

## SAFETY DATA SHEET

Date: April 10, 2018

---

**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Name:** Reactive CF680@T; Reactive CF770@T  
**Catalog Number:** 20400; 20401  
**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**

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

---

**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	HRP Conjugates
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	Soluble in water
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. 2

Revision date (Initials) 4/10/18 (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 10, 2018

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** WB Prestaining Buffer / High Sensitivity Prestaining Buffer  
**Catalog Number:** 99841 / 99842  
**Unit Size:** 1 mL  
**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

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

## 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	HRP Conjugates
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	Soluble in water
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. 2  
Revision date (Initials) 4/10/18 (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 10, 2018

---

1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Reversal Buffer  
**Catalog Number:** 99852 / 99852-T  
**Unit Size:** 500 um / 100 mL  
**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.

---

1. HAZARDS IDENTIFICATION**GHS Classification**

**Signal word** Danger

**Health hazards**

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 3), H402  
Chronic aquatic toxicity (Category 3), H412

**Physical hazards** None

**Hazard statements**

H314 Causes severe skin burns and eye damage.  
H335 May cause respiratory irritation.  
H412 Harmful to aquatic life with long lasting effects.

**Precautionary statements**

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
P264 Wash skin thoroughly after handling.  
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 + 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.  
P363 Wash contaminated clothing before reuse.  
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P501 Dispose of contents/ container to an approved waste disposal plant.

**WHMIS classification**

Oxidizing liquids - Grade 1  
Acute toxicity - oral - Category 4  
Skin corrosion / irritation - Category 1  
Serious eye damage / eye irritation - Category 1

Health hazards not classified elsewhere (corrosion) - Category 1



**Danger**

May cause fire or explosion; powerful oxidizer (H271)

Harmful if swallowed (H302)

Causes severe skin burns and eye damage (H314)

Causes serious injury to the respiratory tract

### GHS hazard pictogram



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

**Classification according to Directive 1999/45/EC** None

### HMIS Classification

Health hazard: 3

Flammability: 0

Physical hazards: 2

### NFPA Rating

Health hazard: 3

Fire: 0

Reactivity Hazard: 2

Special Hazard: OX

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

#### Hazard pictogram



#### Signal word

Danger

#### Hazard statements

H318	Causes serious eye damage
H302	Harmful if swallowed
H332	Harmful if inhaled
H335	May cause respiratory irritation
H315	Causes skin irritation
H270	May cause or intensify fire; oxidizer

#### Precautionary statements

P271	Use only outdoors or in a well-ventilated area
P261	Avoid breathing mist/vapors/spray
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P221	Take any precaution to avoid mixing with combustibles/flammables
P220	Keep/Store away from clothing/flammable materials/combustibles
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
P310	Immediately call a POISON CENTER or doctor
P302 + P352	IF ON SKIN: Wash with plenty of water and soap

P332 + P313	If skin irritation occurs: Get medical advice/ attention
P362 + P364	Take off all contaminated clothing and wash it before reuse
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
P370 + P378	In case of fire: Use water for extinction

---

## 2. 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
Hydrogen peroxide	7722-84-1	231-765-0	008-003-00-9	1% ~ 5%	-	Ox. Liq. 1 Acute Tox. 4 Skin Corr. 1A

---

## 3. 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.

---

## 4. 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.

---

## 5. 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.

---

## 6. 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  $\leq 4$  °C.

## 7. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Substance Hydrogen peroxide  
 CAS no. 7722-84-1

Country	Australia	Austria	Belgium	Canada	Denmark	Finland
Limit value, 8hours	1.4 mg/m3 1 ppm	1.4 mg/m3 1 ppm	1.4 mg/m3 1 ppm	1.4 mg/m3 1 ppm	1.4 mg/m3 1 ppm	1.5 mg/m3 1 ppm
Limit value, short term	--	2.8 mg/m3 2 ppm	--	--	2.8 mg/m3 2 ppm	4.2 mg/m3(1) 3 ppm (1)

Country	France	Germany (DFG)	Ireland	People's Republic of China	Singapore	South Korea
Limit value, 8hours	1.5 mg/m3 1 ppm	0.71 mg/m3 0.5 ppm	1.5 mg/m3 1 ppm	1.5 mg/m3	1.4 mg/m3 1 ppm	1.5 mg/m3 1 ppm
Limit value, short term	--	0.71 mg/m3 0.5 ppm	3 mg/m3 (1) 2 ppm (1)	--	--	--

Country	Spain	Sweden	Switzerland	United Kingdom	USA-NIOSH	USA-OSHA
Limit value, 8hours	1.4 mg/m3 1 ppm	1.4 mg/m3 1 ppm	0.71 mg/m3 0.5 ppm	1.4 mg/m3 1 ppm	1.4 mg/m3 1 ppm	1.4 mg/m3 1 ppm
Limit value, short term	--	3 mg/m3 (1) 2 ppm (1)	0.71 mg/m3 0.5 ppm	2.8 mg/m3 2 ppm	--	--

Finland (1) 15 minutes average value  
 Ireland (1) 15 minutes reference period  
 Sweden (1) 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.

