

SAFETY DATA SHEET

Date: April 9, 2018

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Reactive CF Dye (Component A)
Catalog Number: See Product Information Sheet
Unit Size: 1 vial
Manufacturer/Supplier: Biotium, Inc.
 46117 Landing Parkway, Fremont, CA 94538, USA
 Phone: 1-510-265-1027, Fax: 1-510-265-1352
 Web: <http://www.biotium.com>

Use as laboratory reagent. For research use only. Not for food, drug, household, or cosmetic use.

2. HAZARDS IDENTIFICATION

GHS Classification

Signal word None
Health hazards None
Physical hazards None
Hazard statements None
Precautionary statements None
WHMIS classification None
GHS hazard pictogram None

Classification according to Regulation (EC) No 1272/2008[CLP] None
Classification according to Directive 1999/45/EC None

HMIS Classification

Health hazard: 0
 Flammability: 0
 Physical hazards: 0
NFPA Rating
 Health hazard: 0
 Fire: 0
 Reactivity Hazard: 0

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

Hazard pictogram None
Signal word None
Hazard statements None
Precautionary statements None

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
Reactive CF dye	-	-	-	>90%	-	-

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

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	Reactive CF dye
Appearance	Solid
Odor	No information available
Odor threshold	No information available
pH	No information available
Melting point/freezing point	No information available
Boiling point	No information available
Flash point	No information available
Evaporate rate	No information available
Flammability	No information available
Explosive limits	No information available
Vapor pressure	No information available
Vapor density	No information available
Relative density	No information available
Solubility	No information available
Partition coefficient:n-octanol/water	No information available
Auto-ignition temperature	No information available
Decomposition temperature	No information available
Viscosity	No information available
Explosive properties	No information available
Oxidizing properties	No information 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 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

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

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

IATA, IMDG, DOT (US), TDG Not dangerous goods during transportation

UN number None

UN proper shipping name None

Transport hazard class None

Packing group None

Environmental hazards None

Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code None

Special precaution for user None

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.

WHMIS Hazard Class None

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. 3
Revision date (Initials) 4/9/18 (LR)
Reason for revision Application of WHMIS labeling requirements

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.

SAFETY DATA SHEET

Date: April 9, 2018

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Reaction Buffer
Catalog Number: 99999-20uL
Unit Size: 20 uL
Manufacturer/Supplier: Biotium, Inc.
46117 Landing Parkway, Fremont, CA 94538, USA
Phone: 1-510-265-1027, Fax: 1-510-265-1352
Web: <http://www.biotium.com>

Use as laboratory reagent. For research use only. Not for food, drug, household, or cosmetic use.

2. HAZARDS IDENTIFICATION**GHS Classification**

Signal word Danger

Health hazards

Acute toxicity Oral Category 4 H302
Acute toxicity Inhalation Category 3 H331
Acute toxicity Dermal Category 3 H311
Skin corrosion Category 1A H314
Serious eye damage Category 1 H318
Specific target organ toxicity single exposure Category 3 Respiratory system H335
Acute aquatic toxicity Category 2 H401

Physical hazards

Flammable liquids Category 2 H225

Hazard statements

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H311 + H331 Toxic in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H401 Toxic to aquatic life.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.
Rinse skin with water/shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

WHMIS classification

Flammable liquids - Category 2

Flash point = -8.9 ° C closed cup (method not reported) and boiling point = 89 ° C

Acute toxicity - oral - Category 4

Acute toxicity - dermal - Category 3

Acute toxicity - inhalation - Category 3

Skin corrosion / irritation - Category 1

Serious eye damage / eye irritation - Category 1

Health hazards not classified elsewhere (corrosion) - Category 1

GHS hazard pictogram



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

Flam. Liq. Category 2 H225

Specific target organ toxicity single exposure Category 3 Respiratory system H335 C ≥ 1 %

