

MitoSpy[™] Orange CMTMRos

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

Date of issue: 12/07/2015

Revision date: 12/07/2015

Version: 1.0

Product identifier

Product name : MitoSpy[™] Orange CMTMRos
Product code : 424803 & 424804

Product Use

Relevant identified uses

Use of the substance/mixture : Research use only

Company

BioLegend Inc.
9727 Pacific Heights Blvd.
San Diego, CA 92121 – USA
T +1-858-455-9588

Emergency telephone number

Emergency number : +1-858-455-9588 (7:00AM – 5:00PM PT, M-F)

Kit Components

Component	Product code
MitoSpy [™] Orange CMTMRos	--
DMSO	--

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
 Product name : MitoSpy™ Orange CMTMRos
 Substance name : MitoSpy™ Orange CMTMRos
 CAS no : N/A
 Product code : N/A
 Formula : C₂₄H₂₄Cl₂N₂O

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Research use only

1.3. Details of the supplier of the safety data sheet

BioLegend Inc.
 9727 Pacific Heights Blvd.
 San Diego, CA 92121 – USA
 T +1-858-455-9588

1.4. Emergency telephone number

Emergency number : +1-858-455-9588 (7:00AM – 5:00PM PT, M-F)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified.

2.2. Label elements

GHS-US labelling

No labelling applicable.

2.3. Other hazards

No additional information available.

2.4. Unknown acute toxicity (GHS US)

None known.

SECTION 3: Composition/information on ingredients

3.1. Substance

Name	Product identifier	%	GHS-US classification
None by OSHA HazCom 2012 criteria.			

3.2. Mixture

Not applicable.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
 First-aid measures after skin contact : Immediately remove contaminated clothes, and wash with soap and copious amounts of water. Get medical attention if irritation persists.
 First-aid measures after eye contact : In case of contact, immediately flush eyes with plenty of water. Remove contact lenses, if worn. If irritation persists, get medical attention.
 First-aid measures after ingestion : If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May be harmful if swallowed.
 Symptoms/injuries after skin contact : May cause skin irritation
 Symptoms/injuries after eye contact : May cause eye irritation.

MitoSpy™ Orange CMTMRos

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

Symptoms/injuries after ingestion : May be harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray, carbon dioxide, dry chemical powder or appropriate foam. Treat for surrounding material.

Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Not available.

5.3. Advice for firefighters

Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.2. Methods and material for containment and cleaning up

For containment : Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for cleaning up : Scoop up material and place in a disposal container.

6.3. Reference to other sections

See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : This product contains human cells, a potentially biohazardous material. Use universal precautions when handling and treat as if the product were capable of transmitting disease. When handling or disposing, follow precautions described in CDC and FDA recommendations and OSHA Bloodborne Pathogen recommendations. Avoid contact with skin and eyes. Avoid breathing vapour or mist. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke.

Hygiene measures : Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed. Store at -20°C. Protect from light.

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available.

8.2. Exposure controls

Appropriate engineering controls : Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.

Hand protection : Wear suitable gloves.

Eye protection : Safety glasses or goggles are recommended when handling product.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : Not normally needed. In case of insufficient ventilation, wear suitable respiratory equipment.

Environmental exposure controls : Maintain levels below Community environmental protection thresholds.

Other information : Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

MitoSpy™ Orange CMTMRos

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: No data available
Colour	: Colorless
Odour	: No characteristic odor
Odour threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: Not applicable
Flash point	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: Not flammable
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Vapour pressure	: Not applicable
Relative density	: Not applicable
Relative vapour density at 20 °C	: Not applicable
Solubility in water	: None to slight
Solubility-other	: DMF, DMSO, chloroform, methanol
Partition coefficient: n-octanol/water	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. Other information

No additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

Stable under normal storage conditions.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Avoid moisture, strong bases and strong oxidizing agents.

10.5. Incompatible materials

Avoid moisture, strong bases and strong oxidizing agents.

