SAFETY DATA SHEET
Date: April 6, 2018

1. PRODUCT AND COMPANY IDENTIFICATION

   Product Name: CF dye secondary antibody conjugate
   Catalog Number: See product information sheet
   Unit Size: 0.5 mL/0.25 mL/50 µL/1 mg
   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: 1
   Flammability: 1
   Physical hazards: 0

   NFPA Rating
   Health hazard: 1
   Fire: 1
   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

For conjugates in liquid format only:

<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 67/548/EEC</th>
<th>Classification according to regulation (EC)No1278/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td>56-81-5</td>
<td>200-289-5</td>
<td>N/A</td>
<td>50%</td>
<td>N/A</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 Glycerol
   CAS no. 56-81-5
   
<table>
<thead>
<tr>
<th>country</th>
<th>Austria</th>
<th>Belgium</th>
<th>Denmark</th>
<th>European Union</th>
<th>France</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit value, 8hours</td>
<td>--</td>
<td>10 mg/m³</td>
<td>--</td>
<td>--</td>
<td>10 mg/m³</td>
<td>50 mg/m³ inhalable aerosol</td>
</tr>
<tr>
<td>Limit value,</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>100 mg/m³</td>
</tr>
<tr>
<td>country</td>
<td>Hungary</td>
<td>Italy</td>
<td>Poland</td>
<td>Spain</td>
<td>Sweden</td>
<td>Netherlands</td>
</tr>
<tr>
<td>---------------</td>
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<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>Limit value, 8hours</td>
<td>--</td>
<td>--</td>
<td>10 mg/m³</td>
<td>10 mg/m³</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Limit value, short term</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</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>
</tr>
</thead>
<tbody>
<tr>
<td>Limit value, 8hours</td>
<td>10 mg/m³</td>
<td>--</td>
<td>15 mg/m³ inhalable dust 5 mg/m³ respirable dust</td>
<td>10 mg/m³ (1)</td>
<td>10 mg/m³</td>
<td>--</td>
<td>10 mg/m³</td>
</tr>
<tr>
<td>Limit value, short term</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Australia (1) This value is for inhalable dust containing no asbestos and < 1% crystalline silica.

Germany STV 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.

### PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CF dye antibody conjugate</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>
<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>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 (oral) rat</th>
<th>LD50 (dermal) rabbit</th>
<th>LC50 (inhalation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td>12,600 mg/kg</td>
<td>21,900 mg/kg</td>
<td>1 hr &gt;570 mg/m3</td>
</tr>
</tbody>
</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
TDL (rat) - Route: Oral; Dose: 100 mg/kg 1 day prior to mating. TDL (human) - Route: Oral; Dose: 1428 mg/kg
Specific target organ toxicity - single exposure (Globally Harmonized System) no data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System)
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: MA8050000

13. ECOLOGICAL INFORMATION
Toxicity  Ecotoxicity in water (LC50): 58.5 ppm 96 hours (Trout)
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): Glycerol
SARA 302: Glycerol
SARA 313: Glycerol
SARA 311/312 Hazards: Glycerol: Health hazard (immediate, acute); health hazard (chronic)

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
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.