Safety Data Sheet

BD2 - Chalcogenide Glass

Section 1 – Identification of the substance/preparation and of the company/undertaking.

Product Name: BD2 – Chalcogenide Glass
Manufacturer: LightPath Technologies

Section 2 – Hazards Identification

Hazard Symbols: T N
Risk Phrases: R 23/25 R 33 R 51/53
Risk advice to man and the environment: Toxic by inhalation and if swallowed. Danger of cumulative effects. The substance is toxic to blood, kidneys, lungs, the nervous system, liver, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Section 3 – Composition/Information on Ingredient

Chemical Composition:

Component	CAS No.	Formula	Composition	EC No.	Classification
Antimony	7440-36-0	Sb	17.75%	231-146-5	Xn,R20/22 N, R51/53
Germanium	7440-56-4	Ge	24.71%	231-164-3	Xi, R36/37/38
Selenium	7782-49-2	Se	57.54%	231-957-4	T; R23/25 R33 R53

Section 4 – First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes. Occasionally lifting the upper and lower eyelids. Get medical attention if irritation occurs. Thermal burns should be treated as medical emergencies.
Skin: If burned by contact with molten material, cool as quickly as possible. Do not peel material from skin. Treat gazes/cuts with antiseptic and cover. If irritation develops and persists, seek medical attention.
Ingestion: Get medical aid. Do not induce vomiting. Never give anything by mouth to an unconscious person. Wash out mouth with water. Loosen tight clothing such as collar, tie, belt or waistband.

Inhalation: Evacuate the victim to a safe area as soon as possible. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

Section 5 – Fire-Fighting Measures

Suitable Extinguishing Media:
Use agent most appropriate to extinguish surrounding fire. Use water spray, dry chemical, carbon dioxide, or chemical form.
Specific Hazards Arising from the Chemical:
Under fire conditions toxic fumes may be released. Thermal burns are the main hazards approach. Keep product and empty container away from heat and sources of ignition.
Protective Equipment and Precautions for Firefighters:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Section 6 – Accidental Release Measures

Personal Precautions:
Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Spilled or released at a long industrial condition: Remove ignition sources. Keep away from heat and flam, evacuate area. Avoid breathing dust, vapor, and smoke. Shut off source of the leak only if it is easy to do so. Material can create slippery conditions underfoot.
Environmental Precautions:
Keep spilled material out of sewers, ditches and bodies of water.
Methods of Containment and Clean Up:
Sweep up and place in suitable containers for recycle or disposal according to local/national regulations (see section 13). Keep in suitable, closed containers for disposal.

Section 7 – Handling and Storage

Handling: In accordance with good industrial practice, handle with care and avoid unnecessary personal contact. Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid breathing dusts or fumes. Do not eat, drink or smoke while handling the product. Keep away from sources of ignition. Take precautionary measures against static discharges. Use spark-proof tools and explosion proof equipment.
Storage: Keep away from heat, sparks and flame. Store in a cool, dry, and well-ventilated away from incompatible substances. Keep away from sources of ignition. Keep out of the reach of children.

Section 8 – Exposure Controls/ Personal Protection

Exposure Limits:

CAS# 7440-36-0

AGGIH: United States- TWA: 0.5mg/m^3
Australia – TWA: 0.5mg/m^3
Belgium - TWA: 0.5mg/m^3
Denmark - TWA: 0.5mg(Sb)/m^3
Finland - TWA: 0.5mg/m^3
Japan - OEL: 0.1mg/m^3, 2B carcinogen
Korea - TWA: 0.5mg/m^3
Mexico - TWA: 0.5mg(Sb)/m^3
Netherlands – MAC-TGG: 0.5mg/m^3, 0.5mg(Sb)/m^3
New Zealand - TWA: 0.5mg/m^3
Russia - TWA: 0.2mg/m^3, STEL: 0.5mg/m^3
United Kingdom - TWA: 0.5mg(Sb)/m^3

CAS# 7782-49-2

AGGIH: United States- TWA: 0.2mg/m^3
Australia – TWA: 0.1mg/m^3
Belgium - TWA: 0.2mg/m^3
Denmark - TWA: 0.1mg(Se)/m^3 , 0.1mg/m^3
Finland - TWA: 0.1mg/m^3, STEL: 0.3mg/m^3
Japan - OEL: 0.1mg/m^3
Korea - TWA: 0.2mg/m^3
Mexico - TWA: 0.2mg/m^3
Netherlands – MAC-TGG: 0.1mg(Se)/m^3
New Zealand - TWA: 0.1mg/m^3
Russia - TWA: 2mg/m^3
United Kingdom - TWA: 0.1mg/m^3

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Individual Protection for Industrial Use

Eyes: For prolonged or repeated contact wear chemical splash goggles.