10.6. Hazardous decomposition products

None if used according to specifications.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified. To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

MitoSpy™ Orange CMTMRos

LD50 oral rat

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MitoSpy™ Orange CMTMRos

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

MitoSpy™ Orange CMTMRos

LD50 dermal rabbit	--
LC50 inhalation rat	--

Skin corrosion/irritation	: Based on available data, the classification criteria are not met.
Serious eye damage/irritation	: Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation	: Based on available data, the classification criteria are not met.
Germ cell mutagenicity	: Based on available data, the classification criteria are not met.
Carcinogenicity	: Based on available data, the classification criteria are not met.
Reproductive toxicity	: Based on available data, the classification criteria are not met.
Specific target organ toxicity (single exposure)	: Based on available data, the classification criteria are not met.
Specific target organ toxicity (repeated exposure)	: Based on available data, the classification criteria are not met.
Aspiration hazard	: Based on available data, the classification criteria are not met.
Symptoms/injuries after inhalation	: May be harmful if inhaled..
Symptoms/injuries after skin contact	: May cause skin irritation.
Symptoms/injuries after eye contact	: May cause eye irritation.
Symptoms/injuries after ingestion	: May be harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: This product is not expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.
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12.2. Persistence and degradability

MitoSpy™ Orange CMTMRos

Persistence and degradability	Not established.
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12.3. Bioaccumulative potential

MitoSpy™ Orange CMTMRos

Bioaccumulative potential	Not established.
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12.4. Mobility in soil

No additional information available.

12.5. Other adverse effects

Effect on the global warming	: No known ecological damage caused by this product.
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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations	: This material must be disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.
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SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT
Not regulated for transport.

Additional information

Other information	: No supplementary information available.
Special transport precautions	: Do not handle until all safety precautions have been read and understood.

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

15.2. US State regulations

MitoSpy™ Orange CMTMRos

MitoSpy™ Orange CMTMRos

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

MitoSpy™ Orange CMTMRos

State or local regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

SECTION 16: Other information

Date of issue : 12/07/2015

Other information : None.

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
 Product name : DMSO
 Substance name : Dimethyl sulfoxide
 CAS no : 67-68-5
 Product code : Not available
 Formula : C₂H₆O_S

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Research use only

1.3. Details of the supplier of the safety data sheet

BioLegend Inc.
 9727 Pacific Heights Blvd.
 San Diego, CA 92121 – USA
 T +1-858-455-9588

1.4. Emergency telephone number

Emergency number : +1-858-455-9588 (7:00AM – 5:00PM PT, M-F)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Flammable Liquid 4

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) : Not applicable.
 Signal word (GHS-US) : Warning
 Hazard statements (GHS-US) : Combustible liquid.
 Precautionary statements (GHS-US) : Keep away from flames and hot surfaces. – No smoking. Wear protective gloves/protective clothing/eye protection/face protection. Store in a well-ventilated place. Keep cool. Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. Other hazards

No additional information available.

SECTION 3: Composition/information on ingredients

3.1. Substance

Name	Product identifier	%	GHS-US classification
Dimethyl sulfoxide	(CAS No) 67-68-5	100	Flam. Liq. 4

3.2. Mixture

Not applicable.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
 First-aid measures after skin contact : In case of contact, immediately flush skin with plenty of water. Call a physician if irritation develops and persists.
 First-aid measures after eye contact : In case of contact, immediately flush eyes with plenty of water. Remove contact lenses, if worn. If irritation persists, get medical attention.
 First-aid measures after ingestion : If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

DMSO

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : May cause respiratory tract irritation.
- Symptoms/injuries after skin contact : May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.
- Symptoms/injuries after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
- Symptoms/injuries after ingestion : May be harmful if swallowed. May cause stomach distress, nausea or vomiting.

4.3. Indication of any immediate medical attention and special treatment needed

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray, alcohol-resistant foam, dry chemical, carbon dioxide.
- Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Combustible liquid. Products of combustion may include, and are not limited to: oxides of carbon, oxides of sulfur.

5.3. Advice for firefighters

- Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA). Use water spray to cool exposed surfaces.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Eliminate sources of ignition. Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Use special care to avoid static electric charges.

6.2. Methods and material for containment and cleaning up

- For containment : Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).
- Methods for cleaning up : Scoop up material and place in a disposal container. Vapors may be heavier than air and may travel along the ground to a distant ignition source and flash back. Provide ventilation.

6.3. Reference to other sections

See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Keep away from sources of ignition - No smoking. Avoid contact with skin and eyes. Avoid breathing vapour or mist. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke.
- Hygiene measures : Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Proper grounding procedures to avoid static electricity should be followed.
- Storage conditions : Keep container tightly closed. Store in dry, well-ventilated area. Store under inert gas. Hygroscopic product.

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Dimethyl sulfoxide (67-68-5)

AIHA	AIHA - Workplace Environmental Exposure Levels (WEELs) - TWAs	250 ppm
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8.2. Exposure controls

- Appropriate engineering controls : Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.

