

**MATERIAL SAFETY DATA SHEET**

Date Revised: January 29, 2014

**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Name:** Flow Cytometry Fixation Buffer  
**Catalog Number:** 99970  
**Unit Size:** 50 tests  
**Manufacturer/Supplier:** Biotium, Inc.  
3159 Corporate Place, Hayward, CA 94545, USA  
Phone: 1-510-265-1027, Fax: 1-510-265-1352  
Web: <http://www.biotium.com>

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

None

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

None

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

H227 Combustible liquid

H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled

H314 Causes severe skin burns and eye damage.

**Precautionary statements**

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

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

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**HMIS Classification**

Health hazard: 3

Flammability: 2

Physical hazards: 0

**NFPA Rating**

Health hazard: 3

Fire: 2

Reactivity Hazard: 0

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Name	CAS No.	EC No.	Index No.	Weight %	Classification according to 67/548/EEC	Classification according to regulation (EC)No1278/2008
Formaldehyde	50-00-0	200-001-8	-	<10%	-	

## 4. FIRST-AID MEASURES

### **General advice**

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

### **If inhaled**

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

### **In case of skin contact**

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

### **In case of eye contact**

Flush eyes with water as a precaution.

### **If swallowed**

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

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## 5. FIREFIGHTING MEASURES

### **Suitable extinguishing media**

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

### **Special protective equipment for firefighters**

Wear self contained breathing apparatus for firefighting if necessary.

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## 6. ACCIDENTAL RELEASE MEASURES

### **Personal precautions**

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

### **Environmental precautions**

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

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

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

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## 7. HANDLING AND STORAGE

### **Precautions for safe handling**

Avoid inhalation of vapor or mist.

Avoid direct contact with substance.

### **Conditions for safe storage**

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

Store at Room Temperature.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Substance                      Formaldehyde  
 CAS no.                        50-00-0  
 Control parameter

country	Austria	Belgium	Denmark	European Union	France	Germany
Limit value, 8hours	0,5 (ppm) 0,6 (mg/m <sup>3</sup> )	-	0,3 (ppm) 0,4 (mg/m <sup>3</sup> )	-	0,5 (ppm)	0,3 (ppm) 0,37 (mg/m <sup>3</sup> )
Limit value, short term	0,5 (ppm) 0,6 (mg/m <sup>3</sup> )	0,3 (ppm) 0,38 (mg/m <sup>3</sup> )	0,3 (ppm) 0,4 (mg/m <sup>3</sup> )	-	1 (ppm)	0,6(ppm) 0,74 (mg/m <sup>3</sup> )

country	Hungary	Italy	Poland	Spain	Sweden	Netherlands
Limit value, 8hours	0,6(mg/m <sup>3</sup> )	-	0,5(mg/m <sup>3</sup> )	-	0,3 (ppm) 0,37(mg/m <sup>3</sup> )	0,15(mg/m <sup>3</sup> )
Limit value, short term	0,6(mg/m <sup>3</sup> )	-	1 (mg/m <sup>3</sup> )	0,3 (ppm) 0,37(mg/m <sup>3</sup> )	0,6(ppm) 0,74(mg/m <sup>3</sup> )	0,5(mg/m <sup>3</sup> )

country	United Kingdom	USA-NIOSH	USA-OSHA	Australia	Canada	Japan	South Korea
Limit value, 8hours	2 (ppm) 2,5 (mg/m <sup>3</sup> )	0,016 (ppm)	0,75 (ppm)	1 (ppm) 1,2 (mg/m <sup>3</sup> )	-	1,2 (ppm)	0,5(ppm) 0,75(mg/m <sup>3</sup> )
Limit value, short term	2 (ppm) 2,5 (mg/m <sup>3</sup> )	0,1(ppm)	2 (ppm)	2 (ppm) 2,5 (mg/m <sup>3</sup> )	2 (ppm) 3(mg/m <sup>3</sup> )	-	1 (ppm) 1,5 (mg/m <sup>3</sup> )

### 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	Flow Cytometry Fixation Buffer
Appearance	Clear, liquid
Odor	Pungent Odor
Odor threshold	No information available
pH	7.4
Melting point/freezing point	0°C
Boiling point	100°C
Flash point	85°C
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
Oxidising properties	No information available

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

Incompatible with oxidizing agents and alkalis. Reacts explosively with nitrogen dioxide at ca. 180°C. Reacts violently with perchloric acid, perchloric acid-aniline mixtures, and nitromethane. Reaction with hydrochloric acid may form bis-chloromethyl ether, an OSHA regulated carcinogen.

### Conditions to avoid

Heat, flames and sparks.

### Materials to avoid

Aniline, Phenol, Isocyanates, Acid anhydrides, Acids, Strong bases, Strong oxidizing agents, Amines, Peroxides

### Hazardous decomposition products

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

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

**Oral LD50** 100 mg/kg; skin rabbit LD50: 270 uL/kg, Irritation data: eye, rabbit, 750ug Severe;  
**Inhalation LC50** 203 mg/m3; investigated as a tumorigen, mutagen, reproductive effector; Cancer  
Status: an OSHA regulated carcinogen.  
**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: 1 - Group 1: Carcinogenic to humans (Formaldehyde)  
NTP: Known to be human carcinogen (Formaldehyde)  
NTP: Known to be human carcinogen (Formaldehyde)  
OSHA: OSHA specifically regulated carcinogen (Formaldehyde)  
**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 Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membrane and upper respiratory tract.  
Ingestion Toxic if swallowed.  
Skin Toxic if absorbed through skin. Causes skin burns.  
Eyes Causes eye burns.

