SAFETY DATA SHEET
Date Revised: March 21, 2016

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Enzyme substrate (Ac-(DEVD)2-R110), 1mM
Catalog Number: 30008-1A, 30008-2A
Unit Size: 125uL, 500uL
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

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

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

HMIS Classification
Health hazard: 0
Flammability: 2
Physical hazards: 0

NFPA Rating
Health hazard: 0
Fire: 2
Reactivity Hazard: 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS No.</th>
<th>EC No.</th>
<th>Index No.</th>
<th>Weight %</th>
<th>Classification according to regulation (EC)No1278/2008</th>
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<tr>
<td>DMSO</td>
<td>67-68-5</td>
<td>200-664-3</td>
<td>--</td>
<td>&gt;99%</td>
<td>NA</td>
</tr>
</tbody>
</table>

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 Dimethylsulfoxide
CAS no. 67-68-5

<table>
<thead>
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<th>country</th>
<th>Austria</th>
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<th>Denmark</th>
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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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Enzyme substrate (Ac-(DEVD)2-R110), 1mM</th>
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<td>Partition coefficient:n-octanol/water</td>
<td>No information available</td>
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<td>Auto-ignition temperature</td>
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<td>Oxidizing properties</td>
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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
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

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

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

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.

16. OTHER INFORMATION

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

Prepared by: Regulatory Department
Biotium Inc.

Version no. 4
Reason for revision: Correction to DMSO classification.

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: March 21, 2016

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Enzyme inhibitor Ac-DEVD-CHO, 5 mM in DMSO
Catalog Number: 99926, 99927
Unit Size: 5 uL, 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

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

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

HMIS Classification
Health hazard: 0
Flammability: 2
Physical hazards: 0

NFPA Rating
Health hazard: 0
Fire: 2
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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
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 Dimethylsulfoxide
CAS no. 67-68-5

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Personal protective equipment

Hand protection
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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

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<tr>
<th>Chemical Name</th>
<th>Enzyme inhibitor Ac-DEVD-CHO, 5 mM in DMSO</th>
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<td>Appearance</td>
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<td>Odor</td>
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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
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.
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**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**
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**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)  not dangerous good during transportation
UN number  none
UN proper shipping name  none
Transport hazard class  none
Packing group  none
Environmental hazards  none
Special precaution for user  none

15. REGULATION INFORMATION

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

16. OTHER INFORMATION

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

Prepared by: Regulatory Department
Biotium Inc.
Version no. 4
Reason for revision Correction to DMSO classification.

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SAFETY DATA SHEET
Date Revised: March 21, 2016

1. PRODUCT AND COMPANY IDENTIFICATION
   Product Name: R110, 80 uM in DMSO
   Catalog Number: 99906
   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

2. HAZARDS IDENTIFICATION
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   None
   Classification according to Directive 1999/45/EC
   None

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

   HMIS Classification
   Health hazard: 0
   Flammability: 2
   Physical hazards: 0

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   Fire: 2
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4. FIRST- AID MEASURES
   General advice
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   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
5. FIREFIGHTING MEASURES

**Suitable extinguishing media**
Carbon dioxide, dry chemical extinguishers, foam extinguishers or water.

**Special protective equipment for firefighters**
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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 Dimethylsulfoxide
CAS no. 67-68-5

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</tbody>
</table>
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

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<thead>
<tr>
<th>Chemical Name</th>
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<tbody>
<tr>
<td>Appearance</td>
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<td>Odor</td>
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<td>Odor threshold</td>
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<td>pH</td>
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<tr>
<td>Melting point/freezing point</td>
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<tr>
<td>Boiling point</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporate rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability</td>
<td>No information available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No information available</td>
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<td>Vapor pressure</td>
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<td>Vapor density</td>
<td>No information available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No information available</td>
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<td>Solubility</td>
<td>Water soluble</td>
</tr>
<tr>
<td>Partition coefficient:n-octanol/water</td>
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</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
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<tr>
<td>Viscosity</td>
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<tr>
<td>Explosive properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
</tr>
</tbody>
</table>

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

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

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

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.

16. OTHER INFORMATION

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

Prepared by:  Regulatory Department
             Biotium Inc.
Version no.  4
Reason for revision  Correction to DMSO classification.