Acute Toxicity Category 4 H302, H312, H332

Skin Corrosion Category 1A H314

Classification according to Directive 1999/45/EC None

HMIS Classification

Health hazard: 3

Flammability: 3

Physical hazards: 0

NFPA Rating

Health hazard: 3

Fire: 3

Reactivity Hazard: 0

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

Hazard pictogram



Signal word

Danger

Hazard statements

H225 Highly flammable liquid and vapor

H335 May cause respiratory irritation

H302 Harmful if swallowed

H312 Harmful in contact with skin

H332 Harmful if inhaled
 H314 Causes severe skin burns and eye damage

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
 P233 Keep container tightly closed
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ventilating/lighting/equipment.
 P242 Use only non-sparking tools
 P243 Take precautionary measures against static discharge.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P303 + P361+ P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
 P403 + P235 Store in a well-ventilated place. Keep cool.
 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.
 P264 Wash skin thoroughly after handling
 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.
 P302 + P352 IF ON SKIN: wash with plenty of soap and water.,
 P363 Wash contaminated clothing before reuse.
 P501 Dispose of contents/ container to an approved waste disposal plant.

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
Triethylamine	121-44-8	204-469-4	612-004-00-5	<2%	1 % ≤ C < 5 %: Xi; R36/37/38	Flam. Liq. Category 2 Specific target organ toxicity single exposure Category 3 Respiratory system C ≥ 1 % Acute Toxicity Category 4 Skin Corrosion Category 1A
Dimethylsulfoxide	67-68-5	200-664-3	-	>98%	None	None

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: Triethylamine

CAS no. 121-44-8

Country	Austria	Belgium	Denmark	European Union	France	Germany
Limit value, 8hours	8.4 mg/m ³ 2 ppm	4.2 mg/m ³ 1 ppm	4.1 mg/m ³ 1 ppm	8.4 mg/m ³ 2 ppm	4.2 mg/m ³ 1 ppm	4.2 mg/m ³ 1 ppm
Limit value, short term	12.6 mg/m ³ 3 ppm	12.6 mg/m ³ 3 ppm	8.2 mg/m ³ 2 ppm	12.6 mg/m ³ 3 ppm	12.6 mg/m ³ 3 ppm	8.4 mg/m ³ 2 ppm

Country	Hungary	Italy	Poland	Spain	Sweden	Netherlands	United Kingdom
Limit value, 8hours	8.4 mg/m ³	8.4 mg/m ³ 2 ppm	3 mg/m ³	8.4 mg/m ³ 2 ppm	4.2 mg/m ³ 1 ppm	4.2 mg/m ³	8 mg/m ³ 2 ppm
Limit value, short term	12.6 mg/m ³	12.6 mg/m ³ 3 ppm	9 mg/m ³	12 mg/m ³ 3 ppm	12.6 mg/m ³ 3 ppm	12.6 mg/m ³	17 mg/m ³ 4 ppm

Country	USA- NIOSH	USA- OSHA	Australia	Canada - Ontario	Canada - Québec	Japan	South Korea
Limit value, 8hours	-	100 mg/m ³ 25 ppm	8 mg/m ³ 2 ppm	1 ppm	20.5 mg/m ³ 5 ppm	-	8.3 mg/m ³ 2 ppm
Limit value, short term	-	-	17 mg/m ³ 4 ppm	-	61.5 mg/m ³ 15 ppm	-	16.6 mg/m ³ 4 ppm

Substance: Dimethylsulfoxide
 CAS no. 67-68-5

Country	Austria	Belgium	Denmark	European Union	France	Germany
Limit value, 8hours	160mg/m3	-	160mg/m3	-	-	160mg/m3
Limit value, short term	-	-	320mg/m3	-	-	320mg/m3

Country	Hungary	Italy	Poland	Spain	Sweden	Netherlands	United Kingdom
Limit value, 8hours	-	-	-	-	160mg/m3	-	-
Limit value, short term	-	-	-	-	500mg/m3	-	-

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

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	Reaction buffer
Appearance	Liquid
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	No data available
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: Triethylamine