## 8. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	Hydrogen peroxide
Appearance	Liquid
Odor	No information available
Odor threshold	No information available
pH	<3.7
Melting point/freezing point	-33°C
Boiling point	108°C
Flash point	Not flammable
Evaporate rate	> 1 (n-butyl acetate=1)
Flammability	No information available
Explosive limits	No information available

Vapor pressure	23 mm Hg @ 30 °C
Vapor density	No information available
Relative density	No information available
Solubility	Soluble
Partition coefficient:n-octanol/water	log Kow = -1.5 @ 20 °C
Auto-ignition temperature	No information available
Decomposition temperature	100 °C (adiabatic)
Viscosity	No information available
Explosive properties	No information available
Oxidizing properties	Strong oxidizer

---

## 9. 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

Combustible materials. Copper alloys, galvanized iron. Strong reducing agents. Heavy metals. Iron. Copper alloys. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition.

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides  
Other decomposition products - No data available

---

## 10. TOXICOLOGICAL INFORMATION

### Acute toxicity

**Oral LD50** 1193 mg/kg bw (rat)

**Inhalation LC50** Hydrogen Peroxide vapors: LC50 > 2160 mg/m<sup>3</sup> (mouse)

**Dermal LD50** > 2000 mg/kg bw (rabbit)

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

**Skin corrosion/irritation** Moderately irritating (rabbit)

**Serious eye damage/eye irritation** Corrosive. Risk of serious damage to eyes.

**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)**

Eyes, Respiratory System, Skin

### Aspiration hazard

Aspiration risk: may cause lung damage if swallowed

**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

17. ECOLOGICAL INFORMATION

**Toxicity** Freshwater Algae-- EC50 2.5 mg/L/72h  
 Freshwater Fish-- LC50: 16.4 mg/L/96h (P.promelas)

**Persistence and degradability** no information available

**Biodegradation** no information available

**Mobility in soil** Mobile

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

**Other adverse effects** no information available

**Additional information** no information available

11. DISPOSAL CONSIDERATIONS

**Product**

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

12. TRANSPORT INFORMATION

**IATA, IMDG, DOT (US), TDG**

**UN number** 2014

**UN proper shipping name** Hydrogen peroxide, aqueous solutions

**Transport hazard class** 5.1 (8)

**Packing group** II

**Environmental hazards** None

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

**Special precaution for user** None

13. REGULATION INFORMATION

**US Federal Regulations**

US Toxic Substances Control Act (TSCA): Hydrogen peroxide CAS No. 7722-84-1

SARA 302: Hydrogen peroxide CAS No. 7722-84-1

SARA 313 Components: No chemicals were found.

SARA 313: No chemicals were found.

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

**WHMIS Hazard Class** None



## 14. 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. 2

Revision date (Initials) 4/10/18 (LR)

Reason for revision Application of WHMIS labeling requirements, additional exposure limits

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 10, 2018

---

**2. PRODUCT AND COMPANY IDENTIFICATION**

**Product Name:** Dye Reversal Agent  
**Catalog Number:** 99853 / 99853-T  
**Unit Size:** 500 uL / 100 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.

---

**3. 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

---

**4. COMPOSITION/INFORMATION ON INGREDIENTS**

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

---

**5. 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.

---

**6. 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.

---

**7. 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.

---

**8. 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  $\leq 4$  °C.

---

**9. 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.

---

**10. PHYSICAL AND CHEMICAL PROPERTIES**

Chemical Name	Bovine Serum Albumin, Fraction V
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	Soluble in water
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

---

## 11. 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

---

## 12. 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

13. 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

14. DISPOSAL CONSIDERATIONS

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

15. 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

16. 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

17. 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. 2

Revision date (Initials) 4/10/18 (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 10, 2018

---

1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** DMSO, anhydrous  
**Catalog Number:** 99953  
**Unit Size:** 150 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** Warning**Hazard statements** None**Precautionary statements** Combustible liquid

---

**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
DMSO	67-68-5	200-664-3	-	>99%	-	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 2 – 8 °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	Switzerland
Limit value, 8hours	-	-	-	-	160mg/m3	-	160mg/m3
Limit value, short term	-	-	-	-	500mg/m3	-	320mg/m3

Country	United Kingdom	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	DMSO, anhydrous
Appearance	Colorless Liquid
Odor	No data available
Odor threshold	No data available
pH	No data available
Melting point/freezing point	Melting point/range: 16 - 19 °C (61 - 66 °F)
Boiling point	189 °C (372 °F)
Flash point	87 °C (189 °F) - closed cup
Evaporate rate	No data available
Flammability	No data available
Explosive limits	Upper explosion limit: 42 %(V) Lower explosion limit: 3.5 %(V)
Vapor pressure	0.55 hPa (0.41 mmHg) at 20 °C (68 °F)
Vapor density	2.70 - (Air = 1.0)
Relative density	1.1 g/mL
Solubility	Completely miscible (water solubility)
Partition coefficient:n-octanol/water	log Pow: -2.03
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****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** 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)

---

**12. ECOLOGICAL INFORMATION**

**Toxicity** The LC50(96hrs) for ten species of fish range from 32500 to 43000ppm  
**Persistence and degradability** no information available  
**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

---

**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:  
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. 2  
Revision date (Initials) 4/10/18 (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.