DMSO

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

Hand protection	: Wear suitable gloves.
Eye protection	: Safety glasses or goggles are recommended when using product.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	: In case of insufficient ventilation, wear suitable respiratory equipment. 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.
Environmental exposure controls	: Maintain levels below Community environmental protection thresholds.
Other information	: Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear
Colour	: Colourless
Odour	: Sulphurous
Odour threshold	: No data available
pH	: No data available
Melting point	: 16 - 19 °C (61 - 66 °F)
Freezing point	: 16 - 19 °C (61 - 66 °F)
Boiling point	: 189 °C (372 °F)
Flash point	: 87 °C (189 °F) Closed cup
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: Flammable
Explosive limits	: Upper explosion limit: 42 % Lower explosion limit: 3.5 %
Explosive properties	: Not explosive
Oxidising properties	: Not oxidizing
Vapour pressure	: 0.55 hPa (0.41 mmHg) at 20 °C (68 °F) 4 hPa (3 mmHg) at 50 °C (122 °F)
Relative density	: 1.1 g/ml
Relative vapour density	: 2.70 - (Air = 1.0)
Solubility	: Water: miscible Alcohol: soluble Diethylether: soluble
Partition coefficient: n-octanol/water	: -1.349
Log Kow	: No data available
Auto-ignition temperature	: 300 - 302 °C (572 - 576 °F)
Decomposition temperature	: > 190 °C (> 374 °F)
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. Other information

No additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

Stable under normal storage conditions.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Heat. Incompatible materials. Sources of ignition.

DMSO

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

10.5. Incompatible materials

Acid chlorides. Phosphorus halides. Strong acids. Strong oxidizing agents. Strong reducing agents.

10.6. Hazardous decomposition products

May include, and are not limited to: oxides of carbon, oxides of sulfur.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified.

Dimethyl sulfoxide (67-68-5)	
LD50 oral rat	14500 mg/kg
LD50 dermal rabbit	40 g/kg

Skin corrosion/irritation : Based on available data, the classification criteria are not met.
Serious eye damage/irritation : Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation : Based on available data, the classification criteria are not met.
Germ cell mutagenicity : Based on available data, the classification criteria are not met.
Carcinogenicity : Based on available data, the classification criteria are not met.
Reproductive toxicity : Based on available data, the classification criteria are not met.
Specific target organ toxicity (single exposure) : Based on available data, the classification criteria are not met.
Specific target organ toxicity (repeated exposure) : Based on available data, the classification criteria are not met.
Aspiration hazard : Based on available data, the classification criteria are not met.
Symptoms/injuries after inhalation : May cause respiratory tract irritation.
Symptoms/injuries after skin contact : May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.
Symptoms/injuries after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/injuries after ingestion : May be harmful if swallowed. May cause stomach distress, nausea or vomiting.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : This product is not expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

12.2. Persistence and degradability

DMSO	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

DMSO	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available.

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : This material must be disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.
Additional information : Handle empty containers with care because residual vapours are flammable.

DMSO

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

UN-No.(DOT) : NA1993
Proper Shipping Name (DOT) : Combustible liquid
Department of Transportation (DOT) Hazard Classes : Combustible liquid
Packing group (DOT) : III

Additional information

Other information : No supplementary information available.
Special transport precautions : Do not handle until all safety precautions have been read and understood.

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available.

15.2. US State regulations

DMSO

State or local regulations	This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.
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SECTION 16: Other information

Date of issue : 04/10/2015
Other information : None.

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

MitoSpy[™] Orange CMTMRos

Safety Data Sheet

according to Regulation (EC) No. 453/2010

Date of issue: 22/09/2015

Revision date: 22/09/2015

:

Version: 1.0

Product identifier

Product name : MitoSpy[™] Orange CMTMRos
Product code : 424803 & 424804

Product Use

Relevant identified uses

Main use category : Industrial use
Use of the substance/mixture : Research use only

Company

BioLegend Inc.
4B Highgate Business Centre
33 Greenwood Place
London, NW5 1LB - UK
T +44 (0) 20 3475 3880
infoeurope@biolegend.com
<http://www.biolegend.com/uk>

Emergency telephone number

Emergency number : +44 (0) 20 3475 3880 (9:00AM - 5:00PM GMT, M-F)

Kit Components

Component	Product code
MitoSpy [™] Orange CMTMRos	--
DMSO	--

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form	: Substance
Product name	: MitoSpy™ Orange CMTMRos
Substance name	: MitoSpy™ Orange CMTMRos
EC index no	: Not available
EC no	: Not available
CAS no	: Not available
Product code	: Not available
Formula	: C ₂₄ H ₂₄ Cl ₂ N ₂ O

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Main use category	: Industrial use
Use of the substance/mixture	: Research use only

1.2.2. Uses advised against

No additional information available.