**Additional Information**  
RTECS: LP8925000

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## 12. ECOLOGICAL INFORMATION

**Toxicity** no information available  
**Persistence and degradability** no information available  
**Biodegradation** no information available  
**Mobility in soil** no information available  
**Results of PBT and vPvB assessment** no information available  
**Other adverse effects** no information available  
**Additional information** Do not allow product to enter drinking water supplies, wastewater or soil. This material is expected to be slightly toxic to aquatic life. The LC50/96-hour values for fish are between 10 and 100 mg/l.

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## 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)

#### DOT (US)

UN number: 2209 Class: 8 Packing group: III  
Proper shipping name: Formaldehyde solutions  
Reportable Quantity (RQ): 263 lbs  
Marine pollutant: No  
Poison Inhalation Hazard: No

#### IMDG

UN number: 2209 Class: 8 Packing group: III EMS-No: F-A, S-B  
Proper shipping name: FORMALDEHYDE SOLUTION  
Marine pollutant: No

#### IATA

UN number: 2209 Class: 8 Packing group: III  
Proper shipping name: Formaldehyde Solution

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## 15. REGULATION INFORMATION

### US Federal Regulations

US Toxic Substances Control Act(TSCA): Not listed

SARA 302: The following components are subject to reporting levels established by SARA Title III,

Section 302:	<b>Formaldehyde</b>	CAS-No.	50-00-0
		Revision Date	2007-07-01

SARA 313: The following components are subject to reporting levels established by SARA Title III,

Section 313:	<b>Formaldehyde</b>	CAS-No.	50-00-0
		Revision Date	2007-07-01

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

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## 16. OTHER INFORMATION

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

Prepared by: Regulatory Department  
Biotium Inc.

Version no. 2

Reason for revision Application of CLP labeling and corresponding 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.

## MATERIAL SAFETY DATA SHEET

Date Revised: January 30, 2014

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### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Flow Cytometry Permeabilization Buffer  
**Catalog Number:** 99971  
**Unit Size:** 50 tests  
**Manufacturer/Supplier:** Biotium, Inc.  
3159 Corporate Place, Hayward, CA 94545, USA  
Phone: 1-510-265-1027, Fax: 1-510-265-1352  
Web: <http://www.biotium.com>

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### 2. HAZARDS IDENTIFICATION

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

None

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

None

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

**Hazard pictogram** None

**Signal word** None

**Hazard statements** None

**Precautionary statements** None

**HMIS Classification**

Health hazard: 0

Flammability: 0

Physical hazards: 0

**NFPA Rating**

Health hazard: 0

Fire: 0

Reactivity Hazard: 0

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

No ingredients present at concentrations that require reporting.

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### 4. FIRST-AID MEASURES

**General advice**

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

**If inhaled**

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

**In case of skin contact**

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

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

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

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## 5. FIREFIGHTING MEASURES

**Suitable extinguishing media**

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

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for firefighting if necessary.

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## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**

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

**Environmental precautions**

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

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

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

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## 7. HANDLING AND STORAGE

**Precautions for safe handling**

Avoid inhalation of vapor or mist.

Avoid direct contact with substance.

**Conditions for safe storage**

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

Store at room temperature.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Components with workplace control parameters**

Substance

CAS no.

Control parameter                      No information available

**Personal protective equipment**

**Hand protection**



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

**Respiratory protection**

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

**Eye protection**

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

**Hygiene measures**

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	Flow Cytometry Permeabilization Buffer
Appearance	Solution
Odor	No information available
Odor threshold	No information available
pH	7.4
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	High 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
Oxidising properties	No information available

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## 10. STABILITY AND REACTIVITY

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

No data available

**Conditions to avoid**

Heat, flames and sparks.

**Materials to avoid**

No data available

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - no data available

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50** None**Inhalation LC50** None**Dermal LD50** None**Other information on acute toxicity** no data available**Skin corrosion/irritation** no data available**Serious eye damage/eye irritation** no data available**Respiratory or skin sensitization** no data available**Germ cell mutagenicity** no data available**Carcinogenicity**

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

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

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

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

**Reproductive toxicity** no data available**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

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

no data available

**Aspiration hazard**

no data available

**Potential health effects**

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

Ingestion May be harmful if swallowed.

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

Eyes May cause eye irritation.

**Additional Information**

RTECS: None

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**12. ECOLOGICAL INFORMATION****Toxicity** no information available**Persistence and degradability** no information available**Biodegradation** no information available**Mobility in soil** no information available**Results of PBT and vPvB assessment** no information available

**Other adverse effects** no information available  
**Additional information** no information available

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## 13. DISPOSAL CONSIDERATIONS

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

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## 14. TRANSPORT INFORMATION

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

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## 15. REGULATION INFORMATION

### US Federal Regulations

US Toxic Substances Control Act(TSCA): Not listed  
SARA 302: No chemicals were found.  
SARA 313: No chemicals were found.  
SARA 311/312 Hazards: No chemicals were found.

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## 16. OTHER INFORMATION

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

Prepared by: Regulatory Department  
Biotium Inc.

Version no. 2

Reason for revision Application of CLP labeling and corresponding requirements

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