

## MATERIAL SAFETY DATA SHEET

Date Revised: November 4, 2014

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Forget-Me-Not™ qPCR Master Mix  
**Catalog Number:** 99801  
**Unit Size:** 1 mL  
**Manufacturer/Supplier:** Biotium, Inc.  
3159 Corporate Place, Hayward, CA 94545, USA  
Phone: 1-510-265-1027, Fax: 1-510-265-1352  
Web: <http://www.biotium.com>

### 2. HAZARDS IDENTIFICATION

#### Classification according to Regulation (EC) No 1272/2008[CLP]

See composition/information on ingredients below.

#### Classification according to Directive 1999/45/EC

See composition/information on ingredients below.

#### Labelling according to Regulation (EC) No 1272/2008[CLP]

**Hazard pictogram****Signal word** Warning, Danger

#### Hazard statements

H315 Causes skin irritation  
H319 Causes serious eye irritation  
H335 May cause respiratory irritation  
H302 Harmful if swallowed  
H373 Causes damage to organs through prolonged or repeated exposure (lungs)  
H372 Causes damage to organs through prolonged or repeated exposure (gastrointestinal, oral)

#### Precautionary statements

P264 Wash hands thoroughly after handling.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P302+P352 IF ON SKIN: wash with plenty of soap and water.  
P332+P313 IF SKIN irritation occurs: Get medical advice/attention.  
P362 Take off contaminated clothing and wash before reuse.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+P313 IF eye irritation persists: Get medical advice/attention.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P271 Use only outdoors or in a well-ventilated area.  
P304+P340 IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.  
P312 Call a POISON CENTER or doctor/physician if you feel unwell.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P501 Dispose of contents/container to hazardous waste.  
P270 Do not eat, drink or smoke when using this product.  
P301+P312 IF SWALLOWED: call a POISON CENTER or doctor/physician IF you feel unwell.  
P330 Rinse mouth.  
P501 Dispose of contents/container to hazardous waste.  
P312 Call a POISON CENTER or doctor/physician if you feel unwell.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
 P314 Get medical advice/attention if you feel unwell.

**HMIS Classification** (Dimethyl sulfoxide)

Health hazard: 0  
 Flammability: 2  
 Physical hazards: 0

**NFPA Rating** (Dimethyl sulfoxide)

Health hazard: 0  
 Fire: 2  
 Reactivity Hazard: 0

**HMIS Classification** (glycerol)

Health hazard: 1  
 Flammability: 1  
 Physical hazards: 0

**NFPA Rating** (glycerol)

Health hazard: 1  
 Fire: 1  
 Reactivity Hazard: 0

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	CAS No.	EC No.	Index No.	Weight %	Classification according to 67/548/EEC	Classification according to regulation (EC)No1278/2008
Dimethylsulfoxide (DMSO)	67-68-5	200-664-3	N/A	≥10%	N/A	Skin Irrit. 2 Eye Irrit. 2 STOT SE 3 (respiratory system) Acute Tox. 4
Glycerol	56-81-5	200-289-5	N/A	≥2%	N/A	Skin Irrit. 2 Eye Irrit. 2 STOT RE 2 (lungs) STOT RE 1 (gastrointestinal, oral)

### 4. FIRST-AID MEASURES

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 5. FIREFIGHTING MEASURES

**Suitable extinguishing media**

carbon dioxide, dry chemical extinguishers, foam extinguishers or water.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for firefighting if necessary.

### 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Avoid breathing vapors, mist or gas. Remove all sources of ignition.

### Environmental precautions

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

### Methods and materials for containment and cleaning up

Contain spillage. Soak up spilled substance with inert absorbent material. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid inhalation of vapor or mist.

Avoid direct contact with substance.

### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

Store at -20°C.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Substance Glycerol

CAS no. 56-81-5

country	Austria	Belgium	Denmark	European Union	France	Germany
Limit value, 8hours	--	10 mg/m <sup>3</sup>	--	--	10 mg/m <sup>3</sup>	50 mg/m <sup>3</sup> inhalable aerosol
Limit value, short term	--		--	--	--	100 mg/m <sup>3</sup> inhalable aerosol

country	Hungary	Italy	Poland	Spain	Sweden	Netherlands	Switzerland
Limit value, 8hours	--	--	10 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	--	--	50 mg/m <sup>3</sup> inhalable aerosol
Limit value, short term	--	--	--	--	--	--	100 mg/m <sup>3</sup> inhalable aerosol

country	United Kingdom	USA-NIOSH	USA-OSHA	Australia	Canada	Japan	South Korea
Limit value, 8hours	10 mg/m <sup>3</sup>	--	15 mg/m <sup>3</sup> inhalable dust  5 mg/m <sup>3</sup> respirable dust	10 mg/m <sup>3</sup> (1)	10 mg/m <sup>3</sup>	--	10 mg/m <sup>3</sup>
Limit value, short term	--	--	--	--	--	--	--