1.3. Details of the supplier of the safety data sheet

BioLegend Inc.
4B Highgate Business Centre
33 Greenwood Place
London, NW5 1LB - UK
T +44 (0) 20 3475 3880
infoeurope@biolegend.com
<http://www.biolegend.com/uk>

1.4. Emergency telephone number

Emergency number : +44 (0) 20 3475 3880 (9:00AM - 5:00PM GMT, M-F)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Not classified.

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Not classified.

Adverse physicochemical, human health and environmental effects

No additional information available.

2.2. Label elements**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

Unknown acute toxicity (CLP) - SDS : None known.

Unknown hazards to the aquatic environment (CLP) : None known.

2.3. Other hazards

No additional information available.

SECTION 3: Composition/information on ingredients**3.1. Substance**

This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of REACH annex II.

3.2. Mixture

Not applicable.

SECTION 4: First aid measures**4.1. Description of first aid measures**

First-aid measures after inhalation	: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
First-aid measures after skin contact	: Immediately remove contaminated clothes, and wash with soap and copious amounts of water. Get medical attention if irritation persists.

MitoSpy™ Orange CMTMRos

Safety Data Sheet

according to Regulation (EC) No. 453/2010

- First-aid measures after eye contact : In case of contact, immediately flush eyes with plenty of water. Remove contact lenses, if worn. If irritation persists, get medical attention.
- First-aid measures after ingestion : If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : May be harmful if inhaled.
- Symptoms/injuries after skin contact : May cause skin irritation.
- Symptoms/injuries after eye contact : May cause eye irritation.
- Symptoms/injuries after ingestion : May be harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray, carbon dioxide, dry chemical powder or appropriate foam. Treat for surrounding material.
- Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Products of combustion may include, and are not limited to: oxides of carbon.

5.3. Advice for firefighters

- Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.2. Environmental precautions

Keep out of drains, sewers, ditches, and waterways. Minimize use of water to prevent environmental contamination.

6.3. Methods and material for containment and cleaning up

- For containment : Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).
- Methods for cleaning up : Scoop up material and place in a disposal container.

6.4. Reference to other sections

See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : This product contains human cells, a potentially biohazardous material. Use universal precautions when handling and treat as if the product were capable of transmitting disease. When handling or disposing, follow precautions described in CDC and FDA recommendations and OSHA Bloodborne Pathogen recommendations. Avoid contact with skin and eyes. Avoid breathing vapour or mist. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke.
- Hygiene measures : Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep container tightly closed. Store at -20°C. Protect from light.

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available.

8.2. Exposure controls

- Appropriate engineering controls : Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.
- Hand protection : Wear suitable gloves.
- Eye protection : Safety glasses or goggles are recommended when handling product.
- Skin and body protection : Wear suitable protective clothing.

MitoSpy™ Orange CMTMRos

Safety Data Sheet

according to Regulation (EC) No. 453/2010

Respiratory protection	: Not normally needed. In case of insufficient ventilation, wear suitable respiratory equipment.
Environmental exposure controls	: Maintain levels below Community environmental protection thresholds.
Other information	: Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: No data available
Colour	: No characteristic odor
Odour	: No data available
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: Not applicable
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not flammable
Vapour pressure	: Not applicable
Relative vapour density at 20 °C	: Not applicable
Relative density	: Not applicable
Solubility-water	: None to slight
Solubility-other	: DMF, DMSO, chloroform, methanol
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

Stable under normal storage conditions.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Avoid moisture, strong bases and strong oxidizing agents.

10.5. Incompatible materials

Avoid moisture, strong bases and strong oxidizing agents.

