SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Reduced Glutathione (GSH)

PRODUCT CODES: Cat# 1242-1

MANUFACTURER: BioVision, Inc.

DIVISION: 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

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Volume</th>
<th>Safety Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced Glutathione (GSH)</td>
<td>Solid</td>
<td>1 g</td>
<td>See below</td>
</tr>
</tbody>
</table>

SECTION 3: HAZARDS IDENTIFICATION

Reduced Glutathione (GSH):

Emergency Overview

OSHA Hazards: no known OSHA hazards

GHS Classification: Acute toxicity, Oral (Category 5)

GHS Label elements, including precautionary statements

Pictogram: none

Signal word: Warning

Hazard statement(s): H303 May be harmful if swallowed

Precautionary statement(s): none

HMIS Classification

Health hazard: 1

Flammability: 0

Physical hazards: 0

NFPA Rating

Health hazard: 0

Fire: 0

Reactivity Hazard: 0

Potential Health Effects

Inhalation: May be harmful 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: May be harmful if swallowed.

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. 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.

SECTION 5: FIRE-FIGHTING MEASURES

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 firefighting if necessary.

Hazardous combustion products: Hazardous decomposition products formed under fire conditions—carbon oxides, nitrogen oxides, sulfur oxides.

Conditions of flammability: Not flammable or combustible.
**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**Personal precautions:** Use personal protective equipment. Avoid dust formation. Ensure adequate ventilation.

**Environmental precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods for cleaning up:** Sweep up and shovel. Keep in suitable, closed containers for disposal.

**SECTION 7: HANDLING AND STORAGE**

**Precautions for safe handling**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist, or gas. Avoid breathing dust.

**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**

Contains no substances with occupational exposure limit values.

**Personal protective equipment**

**Respiratory protection**
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. 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 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**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU)

**Skin and body protection**
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hygiene measures**
General industrial hygiene practice.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Reduced Glutathione (GSH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>White powder</td>
</tr>
<tr>
<td>pH:</td>
<td>No data available</td>
</tr>
<tr>
<td>Water Solubility:</td>
<td>Soluble</td>
</tr>
<tr>
<td>Specific Gravity (g/ml):</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point (°C):</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting Point (°C):</td>
<td>192-195 °C (378-383 °F)</td>
</tr>
<tr>
<td>Flash Point (°C):</td>
<td>No data available</td>
</tr>
<tr>
<td>Ignition Temperature (°C):</td>
<td>No data available</td>
</tr>
</tbody>
</table>

**SECTION 10: STABILITY AND REACTIVITY**

<table>
<thead>
<tr>
<th>Property</th>
<th>Reduced Glutathione (GSH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability</td>
<td>Stable under recommended storage conditions</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Not available</td>
</tr>
<tr>
<td>Materials to avoid</td>
<td>Strong oxidizing agents</td>
</tr>
<tr>
<td>Hazardous decomposition products:</td>
<td>Carbon oxides, nitrogen oxides, sulfur oxides</td>
</tr>
</tbody>
</table>

**SECTION 11: TOXICOLOGICAL INFORMATION**

**Reduced Glutathione (GSH):**

**Acute toxicity:**
- Oral LD50: LD50 Oral – mouse – >5,000 mg/kg
- Inhalation LC50: no data available
- Dermal LD50: no data available
- Other information on 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
SAFETY DATA SHEET
Cat# 1242-1 Reduced Glutathione (GSH)  
SDS DATE: Jan 9, 2012

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: no data available
Teratogenicity: no data available
Aspiration hazard: no data available

**Potential Health Effects**
- **Inhalation:** May be harmful 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:** May be harmful if swallowed.

Additional information: RTECS: MC0556000

**SECTION 12: ECOLOGICAL INFORMATION**

Reduced Glutathione (GSH):
- Elimination information (persistence and degradability): no data available
- Ecotoxicity effects: no data available
- Further information on ecology: no data available

**SECTION 13: DISPOSAL CONSIDERATIONS**

Product: Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging: Dispose of as unused product.

**SECTION 14: TRANSPORT INFORMATION**

Reduced Glutathione (GSH):
- DOT (US): not dangerous goods
- IMDG: not dangerous goods
- IATA: not dangerous goods

**SECTION 15: REGULATORY INFORMATION**

Reduced Glutathione (GSH):
- OSHA Hazards: No known OSHA hazards
- 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: SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
- SARA 311/312 Hazards: No SARA Hazards
- Massachusetts Right To Know Components: No components are subject to the Massachusetts Right to Know Act.
- Pennsylvania Right To Know Components: Glutathione CAS-No. 70-18-8
- New Jersey Right To Know Components: Glutathione CAS-No. 70-18-8
- 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**

<table>
<thead>
<tr>
<th>Component</th>
<th>Risk Phrases</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced Glutathione (GSH)</td>
<td>R22</td>
<td>--</td>
</tr>
</tbody>
</table>

**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.