

# Material Safety Data Sheet

OptiGlow™ - C



## 1. Product and Company Identification

Product Name	OptiGlow™ - C
Product Number	OM-058
MSDS Number	0008
Validation Date	June 28, 2011
Print Date	July 8, 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 Product Supplier	Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications. QuantaRed Substrate is supplied by Thermo Fisher Scientific, Inc.

## 2. Hazards Identification

Physical State	Liquid.
Odor	Sulfurous.
OSHA/HCS Status	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency Overview	<b>WARNING !</b> CAUSES RESPIRATORY TRACT, EYE, AND SKIN IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE REPRODUCTIVE HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE REPRODUCTIVE EFFECTS IN FEMALES BASED ON ANIMAL DATA. Irritating to eyes, respiratory system, and skin. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Avoid contact with eyes, skin, and clothing. Contains material that can cause target organ damage. Contains material which may impair female fertility based on animal data. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
<u>Potential Acute Health Effects</u>	
Inhalation	Irritating to respiratory system.
Ingestion	No known significant effects or critical hazards.
Skin	Irritating to skin.
Eyes	Irritating to eyes.

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	Contains material which may impair female fertility based on animal data.
Target Organs	Contains material which causes damage to the following organs: central nervous system (CNS). Contains material which may cause damage to the following organs: skin, eye, lens, or cornea.

Over-Exposure Signs/Symptoms

Inhalation	Adverse symptoms may include the following: respiratory tract irritation coughing
Ingestion	No specific data.
Skin	Adverse symptoms may include the following: irritation redness
Eyes	Adverse symptoms may include the following: pain or irritation watering redness

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>
Dimethyl Sulfoxide (DMSO)	67-68-5	98 – 100

Substance/Preparation Preparation

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.

## 4. First Aid Measures

Inhalation	Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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. 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	Get medical attention immediately. 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 personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. 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. Wash contaminated clothing thoroughly with water before removing or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. 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.
Protection of First-Aiders	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves.

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  
sulfur 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 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 breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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

Exposure Limits

### United States

AIHA WEEL (United States, 1/2007).  
TWA: 250 ppm 8 hour(s).

### Europe

No exposure limit value known.

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

Use only with adequate ventilation. 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.

## 9. Physical/Chemical Properties

Physical State	Liquid.
Odor	Sulfurous.

## 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	Avoid exposure - obtain special instructions before use.
Incompatible Materials	No specific data.
Hazardous Decomposition Products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11. Toxicological Information

### United States

#### Acute Toxicity

Product/Ingredient Name	Result	Species	Dose	Exposure
dimethyl sulfoxide	LD50 Dermal	Rat	40 g/Kg	-
	LD50 Dermal	Rabbit	>5000 mg/Kg	-
	LD50 Intraperitoneal	Rat	8200 mg/Kg	-
	LD50 Intravenous	Rat	5360 mg/Kg	-
	LD50 Oral	Rat	17400 mg/Kg	-
	LD50 Oral	Rat	14500 mg/Kg	-
	LD50 Subcutaneous	Rat	12 g/Kg	-
	LD50 Unreported	Rat	1300 mg/Kg	-
	TDLo Intraperitoneal	Rat	1000 mg/Kg	-
	TDLo Intraperitoneal	Rat	750 mg/Kg	-
	TDLo Intraperitoneal	Rat	200 mg/Kg	-
	LCLo Inhalation Vapor	Rabbit	500 mg/m3	3 hours

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
dimethyl sulfoxide	-	-	-	None.	-	None.

Mutagenicity

Conclusion/Summary Not available.

Teratogenicity

Conclusion/Summary Not available.

Reproductive Toxicity

Conclusion/Summary Not available.

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	NA1993	Combustible liquid, n.o.s. (dimethyl sulfoxide)	Combustible liquid.	III
IATA-DGR Class	Not regulated.	-	-	-

PG\*: Packing Group

## 15. Regulatory Information

### United States

#### HCS Classification

Irritating material  
Target organ effects

#### U.S. Federal Regulations

United States inventory (TSCA 8b): Not determined.  
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: dimethyl sulfoxide  
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:  
dimethyl sulfoxide: Immediate (acute) health hazard, Delayed (chronic) health hazard  
Clean Water Act (CWA) 307: No products were found.  
Clean Water Act (CWA) 311: No products were found.  
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: Not determined.

### 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

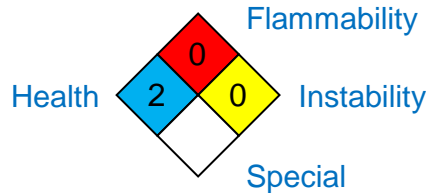
CAUSES RESPIRATORY TRACT, EYE, AND SKIN IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE REPRODUCTIVE HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE ADVERSE REPRODUCTIVE EFFECTS IN FEMALES BASED ON ANIMAL DATA.

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

Health	2
Flammability	0
Physical Hazards	0

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

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



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- Indicates information that has changed from previously issued version.
  - (1) Section 1. Revised Product Number.

### Notice to Reader

This material is sold for Research Use Only. It is not for any human or animal therapeutic or clinical diagnostic use. It is not intended for food, drug, household, agricultural, or cosmetic use. An individual technically qualified to handle potentially hazardous chemicals must supervise the use of this material.

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