Oral LD50 Rat - 730 mg/kg (OECD Test Guideline 401)

Inhalation LC50 Rat - 4 h - 7.1 mg/L (OECD Test Guideline 403)

Dermal LD50 Rabbit - 580 mg/kg (OECD Test Guideline 402)

Other information on acute toxicity No data available

Acute toxicity DMSO

Oral LD50 Rat - 14,500 mg/kg

Inhalation LC50 Inhalation - rat - 4 h - 40250 ppm

Dermal LD50 Rabbit - > 5,000 mg/kg

Other information on acute toxicity No data available

Skin corrosion/irritation: Triethylamine Rabbit: Extremely corrosive and destructive to tissue. (OECD Test Guideline 404)

Serious eye damage/eye irritation: Triethylamine Rabbit: Risk of serious damage to eyes. (OECD Test Guideline 405)

Respiratory or skin sensitization: Triethylamine Guinea pig Did not cause sensitization on laboratory animals

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: PV6210000 (DMSO)

RTECS: YE0175000 (Triethylamine)

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system - Irregularities - Based on Human Evidence

Central nervous system - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION**Toxicity: Triethylamine**Toxicity to fish LC50 - *Oryzias latipes* (Orange-red killifish) - 24 mg/l - 96 h (OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates

LC50 - *Daphnia dubia* (water flea) - 17 mg/l - 48 hToxicity to algae NOEC - *Pseudokirchneriella subcapitata* (green algae) - 1.1 mg/l - 72 h (OECD Test Guideline 201)EC50 - *Pseudokirchneriella subcapitata* (green algae) - 8 mg/l - 72 h (OECD Test Guideline 201)

Toxicity to bacteria LC50 - Bacteria - 95 mg/l - 17 h

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

13. DISPOSAL CONSIDERATIONS**Waste treatment methods****Product**

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber by a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**IATA, IMDG, DOT (US), TDG** DOT Reportable Quantity (RQ): 5000 lbs**UN number** 1296**UN proper shipping name** Triethylamine**Transport hazard class** 3(8)**Packing group** II**Environmental hazards** None**Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code** N/A**Special precaution for user** None

15. REGULATION INFORMATION**US Federal Regulations**

US Toxic Substances Control Act (TSCA): Not listed
SARA 302: No chemicals were found.
SARA 313: Triethylamine
SARA 311/312 Hazards: Fire Hazard, Acute Health Hazard, Chronic Health Hazard

WHMIS Hazard Class

Flammable liquids - Category 2
Flash point = -8.9 ° C closed cup (method not reported) and boiling point = 89 ° C
Acute toxicity - oral - Category 4
Acute toxicity - dermal - Category 3
Acute toxicity - inhalation - Category 3
Skin corrosion / irritation - Category 1
Serious eye damage / eye irritation - Category 1
Health hazards not classified elsewhere (corrosion) - Category 1



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. 3
Revision date (Initials) 4/9/18 (LR)
Reason for revision Application of WHMIS labeling requirements

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.

SAFETY DATA SHEET

Date: April 9, 2018

Use as laboratory reagent. For research use only. Not for food, drug, household, or cosmetic use.

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Quenching Buffer
Catalog Number: 99800-20uL
Unit Size: 20 uL
Manufacturer/Supplier: Biotium, Inc.
46117 Landing Parkway, Fremont, CA 94538, USA
Phone: 1-510-265-1027, Fax: 1-510-265-1352
Web: <http://www.biotium.com>

2. HAZARDS IDENTIFICATION

GHS Classification**Signal word** Danger**Health hazards**

Acute toxicity Oral Category 4 H302
Acute toxicity Inhalation Category 3 H331
Acute toxicity Dermal Category 3 H311
Skin corrosion Category 1A H314
Serious eye damage Category 1 H318
Specific target organ toxicity single exposure Category 3 Respiratory system H335
Acute aquatic toxicity Category 2 H401

