

Material Safety Data Sheet

Red Dye Solution



1. Product and Company Identification

| | |
|------------------------------|--|
| Product Name | Red Dye Solution |
| Product Number | OM-060 |
| MSDS Number | 0011 |
| Validation Date | October 4, 2011 |
| Print Date | October 4, 2011 |
| Company | Siloam Biosciences, Inc. |
| Address | 413 Northland Blvd Cincinnati, OH 45240 United States |
| Telephone | +1 513 429 2976 |
| Fax | +1 513 429 2946 |
| Emergency Phone | +1 513 429 2976 (Monday-Friday, 8:00AM-5:00PM, ET) |
| Use of Substance/Preparation | Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications. |

2. Hazards Identification

| | |
|--------------------|---|
| Physical State | Liquid. |
| Odor | Bland. |
| OSHA/HCS Status | This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). |
| Emergency Overview | CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Contains material that can cause target organ damage. |

Potential Acute Health Effects

| | |
|------------|---|
| Inhalation | No known significant effects or critical hazards. |
| Ingestion | No known significant effects or critical hazards. |
| Skin | No known significant effects or critical hazards. |
| Eyes | No known significant effects or critical hazards. |

Potential Chronic Health Effects

| | |
|-----------------------|---|
| Chronic Effects | Contains material that can cause target organ damage. |
| Carcinogenicity | No known significant effects or critical hazards. |
| Mutagenicity | No known significant effects or critical hazards. |
| Teratogenicity | No known significant effects or critical hazards. |
| Developmental Effects | No known significant effects or critical hazards. |
| Fertility Effects | No known significant effects or critical hazards. |

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Target Organs Contains material which causes damage to the following organs: upper respiratory tract, eye, lens or cornea.

Over-Exposure Signs/Symptoms

Inhalation No specific data.

Ingestion No specific data.

Skin No specific data.

Eyes No specific data.

Medical Conditions Aggravated By Over-Exposure Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

The preparation is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification Not Classified.

See toxicological information (Section 11)

3. Composition/Information on Ingredients

United States

| <u>Name</u> | <u>CAS Number</u> | <u>%</u> |
|------------------|-------------------|----------|
| Trade Secret #10 | Not Applicable | 3 – 5 |

Europe

| <u>Substance/Preparation</u> | <u>Preparation</u> | <u>Ingredient Name</u> | <u>CAS Number</u> | <u>%</u> | <u>EC Number</u> | <u>Classification</u> |
|------------------------------|--------------------|------------------------|-------------------|----------|------------------|-----------------------|
| | | Trade Secret #10 | Not Applicable | 3 – 5 | | Not Classified. [2] |

There are no ingredients or additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in section 8.

4. First Aid Measures

Inhalation Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular, or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt, or waistband.

Ingestion Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical

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| | |
|-----------------------------------|--|
| | personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt, or waistband. |
| Skin Contact | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| Eye Contact | Immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. |
| Protection of First-Aiders | No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting Measures

| | |
|---|---|
| Flammability of The Product | In a fire or if heated, a pressure increase will occur and the container may burst. |
| Extinguishing Media | |
| Suitable | Use an extinguishing agent suitable for the surrounding fire. |
| Not Suitable | None known. |
| Special Exposure Hazards | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| Hazardous Combustion Products | Decomposition products may include the following materials: carbon oxides |
| Special Protective Equipment for Fire-Fighters | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |

6. Accidental Release Measures

| | |
|----------------------------------|--|
| Personal Precautions | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8). |
| Environmental Precautions | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil, or air). |
| Large Spill | Stop leak if without risk. Move containers from spill area. Approach |

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release from upwind. Prevent entry into sewers, water courses, basements, or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite, or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Small Spill

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

7. Handling and Storage

Handling

Put on appropriate personal protective equipment (see section 8). Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Workers should wash hands and face before eating, drinking, and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool, and well-ventilated area away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure Control/Personal Protection

Product Name

United States

Trade Secret #10

Exposure Limits

ACGIH (United States).
TWA: 10 mg/m³
NIOSH (United States).
TWA: 5 mg/m³
ACGIH TLV (United States, 1/2007).
TWA: 10 mg/m³ 8 hour(s).
NIOSH REL (United States, 12/2001).
TWA: 5 mg/m³ 10 hour(s). Form: Respirable fraction
TWA: 10 mg/m³ 10 hour(s). Form: Total
OSHA PEL (United States, 11/2006).
TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction

TWA: 15 mg/m³ 8 hour(s). Form: Total dust
OSHA PEL 1989 (United States, 3/1989).
TWA: 5 mg/m³ 8 hour(s). Form: Respirable fraction
TWA: 15 mg/m³ 8 hour(s). Form: Total dust
OSHA PEL (United States). Notes: Respirable
TWA: 15 mg/m³ 8 hour(s).

Europe

Trade Secret #10

ACGIH (United States).
TWA: 10 mg/m³
ACGIH TLV (United States, 1/2007).
TWA: 10 mg/m³ 8 hour(s).

