK PROCEDURES

Personal Precaution: Notify other personnel in the close proximity to evacuate immediately to avoid airborne contamination. Protective clothing to be worn.

Environmental Protection: Dust and affected liquid should not be allowed to leak into foul water or storm water drains. Dust should be removed to a safe container.

Notice: Fit vacuum cleaners with suitable air filters.

SECTION 5 – HANDLING AND STORAGE

Handling: Adequate work station ventilation should be provided during optical processing. Optical grinding and polishing etc should be performed wet to avoid the generation of dust. Broken solid fragments may cause minor cuts and protective gloves should be worn.

Protective equipment: Wear protective gloves at all times during optical processing to avoid minor cuts

Working Hygiene: Eating, drinking and food storage in working areas should be strongly discouraged. Hands should be washed thoroughly after optical processing procedures.

Storage: Storage in fireproof, cool, dry and well ventilated rooms.

SECTION 6 – EXPOSITIVE LIMITS AND PERSONAL PROTECTIVE CLOTHING

Special equipments: No specific special equipment is required.

Workingplace limiting values:

MAK- value for Se-compounds, calculated for Se: 0,1 mg/m³

TRK- value for Arsenic(III)Oxide as As in total dust 0,1 mg/m³

Personal Protective Equipments: Due to the possibility of dust/fumes etc being generated during fabrication processes, the following personal protective equipment is recommended, depending on the degree of exposure.

- Safty glasses/splash shields for eye protection
- In case of excessive dust, mist, fumes approved respirators should be worn.
- Rubber gloves

Supplimentary: Care should be taken to maintain all personal protective equipment in a efficient clean and hygienic state. Food/beverages etc should be kept away from areas involved in optical processing. Hands should be thoroughly washed prior to eating to prevent ingestion. Broken pieces should be treated as glass, and the sharp may cause minor cuts etc if safety glasses and protective gloves are not worn.

SECTION 7 – PHYSICAL AND CHEMICAL PROPERTIES

Physical state and Appearance: Solid.

Color: Black

Odor: Odorless

Transformation Temperature: 185 °C

Vapor Pressure: 1 mbar at 431 °C; 100mbar at 666 °C

Viscosity: 10^{7,6} dPa·s bei 236 °C (Softening Point)

Density: 4,63 g/cm³

Solubility: Insoluble

Supplimental information: This glass decomposes at temperatures > 500 °C in air and/or oxidizing atmospheres. The decomposition products include Selenium-Oxide (SeO₂) and Arsenic(III)Oxide (As₂O₃). These products are toxic.

SECTION 8 – STABILITY AND REACTIVITY

Conditions to avoid: Fire, Heating in air > 200 °C

Substances to avoid: Strong acids and bases

Hazardous decomposits: Se₂O₃; As₂O₃ at temperatures > 500 °C

Hazards:	Fire Hazard	No
	Sudden Release of Pressure Hazard	No
	Reactivity Hazard	No
	Health Hazard	No

SECTION 9 – TOXICOLOGICAL STATEMENT

Toxicological effects on helth: The glass is not toxic. Combustion and solution in strong acids and lyes on helth: can produce toxic compounds.

Inhalation: Compounds of Arsenic and Selenium Irritation greater than 0,1 mg/m³.

Skin Contact: Compounds of Arsenic and Selenium Inflammation of skin and throat.

Ingestion: Oral consumption of Selenium and Arsenic compounds quantity of 50µg/kg/day may cause irritation of stomach, kidney, blood and skin.

Chronical Effects: Not established

SECTION 10 – DISPOSAL NOTICE

Product: Solid fragments and waste products should be returned by careful shipment to the producer. Waste and broken pieces should be treated as hazardous waste.