10.6. Hazardous decomposition products

None if used according to specifications.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified. To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.
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MitoSpy™ Orange CMTMRos	
LD50 oral rat	--
LD50 dermal rabbit	--
LC50 inhalation rat	--

MitoSpy™ Orange CMTMRos

Safety Data Sheet

according to Regulation (EC) No. 453/2010

Skin corrosion/irritation	: Based on available data, the classification criteria are not met.
Serious eye damage/irritation	: Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation	: Based on available data, the classification criteria are not met.
Germ cell mutagenicity	: Based on available data, the classification criteria are not met.
Carcinogenicity	: Based on available data, the classification criteria are not met.
Reproductive toxicity	: Based on available data, the classification criteria are not met.
Specific target organ toxicity (single exposure)	: Based on available data, the classification criteria are not met.
Specific target organ toxicity (repeated exposure)	: Based on available data, the classification criteria are not met.
Aspiration hazard	: Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : This product is not expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

12.2. Persistence and degradability

MitoSpy™ Orange CMTMRos

Persistence and degradability	Not established.
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12.3. Bioaccumulative potential

MitoSpy™ Orange CMTMRos

Bioaccumulative potential	Not established.
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12.4. Mobility in soil

No additional information available.

12.5. Results of PBT and vPvB assessment

No additional information available.

12.6. Other adverse effects

No additional information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : This material must be disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.

SECTION 14: Transport information

In accordance with ADR

14.1. UN number

Not regulated for transport.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Dangerous for the environment	: No.
Marine pollutant	: No.
Other information	: No supplementary information available.

14.6. Special precautions for user

Special transport precautions : Do not handle until all safety precautions have been read and understood.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Contains no substances with Annex XVII restrictions.

MitoSpy™ Orange CMTMRos

Safety Data Sheet

according to Regulation (EC) No. 453/2010

Contains no REACH candidate substance.

Contains no REACH Annex XIV substances.

15.1.2. National regulations

No additional information available.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Indication of changes:

None.

Data sources

: REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information

: None.

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form	: Substance
Product name	: DMSO
Substance name	: Dimethyl sulfoxide
EC index no	: Not available
EC no	: 200-664-3
CAS no	: 67-68-5
Reach registration No	: Not available
Product code	: Not available
Formula	: C ₂ H ₆ O _S

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Main use category	: Industrial use
Use of the substance/mixture	: Research use only

1.2.2. Uses advised against

No additional information available.

1.3. Details of the supplier of the safety data sheet

BioLegend Inc.
4B Highgate Business Centre
33 Greenwood Place
London, NW5 1LB - UK
T +44 (0) 20 3475 3880
infoeurope@biolegend.com
<http://www.biolegend.com/uk>

1.4. Emergency telephone number

Emergency number : +44 (0) 20 3475 3880 (9:00AM - 5:00PM GMT, M-F)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Not classified.

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Not classified.

Adverse physicochemical, human health and environmental effects

No additional information available.

2.2. Label elements**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

No labelling applicable.

2.3. Other hazards

No additional information available.

SECTION 3: Composition/information on ingredients**3.1. Substance**

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Dimethyl sulfoxide	(CAS No) 67-68-5 (EC no) 200-664-3	100	Not classified.

Name	Product identifier	%	Classification according to Directive 67/548/EEC
Dimethyl sulfoxide	(CAS No) 67-68-5 (EC no) 200-664-3	100	Not classified.

DMSO

Safety Data Sheet

according to Regulation (EC) No. 453/2010

Full text of R- and H-phrases: see section 16

3.2. Mixture

Not applicable.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
First-aid measures after skin contact	: In case of contact, immediately flush skin with plenty of water. Call a physician if irritation develops and persists.
First-aid measures after eye contact	: In case of contact, immediately flush eyes with plenty of water. Remove contact lenses, if worn. If irritation persists, get medical attention.
First-aid measures after ingestion	: If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	: May cause respiratory tract irritation.
Symptoms/injuries after skin contact	: May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.
Symptoms/injuries after eye contact	: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/injuries after ingestion	: May be harmful if swallowed. May cause stomach distress, nausea or vomiting.

4.3. Indication of any immediate medical attention and special treatment needed

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Water spray, alcohol-resistant foam, dry chemical, carbon dioxide.
Unsuitable extinguishing media	: None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Combustible liquid. Products of combustion may include, and are not limited to: oxides of carbon, oxides of sulfur.
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5.3. Advice for firefighters

Protection during firefighting	: Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA). Use water spray to cool exposed surfaces.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Eliminate sources of ignition. Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Use special care to avoid static electric charges.
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6.2. Environmental precautions

Keep out of drains, sewers, ditches, and waterways. Minimize use of water to prevent environmental contamination.

