

SAFETY DATA SHEET

Cat# 2169-5, -25, Milrinone

SDS DATE: Sep 19, 2012

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Ebselen
PRODUCT CODES: Cat# 2169-5, -25
MANUFACTURER: BioVision, Inc.
DIVISION:
ADDRESS: 155 S. Milpitas Boulevard, Milpitas, CA 95035
EMERGENCY PHONE: 858-373-8066
CHEMTREC PHONE:
OTHER CALLS: 408-493-1800
FAX PHONE: 408-493-1801

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

| Product Name | Description | Volume | Safety Information |
|--------------|-------------|--------------------------------|--------------------|
| Ebselen | Solid | 2169-5: 5 mg 2169-25: 25 mg | See below |

SECTION 3: HAZARDS IDENTIFICATION

| Component/Chemical Name | CAS Number | EC-No. | Molecular Weight | Chemical Formula |
|-------------------------|------------|--------|------------------|-------------------------------------|
| Ebselen | 60940-34-3 | -- | 274.18 | C ₁₃ H ₉ NOSe |

Ebselen:

Emergency Overview

OSHA Hazards: Target Organ Effect, Toxic by inhalation, Toxic by ingestion

Target Organs: Immune system, Gastrointestinal tract, Eyes, Nerves

GHS Classification:
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 3)
Specific target organ toxicity – repeated exposure (Category 2)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 4)

GHS Label elements, including precautionary statements

Pictogram



Signal word: Danger

Hazard statement(s):
H301+H331 Toxic if swallowed or if inhaled.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H413 May cause long lasting harmful effects to aquatic life.

Precautionary statement(s):
P261 Avoid breathing dust/fumes/gas/mist/vapors/spray.
P273 Avoid release to the environment.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P311 Call A POISON CENTER or doctor/physician.

HMIS Classification

Health hazard: 2
Flammability: 0
Physical hazards: 0

NFPA Rating

Health hazard: 2
Fire: 0
Reactivity Hazard: 0

Potential Health Effects

Inhalation Toxic if inhaled. May cause respiratory tract irritation.
Skin May be harmful if absorbed through skin. May cause skin irritation.
Eyes May cause eye irritation.
Ingestion Toxic if swallowed.

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SECTION 4: FIRST AID MEASURES

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact: Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
In case of eye contact: Flush eyes with water as a precaution.
If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5: FIRE-FIGHTING MEASURES

Conditions of flammability: Not flammable or combustible.
Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Special protective equipment for fire-fighters: Wear self contained breathing apparatus for fire fighting if necessary.
Hazardous combustion products: Hazardous combustion products formed under fire conditions— no data available.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions: Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
Methods for cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.
Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Recommended storage temperature: -20°C

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

| Components | CAS-No. | Value | Control parameters | Basis |
|--|---|-------|-----------------------|--|
| 2-Phenyl-1,2-benzisoselenazol-3-(2H)-one | 60940-34-3 | TWA | 0.2 mg/m ³ | USA. Occupational Exposure Limits (OSHA): Table Z-1 Limits for Air Contaminants |
| | | TWA | 0.2 mg/m ³ | USA. ACGIH Threshold Limit Values (TLV) |
| Remarks: | Eye & upper respiratory tract irritation. | | | |
| | | TWA | 0.2 mg/m ³ | USA. OSHA – Table Z-1: Limits for Air Contaminants – 1910.1000 |

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

| Property | Ebselen |
|-------------------|--------------------------|
| Appearance: | White to off-white solid |
| pH: | No data available |
| Water Solubility: | No data available |
| Other Solubility: | DMSO (~5 mg/ml) |

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| | |
|-----------------------------------|-------------------------|
| Boiling Point (°C): | No data available |
| Melting Point (°C): | 180-181 °C (356-358 °F) |
| Flash Point (°C): | No data available |
| Ignition Temperature (°C): | No data available |
| Density: | No data available |