Australia (1) This value is for inhalable dust containing no asbestos and < 1% crystalline silica.  
 Germany STV 15 minutes average value

Substance: DMSO  
 CAS no. 67-68-5

country	Austria	Belgium	Denmark	European Union	France	Germany
Limit value, 8hours	50 ppm 160 mg/m <sup>3</sup>	--	50 ppm 160 mg/m <sup>3</sup>	--	--	50 ppm 160 mg/m <sup>3</sup>
Limit value, short term	--	--	100 ppm 320 mg/m <sup>3</sup>	--	--	100 ppm (1) 320 mg/m <sup>3</sup> (1)

country	Hungary	Italy	Poland	Spain	Sweden	Netherlands	Switzerland
Limit value, 8hours	--	--	--	--	50 ppm 150 mg/m <sup>3</sup>	--	50 ppm 160 mg/m <sup>3</sup>
Limit value, short term	--	--	--	--	150 ppm (1) 500 mg/m <sup>3</sup> (1)	--	100 ppm 320 mg/m <sup>3</sup>

country	United Kingdom	USA-NIOSH	USA-OSHA	Australia	Canada	Japan	South Korea
Limit value, 8hours	--	--	--	--	--	--	--
Limit value, short term	--	--	--	--	--	--	--

Remarks  
 Germany (DFG) (1) 15 minutes average value  
 Sweden (1) Short-term value, 15 minutes average value

### Personal protective equipment

#### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Respiratory protection

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Eye protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	Forget-Me-Not™ qPCR Master Mix
Appearance	Clear liquid
Odor	No data available

Odor threshold	No data available
pH	8.5
Melting point/freezing point	No data available
Boiling point	No data available
Flash point	No data available
Evaporate rate	No data available
Flammability	No data available
Explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Solubility	Water soluble
Partition coefficient:n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

No data available

### Conditions to avoid

Heat, flames and sparks.

### Materials to avoid

No data available

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - no data available

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

**Oral LD50** Dimethyl sulfoxide: rat - 14,500 mg/kg; glycerol: mouse-4h-4090 mg/kg

**Inhalation LC50** Dimethyl sulfoxide: rat - 4 h - 40250 ppm; glycerol: rat-1h->570 gm/m<sup>3</sup>

**Dermal LD50** Dimethyl sulfoxide: rabbit - > 5,000 mg/kg; glycerol: rabbit-4h-10,000 mg/kg

**Other information on acute toxicity** no data available

**Skin corrosion/irritation** no data available

**Serious eye damage/eye irritation** no data available

**Respiratory or skin sensitization** no data available

**Germ cell mutagenicity** Dimethyl sulfoxide: Salmonella typhimurium assay (Ames test):  
negative (+/- activation); DMSO is used as a neutral solvent in the Ames mutagen test

### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

Dimethyl sulfoxide: Experiments have shown reproductive toxicity effects on laboratory animals

Glycerol: TDL (rat) - Route: Oral; Dose: 100 mg/kg 1 day prior to mating. TDL (human) - Route: Oral; Dose: 1428 mg/kg

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

Dimethyl sulfoxide: STOT SE category 3 (respiratory system)

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

Glycerol: STOT RE category 2 (lungs); STOT RE category 1 (gastrointestinal, oral)

**Aspiration hazard**

Aspiration hazard (glycerol)

**Potential health effects**

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. May cause skin irritation.

Eyes May cause eye irritation.

**Additional Information**

RTECS: Dimethylsulfoxide: PV6210000; Glycerol: MA8050000

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## 12. ECOLOGICAL INFORMATION

**Toxicity** Dimethylsulfoxide: The LC50 (96 hrs) for ten species of fish range from 32500 to 43000 ppm  
Glycerol: LC50 (96 hrs): 58.5 ppm (Trout)

**Persistence and degradability**

**Biodegradation** Dimethyl sulfoxide: biodegradation: 90% (28d).

**Mobility in soil** no information available

**Results of PBT and vPvB assessment** no information available

**Other adverse effects** no information available

**Additional information** no information available

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## 13. DISPOSAL CONSIDERATIONS

Do not dispose product directly into sewage. Consult local state or national regulation for proper disposal.