Consult local authorities for acceptable exposure limits.

Recommended Monitoring Procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere, or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering Measures

If user operations generate dust, fumes, gas, vapor, or mist, use process enclosures, local exhaust ventilation, or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene Measures

Wash hands, forearms, and face thoroughly after handling chemical products, before eating, smoking, and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protection

Respiratory

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product, and the safe working limits of the selected respirator.

Hands

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases, or dusts.

Skin

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental Exposure Controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters, or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

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9. Physical/Chemical Properties

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|----------------|---|
| Physical State | Liquid. |
| Color | Red. |
| Odor | Bland. |
| pH | 7.4 to 7.6 |
| Solubility | Soluble in the following materials: cold water. |

10. Stability and Reactivity

| | |
|------------------------------------|---|
| Chemical Stability | The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur. |
| Conditions to Avoid | No specific data. |
| Incompatible Materials | No specific data. |
| Hazardous Decomposition Products | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| Possibility of Hazardous Reactions | Will not occur. |

11. Toxicological Information

United States

Acute Toxicity

| Product/Ingredient Name | Result | Species | Dose | Exposure |
|-------------------------|----------------|---------|-------------|----------|
| Ingredient Name #5 | LD50 Oral | Rat | 29700 mg/Kg | - |
| Conclusion/Summary | Not available. | | | |

Chronic Toxicity

| | |
|--------------------|----------------|
| Conclusion/Summary | Not available. |
|--------------------|----------------|

Carcinogenicity

| | |
|--------------------|----------------|
| Conclusion/Summary | Not available. |
|--------------------|----------------|

Classification

| Product/Ingredient Name | ACGIH | IARC | EPA | NIOSH | NTP | OSHA |
|-------------------------|-------|------|-----|-------|-----|------|
| Ingredient Name #5 | A4 | - | - | None. | - | - |

Mutagenicity

| | |
|--------------------|----------------|
| Conclusion/Summary | Not available. |
|--------------------|----------------|

Teratogenicity

| | |
|--------------------|----------------|
| Conclusion/Summary | Not available. |
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Reproductive Toxicity

| | |
|--------------------|----------------|
| Conclusion/Summary | Not available. |
|--------------------|----------------|

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Europe

| | |
|-----------------------|---|
| Chronic Effects | No known significant effects or critical hazards. |
| Carcinogenicity | No known significant effects or critical hazards. |
| Mutagenicity | No known significant effects or critical hazards. |
| Teratogenicity | No known significant effects or critical hazards. |
| Developmental Effects | No known significant effects or critical hazards. |
| Fertility Effects | No known significant effects or critical hazards. |

12. Ecological Information

Environmental Effects No known significant effects or critical hazards.

United States

| | |
|---------------------|----------------|
| Aquatic Ecotoxicity | |
| Conclusion/Summary | Not available. |

13. Disposal Considerations

Waste Disposal The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions, and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.

Hazardous Waste Within the present knowledge of the supplier, this product is not regarded as hazardous waste as defined by EU Directive 91/689/EEC.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport Information

| Regulatory Information | UN Number | Proper Shipping Name | Classes | PG* |
|------------------------|----------------|----------------------|----------------|-----|
| DOT Classification | Not available. | Not available. | Not available. | - |
| IATA-DGR Class | Not available. | Not available. | Not available. | - |

PG*: Packing Group

15. Regulatory Information

United States

| | |
|--------------------|--|
| HCS Classification | Target Organ Effects |
| U.S. Federal | United States inventory (TSCA 8b): Not determined. |

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Regulations

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Ingredient Name #5
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Ingredient Name #5: Delayed (chronic) health hazard
Clean Water Act (CWA) 307: copper (ii) nitrate, trihydrate
Clean Water Act (CWA) 311: sodium phosphate, dibasic
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada)

Not controlled under WHMIS (Canada).

Canadian Lists

CEPA Toxic substances: None of the components are listed.
Canadian ARET: None of the components are listed.
Canadian NPRI: None of the components are listed.
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

Canada Inventory

Canada inventory: At least one component is not listed.

EU Regulations

Risk Phrases

This product is not classified according to EU legislation.

International Regulations

International Lists

Australia inventory (AICS): Not determined.
China inventory (IECSC): Not determined.
Korea inventory (KECI): Not determined.
Philippines inventory (PICCS): Not determined.
Japan inventory (ENCS): Not determined.

16. Other Information

Label Requirements

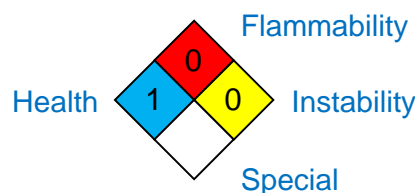
CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

Hazardous Material Information System (U.S.A.)

| | |
|------------------|---|
| Health | 1 |
| Flammability | 0 |
| Physical Hazards | 0 |
| | |

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



Red Dye Solution

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Date of Previous Issue
Version **A0**

Indicates information that has changed from previously issued version.

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