Physical hazards

Flammable liquids Category 2 H225

Hazard statements

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H311 + H331 Toxic in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H401 Toxic to aquatic life.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.
Rinse skin with water/shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

WHMIS classification

Flammable liquids - Category 2

Flash point = -8.9 ° C closed cup (method not reported) and boiling point = 89 ° C

Acute toxicity - oral - Category 4

Acute toxicity - dermal - Category 3

Acute toxicity - inhalation - Category 3

Skin corrosion / irritation - Category 1

Serious eye damage / eye irritation - Category 1

Health hazards not classified elsewhere (corrosion) - Category 1

GHS hazard pictogram



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

Flam. Liq. Category 2 H225

Specific target organ toxicity single exposure Category 3 Respiratory system H335 C ≥ 1 %

Acute Toxicity Category 4 H302, H312, H332

Skin Corrosion Category 1A H314

Classification according to Directive 1999/45/EC None

HMIS Classification

Health hazard: 3

Flammability: 3

Physical hazards: 0

NFPA Rating

Health hazard: 3

Fire: 3

Reactivity Hazard: 0

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

Hazard pictogram



Signal word

Danger

Hazard statements

H225 Highly flammable liquid and vapor

H335 May cause respiratory irritation

H302 Harmful if swallowed

H312 Harmful in contact with skin

H332 Harmful if inhaled
 H314 Causes severe skin burns and eye damage
Precautionary statements
 P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
 P233 Keep container tightly closed
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ventilating/lighting/equipment.
 P242 Use only non-sparking tools
 P243 Take precautionary measures against static discharge.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P303 + P361+ P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
 P403 + P235 Store in a well-ventilated place. Keep cool.
 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.
 P264 Wash skin thoroughly after handling
 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.
 P302 + P352 IF ON SKIN: wash with plenty of soap and water.,
 P363 Wash contaminated clothing before reuse.
 P501 Dispose of contents/ container to an approved waste disposal plant.

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
Triethylamine	121-44-8	204-469-4	612-004-00-5	<2%	1 % ≤ C < 5 %: Xi; R36/37/38	Flam. Liq. Category 2 Specific target organ toxicity single exposure Category 3 Respiratory system C ≥ 1 % Acute Toxicity Category 4 Skin Corrosion Category 1A
Dimethylsulfoxide	67-68-5	200-664-3	-	>98%	None	None

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: Triethylamine

CAS no. 121-44-8

Country	Austria	Belgium	Denmark	European Union	France	Germany
Limit value, 8hours	8.4 mg/m ³ 2 ppm	4.2 mg/m ³ 1 ppm	4.1 mg/m ³ 1 ppm	8.4 mg/m ³ 2 ppm	4.2 mg/m ³ 1 ppm	4.2 mg/m ³ 1 ppm
Limit value, short term	12.6 mg/m ³ 3 ppm	12.6 mg/m ³ 3 ppm	8.2 mg/m ³ 2 ppm	12.6 mg/m ³ 3 ppm	12.6 mg/m ³ 3 ppm	8.4 mg/m ³ 2 ppm

Country	Hungary	Italy	Poland	Spain	Sweden	Netherlands	United Kingdom
Limit value, 8hours	8.4 mg/m ³	8.4 mg/m ³ 2 ppm	3 mg/m ³	8.4 mg/m ³ 2 ppm	4.2 mg/m ³ 1 ppm	4.2 mg/m ³	8 mg/m ³ 2 ppm
Limit value, short term	12.6 mg/m ³	12.6 mg/m ³ 3 ppm	9 mg/m ³	12 mg/m ³ 3 ppm	12.6 mg/m ³ 3 ppm	12.6 mg/m ³	17 mg/m ³ 4 ppm

Country	USA-NIOSH	USA-OSHA	Australia	Canada - Ontario	Canada - Québec	Japan	South Korea
Limit value, 8hours	-	100 mg/m ³ 25 ppm	8 mg/m ³ 2 ppm	1 ppm	20.5 mg/m ³ 5 ppm	-	8.3 mg/m ³ 2 ppm
Limit value, short term	-	-	17 mg/m ³ 4 ppm	-	61.5 mg/m ³ 15 ppm	-	16.6 mg/m ³ 4 ppm