SECTION 10: STABILITY AND REACTIVITY

| Property | Ebselen |
|--|---|
| Chemical stability | Stable under recommended storage conditions |
| Conditions to avoid: | No data available |
| Materials to avoid: | Strong oxidizing agents |
| Hazardous decomposition products: | Carbon oxides, nitrogen oxides, selenium/seleniu oxides |

SECTION 11: TOXICOLOGICAL INFORMATION

Ebselen:

Acute toxicity: no data available

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitization: no data available

Germ cell mutagenicity: no data available

Carcinogenicity:

- IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: Reproductive toxicity – rat – Oral → Effects on Newborn: viability index (e.g. # alive at day 4 per # born alive). Effects on Newborn: growth statistics (e.g. reduced weight gain). Effects on Newborn: delayed effects.

Teratogenicity: Developmental toxicity – rat – Oral → Effects on Embryo/Fetus: extra embryonic structures (e.g. placenta, umbilical cord)

Specific target organ toxicity - single exposure (GHS): no data available

Specific target organ toxicity - repeated exposure (GHS): May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard: no data available

Potential health effects

Inhalation Toxic if inhaled. May cause respiratory tract irritation.

Skin May be harmful if absorbed through skin. May cause skin irritation.

Eyes May cause eye irritation.

Ingestion Toxic if swallowed.

Signs and Symptoms of Exposure: Acute selenium poisoning produces central nervous system effects, which include nervousness, convulsions, and drowsiness. Other signs of intoxication can include skin eruptions, lassitude, gastrointestinal distress, teeth that are discolored or decayed, odorous ("garlic") breath, and partial loss of hair and nails. Chronic exposure by inhalation can produce symptoms that include pallor, coating of the tongue, anemia, irritation of the mucosa, lumbar pain, liver and spleen damage, as well as any of the other previously mentioned symptoms. Chronic contact with selenium compounds may cause garlic odor of breath and sweat, dermatitis, and moderate emotional instability. To the best of our knowledge the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic Effects: no data available

Additional Information: RTECS: not available

SECTION 12: ECOLOGICAL INFORMATION

Ebselen:

Toxicity: no data available

Persistence and degradability: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life.

SECTION 13: DISPOSAL CONSIDERATIONS

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging: Dispose of as unused product.

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SECTION 14: TRANSPORT INFORMATION

Ebselen:

DOT (US)

UN-Number: 3283, Class: 6.1 Packing group: III; Proper shipping name: Selenium compound, solid, n.o.s. (2-Phenyl-1,2-benzisoselenazol-3-(2H)-one); Marine pollutant: No; Poison Inhalation Hazard: No

IMDG

UN-Number: 3283, Class: 6.1 Packing group: III; EMS-No: F-A, S-A; Proper shipping name: SELENIUM COMPOUND, SOLID, N.O.S. (2-Phenyl-1,2-benzisoselenazol-3-(2H)-one); Marine pollutant: No

IATA

UN-Number: 3283, Class: 6.1 Packing group: III; Proper shipping name: Selenium compound, solid, n.o.s. (2-Phenyl-1,2-benzisoselenazol-3-(2H)-one)

SECTION 15: REGULATORY INFORMATION

Ebselen:

OSHA Hazards: Target Organ Effect, Toxic by inhalation, Toxic by ingestion

SARA 302 Components: SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components: The following components are subject to reporting levels established by SARA Title III, Section 313:

Ebselen, CAS-No. 60940-34-3; Revision Date: 2007-07-01

SARA 311/312 Hazards: Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components: No components are subject of the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components: Ebselen, CAS-No. 60940-34-3; Revision Date: 2007-07-01

New Jersey Right To Know Components: Ebselen, CAS-No. 60940-34-3; Revision Date: 2007-07-01

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

EU regulations

| Component | Risk Phrases | Safety Phrases |
|-----------|---------------------|-----------------------------|
| Ebselen | R23/25, R33, R50/53 | S20/21, S36/37/39, S60, S61 |

SECTION 16: OTHER INFORMATION

OTHER INFORMATION:

PREPARATION INFORMATION:

DISCLAIMER:

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. BioVision, Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.