Skin: For prolonged or repeated contact use protective gloves.

Clothing: Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Other Protection: Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. To maintain good health habits.

Section 9 – Physical and Chemical Properties

Physical State:	Solid
Color:	Dark Brown
Odor:	Odorless
Softening Point:	280 C
Flash Point:	Not applicable
Solubility in water:	Insoluble
Specific Gravity/Density:	4.67 g/cm^3

Section 10 – Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Incompatible materials. Excess heat. Avoid dust formation. Keep away from open flames, hot surfaces and sources of ignition.
Incompatibilities with Other Materials: Strong oxidizing agents, strong acids.
Hazardous Decomposition Products: Irritating and toxic fumes and gases. Antimony oxides, germanium oxides, selenium oxides.
Hazardous Polymerization: Will not occur.
Hazardous Reactions: None under normal processing.

Section 11 – Toxicological Information

Acute Toxicity:
CAS# 7440-36-0
Oral, rat: LD50 = 100 mg/kg;
CAS# 7782-49-2
Oral, rat: LD50 = 6700 mg/kg;
Sensitization: No information available
Chronic Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Antimony – IARC: No component of this product presents at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Germanium - IARC: No component of this product presents at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Selenium – This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification. IARC: 3 – Group 3: Not classifiable as to its carcinogenicity to humans.
Potential Health Effects
Eye: Dusts or particulates may cause mechanical irritation including pain, tearing, and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

Skin: Mechanical irritation or abrasion from pellets or powder. Contact heated polymer can cause serious thermal burns. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis.
Ingestion: Ingestion is an unlikely route of exposure; no hazard in normal industrial use. If ingested in sufficient quantity may cause injury such as gastrointestinal disturbances. May cause liver damage. Exposure may cause anemia and other blood abnormalities.
Inhalation: Inhalation of airborne particulate may lead to mechanical irritation of the respiratory tract and mucous membranes. Vapors and fumes from molten or burning material may cause respiratory irritation, headache, nausea, anemia, vomiting, diarrhea, cough, difficulty in breathing.
Chronic: The substance is toxic to blood, kidneys, lungs, the nervous system, liver, mucous membranes. Repeated or prolonged exposure to the substance can produce target organ damage. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis.
Additional Information:
RTECS#: CAS# 7440-36-0: CC4025000/ CAS# 7440-56-4: LY5200000/ CAS# 7782-49-2: VS7700000

Section 12 – Ecological Information

Persistence and Degradability: No information available
Ecotoxicity: CAS#7440-36-0 Fish: Cyprinodon variegates: LC50=6.2-8.3mg/l/96 h
CAS#7782-49-2 Fish: Pimephales promelas: LC50=1mg/l/96 h
Daphnia: Daphnia: LC50=0.43mg/l/48 h
Further information on ecology: No information available
Other: Do not empty into drains.

Section 13 – Disposal Considerations

Waste from Residues/Unused Products: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
Contaminated packaging: Contaminated packaging material should be treated equivalent to residual chemical. Clean packaging material should be subjected to waste management schemes (recovery recycling, reuse) according to local legislation.

Section 14 – Transport Information

	IATA	IMDG	RID/ADR
Un number	UN 3288	UN 3288	UN 3288
Hazard class	6.1	6.1	6.1
Packaging group	III	III	III
Proper shipping name	Toxic solid, inorganic n.o.s. (Antimony 17.75%, Selenium 57.54%)	Toxic solid, inorganic n.o.s. (Antimony 17.75%, Selenium 57.54%)	Toxic solid, inorganic n.o.s. (Antimony 17.75%, Selenium 57.54%)

Section 15 – Regulatory Information

Regulatory Information: Labelling according to EC Directives

Labelling

Hazard Symbols: T N

Risk Phrases:

R 23/25 Toxic by inhalation and if swallowed.

R 33 Danger of cumulative effects.

R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 16 Keep away from sources of ignition – No smoking.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

Canada

All the components of this material are listed on Canada's DSL List.

US Federal

Toxic Substance Control Act (TSCA)

All the components of this material are listed on the TSCA Inventory.