

MATERIAL SAFETY DATA SHEET

I PRODUCT IDENTIFICATION

Trade Name: Gallium Selenide **Chemical Family:** Metal Selenide
Synonyms: Gallium Sequiselenide, Digallium Triselenide **Formula:** Ga₂Se₃
CAS #: 14024-24-7

II HAZARDOUS INGREDIENTS

Gallium Selenide %: 100 **TLV:** not set 0.2 mg/m³ (Se) **OSHA PEL:** 0.2 mg/m³ (Se)

HMIS Hazard Rating: Health: 3 **Flammability:** 0 **Reactivity:** 1 **Personal Protection:** F

III PHYSICAL DATA

Boiling Point (°C): No Data **Melting Point (°C):** >1020
Density (gm/cc): 4.92 **% Volatiles by Weight:** N/A
Solubility in H₂O: Decomposition in H₂O to give H₂Se
Reaction with H₂O: Decomposition in H₂O to give H₂Se
Appearance and Odor: Reddish-black crystals. Odorless (Slight garlic odor possible.)

IV FIRE AND EXPLOSION HAZARDS DATA

Flash Point (Method Used): N/A **Autoignition Temperature:** N/A
Flammability: Non-flammable **Flammable Limits: Upper:** N/A **Lower:** N/A

Extinguishing Media: DO NOT USE WATER!! Use dry chemical, CO₂.

Special Fire Fighting Procedures: Wear a self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes.

Unusual Fire & Explosion Hazard: When heated to decomposition, it emits highly toxic fumes of Se. Material may form toxic H₂Se on contact with water/moisture of acids/acidic fumes.

V HEALTH HAZARD INFORMATION

Toxicity Data: No information is available

Se Data: orl-mus TDLO: 134 mg/kg (MGN); ihl-rat LDLO: 33 mg/kg/8H; ivn-rat LD50: 6 mg/kg; unk-frg LDLO: 3 mg/kg
Ga Data: scu-rat 110 mg/kg MLD

Route(s) of Entry: Inhalation, Skin, and Ingestion.

Effects of Over Exposure:

Inhalation: May cause sneezing, coughing, difficulty breathing and irritation of the mucous membrane of the respiratory tract.

Dermal/Eye Contact: Dermal: May cause irritation, itching, inflammation and dermatitis. Eye: May cause burning sensation, irritation, redness and watering of the eyes if comes in contact.

Se compounds: Highly toxic via intravenous and inhalation routes. An experimental carcinogen. Long-term exposure may be a cause of amyotrophic lateral sclerosis in humans. Elemental selenium has low acute systemic toxicity, but dust fumes can cause dermatitis. Imparts a garlic odor to the breath. Pallor, nervousness, depressions and digestive disturbances have been reported in cases of chronic exposure.

Metallic gallium as well as the nitrate produced no skin injury and subcutaneous injection of relatively large amounts could be tolerated both by rabbits and rats without evidence of injury. It has, however, been demonstrated that gallium remains in the tissues for long periods.

Medical Conditions Generally Aggravated by Exposure: Respiratory disorders.

Carcinogenicity: Suspected (Se): NTP? No IARC Monographs? No OSHA Regulated? No

EMERGENCY AND FIRST AID PROCEDURES:

EYE CONTACT: Flush eyes with lukewarm water for at least 15 minutes, and seek medical attention.

SKIN CONTACT: Brush off skin, wash area with soap and water and seek medical attention.

INHALATION: Remove to fresh air; give oxygen if breathing is difficult. Seek medical attention.

INGESTION: Give 1-2 cups of milk or water and induce vomiting. Seek medical attention.

VI REACTIVITY DATA

Stability: Stable

Incompatibility (Material to Avoid): Strong acids, strong bases, oxidizers and moisture/air.

Hazardous Decomposition Products: Ga, GaO_x, Se, SeO_x and H₂Se.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: Heat, flame and incompatible materials.

VII SPILL OR LEAK PROCEDURES

Steps to Be Taken in Case Material Is Released or Spilled: Wear a self-contained breathing apparatus and full protective clothing. Isolate the area where the spill occurred, insure proper ventilation is available and that water/moisture are kept out of the area. Vacuum up the spill using a high efficiency unit and place in a container for proper disposal. Take care not to raise dust.

Waste Disposal Method: Dispose of in accordance with applicable Federal, State and Local regulations.

VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): Wear NIOSH-approved dust-mist-fume cartridge respirator.

Ventilation: Local exhaust: Maintain exposure below TLV level for Se.

Special: Handle in a dry, inert, controlled environment.

Mechanical: Not recommended.

Eye Protection: Safety glasses

Protective Gloves: Neoprene

IX SPECIAL PRECAUTIONS

Other Handling and Storage Conditions: Store in tightly closed containers in a cool, dry place. Wash hands and face thoroughly after handling and before meals.

Issued By: S. Dierks

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