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## 14. TRANSPORT INFORMATION

**IATA, IMDG, DOT (US)** not dangerous good during transportation

UN number none

UN proper shipping name none

Transport hazard class none

Packing group none

Environmental hazards none

Special precaution for user none

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## 15. REGULATION INFORMATION

**US Federal Regulations**

US Toxic Substances Control Act (TSCA): Not listed

SARA 302: No chemicals were found.

SARA 313: No chemicals were found.

SARA 311/312 Hazards:

Acute Health Hazard: Yes  
Chronic Health Hazard: No  
Fire Hazard: Yes  
Sudden Release of Pressure Hazard: No  
Reactive Hazard: No

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## 16. OTHER INFORMATION

Classification according to Regulation (EC) Nr. 1272/2008  
Refer to section 2 and section 3

Prepared by: Regulatory Department  
Biotium Inc.

Version no. 1

Reason for revision

The information provided above is believed to be correct to our best knowledge, but does not purport to be all inclusive, and shall be used only as a guide. This material is sold for research purposes only and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. Biotium shall not be held liable for any damage resulting from handling or contact with the above product.

**MATERIAL SAFETY DATA SHEET**

Date Revised: November 4, 2014

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**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Name:** 40X Template Buffer  
**Catalog Number:** 99802  
**Unit Size:** 1 mL  
**Manufacturer/Supplier:** Biotium, Inc.  
3159 Corporate Place, Hayward, CA 94545, USA  
Phone: 1-510-265-1027, Fax: 1-510-265-1352  
Web: <http://www.biotium.com>

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**2. HAZARDS IDENTIFICATION****Classification according to Regulation (EC) No 1272/2008[CLP]**

None

**Classification according to Directive 1999/45/EC**

None

**Labelling according to Regulation (EC) No 1272/2008[CLP]****Hazard pictogram** None**Signal word** None**Hazard statements** None**Precautionary statements** None**HMIS Classification**

Health hazard: 0

Flammability: 0

Physical hazards: 0

**NFPA Rating**

Health hazard: 0

Fire: 0

Reactivity Hazard: 0

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

No ingredients present at concentrations classified as hazardous to health or the environment.

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**4. FIRST-AID MEASURES****General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water.

Consult a physician.

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## 5. FIREFIGHTING MEASURES

**Suitable extinguishing media**

carbon dioxide, dry chemical extinguishers, foam extinguishers or water.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for firefighting if necessary.

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## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**

Avoid breathing vapors, mist or gas. Remove all sources of ignition.

**Environmental precautions**

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

**Methods and materials for containment and cleaning up**

Contain spillage. Soak up spilled substance with inert absorbent material. Keep in suitable, closed containers for disposal.

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## 7. HANDLING AND STORAGE

**Precautions for safe handling**

Avoid inhalation of vapor or mist.

Avoid direct contact with substance.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

Store at -20 °C.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Components with workplace control parameters**

None

**Personal protective equipment****Hand protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Respiratory protection**

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Eye protection**

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Hygiene measures**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	40X Template Buffer
Appearance	Blue solution
Odor	No data available
Odor threshold	No data available

pH	8.5
Melting point/freezing point	No data available
Boiling point	No data available
Flash point	No data available
Evaporate rate	No data available
Flammability	No data available
Explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Solubility	Water soluble
Partition coefficient:n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

No data available

### Conditions to avoid

Heat, flames and sparks.

### Materials to avoid

No data available

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - no data available

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

Oral LD50 None

Inhalation LC50 None

Dermal LD50 None

Other information on acute toxicity no data available

**Skin corrosion/irritation** no data available

**Serious eye damage/eye irritation** no data available

**Respiratory or skin sensitization** no data available

**Germ cell mutagenicity** no data available

### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity** no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. May cause skin irritation.

Eyes May cause eye irritation.

**Additional Information**

RTECS: None

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## 12. ECOLOGICAL INFORMATION

**Toxicity** no information available

**Persistence and degradability** no information available

**Biodegradation** no information available

**Mobility in soil** no information available

**Results of PBT and vPvB assessment** no information available

**Other adverse effects** no information available

**Additional information** no information available

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## 13. DISPOSAL CONSIDERATIONS

Do not dispose product directly into sewage. Consult local state or national regulation for proper disposal.

