Material Safety Data Sheet
Riboflavin

Section 1 - Chemical Product and Company Identification

**MSDS Name:** Riboflavin  
**Synonyms:** Lactoflavine; 6,7-Dimethyl-9-D-ribitylisoalloxazine; Isoalloxazine, 7,8-dimethyl-10-D-ribityl-; Isoalloxazine, 7,8-dimethyl-10-(D-ribo-2,3,4,5-tetrahydroxypentyl)-; Vitamin B2; Vitamin G

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
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<tbody>
<tr>
<td>83-88-5</td>
<td>Riboflavin</td>
<td>ca.100</td>
<td>201-507-1</td>
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</table>

Section 3 - Hazards Identification

**EMERGENCY OVERVIEW**

Appearance: Yellow powder or orange-yellow crystals.

**Warning!** Causes respiratory tract irritation. Causes eye and skin irritation. May cause digestive tract irritation. Light sensitive. This is expected to be a low hazard for usual industrial handling.

**Target Organs:** No data found.

**Potential Health Effects**
- **Eye:** Causes eye irritation. May cause chemical conjunctivitis.
- **Skin:** Causes skin irritation. May cause skin discoloration.
- **Ingestion:** Ingestion of large amounts may cause gastrointestinal irritation.
- **Inhalation:** Causes respiratory tract irritation. Can produce delayed pulmonary edema.
- **Chronic:** Effects may be delayed. Laboratory experiments have resulted in mutagenic effects.

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 aid.
- **Skin:** Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
- **Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.
- **Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. This material in sufficient quantity and reduced particle size is capable of creating a dust explosion.

Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

Flash Point: Not applicable.
Autoignition Temperature: Not applicable.
Explosion Limits, Lower: Not available.
Upper: Not available.

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Use with adequate ventilation. Store protected from light. Wash clothing before reuse.

Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Store protected from light.

Section 8 - Exposure Controls, Personal Protection

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.

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Section 9 - Physical and Chemical Properties
Physical State: Crystals
Appearance: Yellow powder or orange-yellow crystals
Odor: slight odor
pH: 6 (neutral)
Vapor Pressure: Negligible.
Vapor Density: Not available.
Evaporation Rate: negligible
Viscosity: Not applicable.
Boiling Point: Not available.
Freezing/Melting Point: 290 deg C
Decomposition Temperature: 290 deg C
Solubility: Soluble.
Specific Gravity/Density: Not available.
Molecular Formula: C17H2ON4O6
Molecular Weight: 374.0366

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions. Light sensitive.
Conditions to Avoid: Incompatible materials, light, dust generation, moisture, excess heat.
Incompatibilities with Other Materials: Strong oxidizing agents, reducing agents, bases, calcium, metallic salts.
Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, oxides of phosphorus, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#: CAS# 83-88-5: VJ1400000
LD50/LC50:
CAS# 83-88-5:
  Oral, rat: LD50 = >10 gm/kg;
Carcinogenicity:
CAS# 83-88-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
Epidemiology: No information found
Teratogenicity: No information found
Reproductive Effects: No information found
Mutagenicity: Cytogenetic Analysis: Hamster, Lung = 300 mg/L.; Sex Chromosome Loss and Nondisjunction: Hamster, Lung = 100 mg/L.
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

### Section 14 - Transport Information

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<td><strong>Shipping Name:</strong></td>
<td>Not regulated as a hazardous material</td>
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<tr>
<td><strong>Hazard Class:</strong></td>
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<tr>
<td><strong>UN Number:</strong></td>
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<tr>
<td><strong>Packing Group:</strong></td>
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### Section 15 - Regulatory Information

**Hazard Symbols:**
Not available.

### Section 16 - Additional Information

**MSDS Creation Date:** 7/16/2000

**Revision #3 Date:** 10/03/2005

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