Substance: Dimethylsulfoxide
 CAS no. 67-68-5

Country	Austria	Belgium	Denmark	European Union	France	Germany
Limit value, 8hours	160mg/m3	-	160mg/m3	-	-	160mg/m3
Limit value, short term	-	-	320mg/m3	-	-	320mg/m3

Country	Hungary	Italy	Poland	Spain	Sweden	Netherlands	United Kingdom
Limit value, 8hours	-	-	-	-	160mg/m3	-	-
Limit value, short term	-	-	-	-	500mg/m3	-	-

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

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	Quenching buffer
Appearance	Liquid
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	No data available
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: Triethylamine**Oral LD50** Rat - 730 mg/kg (OECD Test Guideline 401)**Inhalation LC50** Rat - 4 h - 7.1 mg/L (OECD Test Guideline 403)**Dermal LD50** Rabbit - 580 mg/kg (OECD Test Guideline 402)**Other information on acute toxicity** No data available**Acute toxicity DMSO****Oral LD50** Rat - 14,500 mg/kg**Inhalation LC50** Inhalation - rat - 4 h - 40250 ppm**Dermal LD50** Rabbit - > 5,000 mg/kg**Other information on acute toxicity** No data available**Skin corrosion/irritation: Triethylamine** Rabbit: Extremely corrosive and destructive to tissue. (OECD Test Guideline 404)**Serious eye damage/eye irritation: Triethylamine** Rabbit: Risk of serious damage to eyes. (OECD Test Guideline 405)**Respiratory or skin sensitization: Triethylamine** Guinea pig Did not cause sensitization on laboratory animals**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: PV6210000 (DMSO)

RTECS: YE0175000 (Triethylamine)

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system - Irregularities - Based on Human Evidence

Central nervous system - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

Toxicity: TriethylamineToxicity to fish LC50 - *Oryzias latipes* (Orange-red killifish) - 24 mg/l - 96 h (OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates

LC50 - *Daphnia dubia* (water flea) - 17 mg/l - 48 hToxicity to algae NOEC - *Pseudokirchneriella subcapitata* (green algae) - 1.1 mg/l - 72 h (OECD Test Guideline 201)EC50 - *Pseudokirchneriella subcapitata* (green algae) - 8 mg/l - 72 h (OECD Test Guideline 201)

Toxicity to bacteria LC50 - Bacteria - 95 mg/l - 17 h

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

13. DISPOSAL CONSIDERATIONS

Waste treatment methods**Product**

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber by a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

IATA, IMDG, DOT (US), TDG DOT Reportable Quantity (RQ): 5000 lbs**UN number** 1296**UN proper shipping name** Triethylamine**Transport hazard class** 3(8)**Packing group** II**Environmental hazards** None**Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code** N/A**Special precaution for user** None

15. REGULATION INFORMATION

US Federal Regulations

US Toxic Substances Control Act (TSCA): Not listed

SARA 302: No chemicals were found.

SARA 313: Triethylamine

SARA 311/312 Hazards: Fire Hazard, Acute Health Hazard, Chronic Health Hazard

WHMIS Hazard Class

Flammable liquids - Category 2

Flash point = -8.9 ° C closed cup (method not reported) and boiling point = 89 ° C

Acute toxicity - oral - Category 4

Acute toxicity - dermal - Category 3

Acute toxicity - inhalation - Category 3

Skin corrosion / irritation - Category 1

Serious eye damage / eye irritation - Category 1

Health hazards not classified elsewhere (corrosion) - Category 1



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. 3

Revision date (Initials) 4/9/18 (LR)

Reason for revision Application of WHMIS labeling requirements

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.