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## 14. TRANSPORT INFORMATION

**IATA, IMDG, DOT (US)** not dangerous good during transportation

UN number none

UN proper shipping name none

Transport hazard class none

Packing group none

Environmental hazards none

Special precaution for user none

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## 15. REGULATION INFORMATION

**US Federal Regulations**

US Toxic Substances Control Act (TSCA): Not listed

SARA 302: No chemicals were found.

SARA 313: No chemicals were found.

SARA 311/312 Hazards: No chemicals were found.

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## 16. OTHER INFORMATION

Classification according to Regulation (EC) Nr. 1272/2008  
Refer to section 2 and section 3

Prepared by: Regulatory Department

Biotium Inc.  
Version no. 1  
Reason for revision

The information provided above is believed to be correct to our best knowledge, but does not purport to be all inclusive, and shall be used only as a guide. This material is sold for research purposes only and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. Biotium shall not be held liable for any damage resulting from handling or contact with the above product.

**MATERIAL SAFETY DATA SHEET**

Date Revised: November 4, 2014

**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Name:** ROX Reference Dye  
**Catalog Number:** 31042C  
**Unit Size:** 1 mL  
**Manufacturer/Supplier:** Biotium, Inc.  
3159 Corporate Place, Hayward, CA 94545, USA  
Phone: 1-510-265-1027, Fax: 1-510-265-1352  
Web: <http://www.biotium.com>

**2. HAZARDS IDENTIFICATION****Classification according to Regulation (EC) No 1272/2008[CLP]**

See Composition/Information on Ingredients below

**Classification according to Directive 1999/45/EC**

See Composition/Information on Ingredients below

**Labelling according to Regulation (EC) No 1272/2008[CLP]****Hazard pictogram****Signal word** Warning, Danger**Hazard statements**

H315 Causes skin irritation  
H319 Causes serious eye irritation  
H335 May cause respiratory irritation  
H302 Harmful if swallowed

**Precautionary statements**

P264 Wash hands thoroughly after handling.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P302+P352 IF ON SKIN: wash with plenty of soap and water.  
P332+P313 IF SKIN irritation occurs: Get medical advice/attention.  
P362 Take off contaminated clothing and wash before reuse.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+P313 IF eye irritation persists: Get medical advice/attention."  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P271 Use only outdoors or in a well-ventilated area.  
P304+P340 IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.  
P312 Call a POISON CENTER or doctor/physician if you feel unwell.  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P501 Dispose of contents/container to hazardous waste.  
P270 Do not eat, drink or smoke when using this product.  
P301+P312 IF SWALLOWED: call a POISON CENTER or doctor/physician IF you feel unwell.  
P330 Rinse mouth.  
P501 Dispose of contents/container to hazardous waste.

**HMIS Classification** (Dimethyl sulfoxide)

Health hazard: 0

Flammability: 2  
Physical hazards: 0  
**NFPA Rating** (Dimethyl sulfoxide)  
Health hazard: 0  
Fire: 2  
Reactivity Hazard: 0

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	CAS No.	EC No.	Index No.	Weight %	Classification according to 67/548/EEC	Classification according to regulation (EC)No1278/2008
Dimethylsulfoxide (DMSO)	67-68-5	200-664-3	N/A	≥1%	N/A	Skin Irrit. 2 Eye Irrit. 2 STOT SE 3 Acute Tox. 4

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### 4. FIRST-AID MEASURES

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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### 5. FIREFIGHTING MEASURES

**Suitable extinguishing media**

carbon dioxide, dry chemical extinguishers, foam extinguishers or water.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for firefighting if necessary.

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### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**

Avoid breathing vapors, mist or gas. Remove all sources of ignition.

**Environmental precautions**

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

**Methods and materials for containment and cleaning up**

Contain spillage. Soak up spilled substance with inert absorbent material. Keep in suitable, closed containers for disposal.

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### 7. HANDLING AND STORAGE

**Precautions for safe handling**

Avoid inhalation of vapor or mist.

Avoid direct contact with substance.

### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.  
 Store at -20 °C.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Substance: Dimethyl sulfoxide

CAS no. 67-68-5

country	Austria	Belgium	Denmark	European Union	France	Germany
Limit value, 8hours	50 ppm 160 mg/m <sup>3</sup>	--	50 ppm 160 mg/m <sup>3</sup>	--	--	50 ppm 160 mg/m <sup>3</sup>
Limit value, short term	--	--	100 ppm 320 mg/m <sup>3</sup>	--	--	100 ppm (1) 320 mg/m <sup>3</sup> (1)

country	Hungary	Italy	Poland	Spain	Sweden	Netherlands	Switzerland
Limit value, 8hours	--	--	--	--	50 ppm 150 mg/m <sup>3</sup>	--	50 ppm 160 mg/m <sup>3</sup>
Limit value, short term	--	--	--	--	150 ppm (1) 500 mg/m <sup>3</sup> (1)	--	100 ppm 320 mg/m <sup>3</sup>

country	United Kingdom	USA-NIOSH	USA-OSHA	Australia	Canada	Japan	South Korea
Limit value, 8hours	--	--	--	--	--	--	--
Limit value, short term	--	--	--	--	--	--	--

Remarks

Germany (1) 15 minutes average value (DFG)

Sweden (1) Short-term value, 15 minutes average value

### Personal protective equipment

#### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Respiratory protection

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Eye protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Chemical Name	ROX Reference Dye
Appearance	Pink solution
Odor	No data available
Odor threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Boiling point	No data available
Flash point	No data available
Evaporate rate	No data available
Flammability	No data available
Explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Solubility	Water soluble
Partition coefficient:n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

**10. STABILITY AND REACTIVITY****Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

No data available

**Conditions to avoid**

Heat, flames and sparks.

**Materials to avoid**

No data available

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - no data available

**11. TOXICOLOGICAL INFORMATION****Acute toxicity DMSO**

<b>Oral LD50</b>	rat - 14,500 mg/kg
<b>Inhalation LC50</b>	Inhalation - rat - 4 h - 40250 ppm
<b>Dermal LD50</b>	rabbit - > 5,000 mg/kg
<b>Other information on acute toxicity</b>	no data available
<b>Skin corrosion/irritation</b>	no data available
<b>Serious eye damage/eye irritation</b>	no data available
<b>Respiratory or skin sensitization</b>	no data available
<b>Germ cell mutagenicity</b>	Salmonella typhimurium assay (Ames test): negative (+/- activation), DMSO is used as a neutral solvent in the Ames mutagen test
<b>Carcinogenicity</b>	

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity** Experiments have shown reproductive toxicity effects on laboratory animals (Dimethyl sulfoxide)

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

Dimethyl sulfoxide: STOT SE category 3 (respiratory system)

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

May cause respiratory irritation

**Potential health effects**

Inhalation May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion May be harmful if swallowed.

Skin May be harmful if absorbed through skin. May cause skin irritation.

Eyes May cause eye irritation.

**Additional Information**

RTECS: Dimethylsulfoxide: PV6210000

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## 12. ECOLOGICAL INFORMATION

<b>Toxicity</b>	The LC50 (96hrs) for ten species of fish range from 32500 to 43000 ppm
<b>Persistence and degradability</b>	
<b>Biodegradation</b>	Dimethyl sulfoxide: biodegradation: 90% (28d).
<b>Mobility in soil</b>	no information available
<b>Results of PBT and vPvB assessment</b>	no information available
<b>Other adverse effects</b>	no information available
<b>Additional information</b>	no information available

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## 13. DISPOSAL CONSIDERATIONS

Do not dispose product directly into sewage. Consult local state or national regulation for proper disposal.

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## 14. TRANSPORT INFORMATION

<b>IATA, IMDG, DOT (US)</b>	not dangerous good during transportation
UN number	none
UN proper shipping name	none
Transport hazard class	none
Packing group	none
Environmental hazards	none
Special precaution for user	none

## 15. REGULATION INFORMATION

### US Federal Regulations

US Toxic Substances Control Act (TSCA): Dimethyl sulfoxide

SARA 302: No chemicals were found.

SARA 313: No chemicals were found.

SARA 311/312 Hazards:

Dimethyl sulfoxide:

Acute Health Hazard: Yes

Chronic Health Hazard: No

Fire Hazard: Yes

Sudden Release of Pressure Hazard: No

Reactive Hazard: No

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## 16. OTHER INFORMATION

Classification according to Regulation (EC) Nr. 1272/2008

Refer to section 2 and section 3

Prepared by: Regulatory Department  
Biotium Inc.

Version no. 1

Reason for revision

The information provided above is believed to be correct to our best knowledge, but does not purport to be all inclusive, and shall be used only as a guide. This material is sold for research purposes only and is not required to appear on the TSCA inventory. It is not intended for food, drug, household, agricultural or cosmetic use. Its use must be supervised by a technically qualified individual experienced in handling potentially hazardous chemicals. Biotium shall not be held liable for any damage resulting from handling or contact with the above product.