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.
1. PRODUCT AND COMPANY IDENTIFICATION
   
   **Product Name:** Lysis Buffer  
   **Catalog Number:** 99917/99918  
   **Unit Size:** 30 mL/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](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  
   **Labelling according to Regulation (EC) No 1272/2008[CLP]**  
   **Hazard pictogram** None  
   **Signal word** None  
   **Hazard statements** None  
   **Precautionary statements** None  
   **HMIS Classification**  
   Health hazard: 0  
   Flammability: 0  
   Physical hazards: 0  
   **NFPA Rating**  
   Health hazard: 0  
   Fire: 0  
   Reactivity Hazard: 0

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

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</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Appearance</th>
<th>Odor</th>
<th>Odor threshold</th>
<th>pH</th>
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<th>Boiling point</th>
<th>Flash point</th>
<th>Evaporate rate</th>
<th>Flammability</th>
<th>Explosive limits</th>
<th>Vapor pressure</th>
<th>Vapor density</th>
<th>Relative density</th>
<th>Solubility</th>
<th>Partition coefficient:n-octanol/water</th>
<th>Auto-ignition temperature</th>
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<th>Viscosity</th>
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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

11. TOXICOLOGICAL INFORMATION
### Acute toxicity

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<td>Inhalation LC&lt;sub&gt;50&lt;/sub&gt;</td>
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<tr>
<td>Dermal LD&lt;sub&gt;50&lt;/sub&gt;</td>
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</table>

#### 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

<table>
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<td>Mobility in soil</td>
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<tr>
<td>Results of PBT and vPvB assessment</td>
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<tr>
<td>Other adverse effects</td>
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</tr>
<tr>
<td>Additional information</td>
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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

<table>
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<tr>
<th>Parameter</th>
<th>Value</th>
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</table>
UN proper shipping name none
Transport hazard class none
Packing group none
Environmental hazards none
Special precaution for user none

15. REGULATION INFORMATION

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

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
Reason for revision Corrections to hazard identification.

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: March 21, 2016

1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>Assay Buffer</th>
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<tr>
<td>Catalog Number:</td>
<td>99919</td>
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<tr>
<td>Unit Size:</td>
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</tr>
<tr>
<td>Manufacturer/Supplier:</td>
<td>Biotium, Inc.</td>
</tr>
<tr>
<td></td>
<td>46117 Landing Parkway, Fremont, CA 94538, USA</td>
</tr>
<tr>
<td></td>
<td>Phone: 1-510-265-1027, Fax: 1-510-265-1352</td>
</tr>
<tr>
<td></td>
<td>Web: <a href="http://www.biotium.com">http://www.biotium.com</a></td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

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

Classification according to Directive 1999/45/EC
None

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

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**

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS no.</th>
</tr>
</thead>
</table>

<table>
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<tr>
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<tr>
<td>Limit value, short term</td>
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<td>Limit value, short term</td>
<td>--</td>
<td>--</td>
<td>--</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>country</th>
<th>United Kingdom</th>
<th>USA-NIOSH</th>
<th>USA-OSHA</th>
<th>Australia</th>
<th>Canada</th>
<th>Japan</th>
<th>South Korea</th>
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</thead>
<tbody>
<tr>
<td>Limit value, 8 hours</td>
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<td>--</td>
</tr>
<tr>
<td>Limit value, short term</td>
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<td>--</td>
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<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Assay Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>7.4</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash point</td>
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</tr>
<tr>
<td>Evaporate rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability</td>
<td>No information available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor pressure</td>
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</tr>
<tr>
<td>Vapor density</td>
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</tr>
<tr>
<td>Relative density</td>
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</tr>
<tr>
<td>Solubility</td>
<td>Water soluble</td>
</tr>
<tr>
<td>Partition coefficient:n-octanol/water</td>
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</tr>
<tr>
<td>Auto-ignition temperature</td>
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</tr>
<tr>
<td>Decomposition temperature</td>
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<tr>
<td>Viscosity</td>
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</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
</tr>
</tbody>
</table>

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)   not dangerous good during transportation
 UN number         none
 UN proper shipping name none
 Transport hazard class none
 Packing group      none
 Environmental hazards none
 Special precaution for user none

15. REGULATION INFORMATION

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

16. OTHER INFORMATION

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

Prepared by:  Regulatory Department
              Biotium Inc.
Version no.    3
Reason for revision Correction to hazard classification.

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.