SAFETY DATA SHEET

Date Revised: October 26, 2017

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Anhydrous DMSO
Catalog Number: 99953, 99953-1
Unit Size: 150 uL, 250 uL
Manufacturer/Supplier: Biotium, Inc.
46117 Landing Parkway, Fremont, CA 94538, USA
Phone: 1-510-265-1027, Fax: 1-510-265-1352
Web: <http://www.biotium.com>

Use as laboratory reagent. For research use only. Not for food, drug, household, or cosmetic use.

2. HAZARDS IDENTIFICATION**GHS Classification****Signal word**

Warning

Health hazards

None

Physical Hazards

GHS Physical Hazard 1 - Flammable

GHS Physical Hazard Category 4

Hazard statements

H227 - Combustible liquid

Precautionary statements

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P370 + P378 - In case of fire, use water/water spray/water jet/carbon dioxide/sand/foam/alcohol resistant foam/chemical powder for extinction

WHMIS classification

Flammable liquids, category 4

Classification according to Regulation (EC) No 1272/2008[CLP] None**Classification according to Directive 1999/45/EC** None**HMIS Classification**

Health hazard: 1

Flammability: 2

Physical hazards: 0

NFPA Rating

Health hazard: 1

Fire: 2

Reactivity Hazard: 0

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	CAS No.	EC No.	Index No.	Weight %	Classification according to regulation (EC)No1278/2008
DMSO	67-68-5	200-664-3	-	100%	None

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 ≤4°C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Substance: Dimethylsulfoxide

CAS no. 67-68-5

Country	Austria	Belgium	Denmark	European Union	France	Germany
Limit value, 8hours	160mg/m3	-	160mg/m3	-	-	160mg/m3
Limit value, short term	-	-	320mg/m3	-	-	320mg/m3

Country	Hungary	Italy	Poland	Spain	Sweden	Netherlands	United Kingdom
Limit value, 8hours	-	-	-	-	160mg/m3	-	-
Limit value, short term	-	-	-	-	500mg/m3	-	-

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

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	Dimethylsulfoxide (DMSO)
Appearance	Liquid
Odor	Mild
Odor threshold	No information available
pH	No information available
Melting point/freezing point	16 -19°C
Boiling point	189 °C (372 °F)
Flash point	87 °C (189 °F) - closed cup - ASTM D 93
Evaporate rate	No information available
Flammability	No information available
Explosive limits	No information available
Vapor pressure	0.55 hPa (0.41 mmHg) at 20 °C (68 °F) 4 hPa (3 mmHg) at 50 °C (122 °F)
Vapor density	2.70 - (Air = 1.0)
Relative density	1.1 g/mL
Solubility	No information available
Partition coefficient:n-octanol/water	log Pow: -1.349
Auto-ignition temperature	300 - 302 °C (572 - 576 °F)
Decomposition temperature	> 190 °C (> 374 °F) -
Viscosity	No information available
Explosive properties	Not explosive
Oxidizing properties	No information 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

Oral LD50 Rat - 14,500 mg/kg

Inhalation LC50 Inhalation - rat - 4 h - 40250 ppm

Dermal LD50 Rabbit - > 5,000 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 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 Not considered to be directly embryotoxic and has been shown to be a successful cryoprotectant for mammalian semen and embryos

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: PV6210000 (DMSO)

12. ECOLOGICAL INFORMATION

Toxicity DMSO The LC50(96hrs) for ten species of fish range from 32500 to 43000ppm

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

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Product

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber by a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

IATA, IMDG, DOT (US), TDG Not dangerous goods during transportation
UN number None
UN proper shipping name None
Transport hazard class None
Packing group None
Environmental hazards None
Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code None
Special precaution for user None

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:

DMSO : fire hazard, chronic health hazard

Acute Health Hazard: Yes

Chronic Health Hazard: No

Fire Hazard: Yes

Sudden Release of Pressure Hazard: No

Reactive Hazard: No

WHMIS Hazard Class:

Flammable liquids, category 4

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. 3

Revision date (Initials) October 10, 2017 (LR)

Reason for revision Application of WHMIS labeling requirements

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