6.3. Methods and material for containment and cleaning up

For containment	: Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).
Methods for cleaning up	: Scoop up material and place in a disposal container. Vapors may be heavier than air and may travel along the ground to a distant ignition source and flash back. Provide ventilation.

6.4. Reference to other sections

See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Keep away from sources of ignition - No smoking. Avoid contact with skin and eyes. Avoid breathing vapour or mist. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke.
Hygiene measures	: Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Proper grounding procedures to avoid static electricity should be followed.
Storage conditions	: Keep container tightly closed. Store in dry, well-ventilated area. Store under inert gas. Hygroscopic product.

DMSO

Safety Data Sheet

according to Regulation (EC) No. 453/2010

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available.

8.2. Exposure controls

Appropriate engineering controls	: Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.
Hand protection	: Wear suitable gloves.
Eye protection	: Safety glasses or goggles are recommended when using product.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	: In case of insufficient ventilation, wear suitable respiratory equipment. 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.
Environmental exposure controls	: Maintain levels below Community environmental protection thresholds.
Other information	: Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear
Colour	: Colourless
Odour	: Sulphurous
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 16 - 19 °C (61 - 66 °F)
Freezing point	: 16 - 19 °C (61 - 66 °F)
Boiling point	: 189 °C (372 °F)
Flash point	: 87 °C (189 °F) Closed cup
Auto-ignition temperature	: 300 - 302 °C (572 - 576 °F)
Decomposition temperature	: > 190 °C (> 374 °F)
Flammability (solid, gas)	: Not flammable by EU criteria
Vapour pressure	: 0.55 hPa (0.41 mmHg) at 20 °C (68 °F) 4 hPa (3 mmHg) at 50 °C (122 °F)
Relative vapour density at 20 °C	: No data available
Relative density	: 1.1 g/ml
Solubility	: Water: miscible Alcohol: soluble Diethylether: soluble
Partition coefficient: n-octanol/water	: -1.349
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: Not explosive
Oxidising properties	: Not oxidizing
Explosive limits	: Upper explosion limit: 42 % Lower explosion limit: 3.5 %

9.2. Other information

No additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

Stable under normal storage conditions.

DMSO

Safety Data Sheet

according to Regulation (EC) No. 453/2010

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Heat. Incompatible materials. Sources of ignition.

10.5. Incompatible materials

Acid chlorides. Phosphorus halides. Strong acids. Strong oxidizing agents. Strong reducing agents.

10.6. Hazardous decomposition products

May include, and are not limited to: oxides of carbon, oxides of sulfur.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified.

Dimethyl sulfoxide (67-68-5)	
LD50 oral rat	14500 mg/kg
LD50 dermal rabbit	40 g/kg

Skin corrosion/irritation : Based on available data, the classification criteria are not met.

Serious eye damage/irritation : Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation : Based on available data, the classification criteria are not met.

Germ cell mutagenicity : Based on available data, the classification criteria are not met.

Carcinogenicity : Based on available data, the classification criteria are not met.

Reproductive toxicity : Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure) : Based on available data, the classification criteria are not met.

Specific target organ toxicity (repeated exposure) : Based on available data, the classification criteria are not met.

Aspiration hazard : Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : This product is not expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

Dimethyl sulfoxide (67-68-5)	
LC50 fishes 1	34000 mg/l (96 h - Pimephales promelas)
LC50 fish 2	33 - 37 g/l (96 h - Oncorhynchus mykiss [static])

12.2. Persistence and degradability

DMSO	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

DMSO	
Bioaccumulative potential	Not established.

Dimethyl sulfoxide (67-68-5)	
Partition coefficient: n-octanol/water	-2.03

12.4. Mobility in soil

No additional information available.

12.5. Results of PBT and vPvB assessment

No additional information available.

12.6. Other adverse effects

No additional information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : This material must be disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.

Additional information : Handle empty containers with care because residual vapours are flammable.

DMSO

Safety Data Sheet

according to Regulation (EC) No. 453/2010

SECTION 14: Transport information

In accordance with ADR

14.1. UN number

Not regulated for transport.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Dangerous for the environment : No.

Marine pollutant : No.

Other information : No supplementary information available.

14.6. Special precautions for user

Special transport precautions : Do not handle until all safety precautions have been read and understood.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions.

Contains no REACH candidate substance.

Contains no REACH Annex XIV substances.

15.1.2. National regulations

No additional information available.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Indication of changes:

None.

Data sources

: REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information

: None.

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