

## MATERIAL SAFETY DATA SHEET

Date Revised: February 15, 2011

**1. PRODUCT AND COMPANY INFORMATION**

**Product Name:** 1 KB DNA Ladder  
**Catalog Number:** 31021  
**Unit Size:** 150 applications  
**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>  
Emergency Phone: 1-510-265-1027

**2. COMPOSITION AND INFORMATION ON INGREDIENTS****Component A:** 1 KB DNA ladder, 30 µg/ 300µl

|                 | <b>Molecular Formula</b>  | <b>Molecular Weight</b> | <b>CAS Number</b> |
|-----------------|---|-------------------------|-------------------|
| 1 KB DNA ladder | N/A   | N/A                     | N/A               |
| Tris-HCl        | C <sub>4</sub> H <sub>11</sub> NO <sub>3</sub> ClH                  | 157.59                  | 1185-53-1         |
| EDTA            | C <sub>10</sub> H <sub>12</sub> O <sub>8</sub> N <sub>2</sub> · 4Na | 380.2                   | 64-02-8           |

**Component B:** 6X loading buffer, 1.5 ml

|                  | <b>Molecular Formula</b>   | <b>Molecular Weight</b>                    | <b>CAS Number</b> |
|------------------|--|--|-------------------|
| Glycerol         | C <sub>3</sub> H <sub>5</sub> (OH) <sub>3</sub>                                | 92.10                                      | 56-81-5           |
| Ficoll PM400     | N/A  | 3 x 10 <sup>5</sup> to 5 x 10 <sup>5</sup> | 26873-85-8        |
| Patent Blue VF   | C <sub>27</sub> H <sub>31</sub> N <sub>2</sub> NaO <sub>6</sub> S <sub>2</sub> | 566.66                                     | 129-17-9          |
| Bromophenol Blue | C <sub>19</sub> H <sub>10</sub> Br <sub>4</sub> O <sub>5</sub> S               | 670.02                                     | 115-39-9          |

**3. HAZARDS IDENTIFICATION****Emergency Overview:** Handle with care—substance has not been fully tested.**POTENTIAL HEALTH EFFECTS**

**Inhalation:** Component A and Component B may cause irritation to respiratory tract.  
**Ingestions:** Component A and Component B may cause irritation of the digestive tract. May be harmful if swallowed. Component B may cause nausea, headache, and diarrhea and large oral doses may cause irritation to the gastrointestinal tract.  
**Skin:** Component A causes skin irritation, and may be harmful if absorbed through the skin. Component B may cause skin irritation with redness and pain.  
**Eyes:** Component A causes eye irritation. Component B may cause eye irritation, redness and pain.  
**Chronic Exposures:** Not determined for Component A. Component B may cause kidney injury.  
**Target Organs:** Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.

**4. FIRST AID MEASURES****Oral Exposure**

Component A: if swallowed, do NOT induce vomiting unless directed to do so by a medical personnel. Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Call a physician immediately if large quantities of this material are swallowed. Loosen tight clothing such as collar, tie, belt or waistband.  
Component B: induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If person is conscious, wash out mouth with water. Seek medical help.

**Inhalation Exposure**

Component A and Component B: if inhaled, remove to fresh air. If breathing becomes difficult, give oxygen and call a physician. If not breathing, give artificial respiration.

#### Dermal Exposure

Component A and Component B: in case of contact, immediately wash skin with soap and copious amounts of water for at least 15 minutes. Cover area of irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing and thoroughly clean shoes before reuse. Get medical attention if irritation develops.

#### Eye Exposure

Component A and Component B: in case of contact with eyes, check for and remove any contact lens, and flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Cold water may be used. Seek medical attention if irritation persists.

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## 5. FIRE FIGHTING MEASURES

Use carbon dioxide, dry chemical extinguishers, foam extinguishers or water. An approved self-contained breathing apparatus and protective clothing are recommended.

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## 6. ACCIDENTAL RELEASE MEASURES

Use appropriate protective equipment and methods to clean up spilled substance promptly. Absorb spill onto an appropriate material. Collect and dispose of all waste in accordance with applicable laws. Provide ventilation.

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## 7. HANDLING AND STORAGE

#### Storage

Store at 4°C for -20°C.

#### Handling

Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Under no circumstances eat, drink, or smoke while handling this material. Wash hands after working with material. Contaminated clothing should be removed and washed before re-use.

Recommended: Use original container

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Gloves, protective clothing and eyewear should be worn and safe laboratory practices followed. Use in a well ventilated area.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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|-----------------------------|---|
| <b>Form:</b>                | Component A: clear liquid. Component B: dark blue liquid. |
| <b>Odor:</b>                | Not available   |
| <b>Solubility in Water:</b> | Soluble   |
| <b>Specific Gravity:</b>    | Not available   |
| <b>pH:</b>                  | Not available   |
| <b>Boiling Point:</b>       | Not available   |
| <b>Melting Point:</b>       | Not available   |
| <b>Flash Point:</b>         | Not available   |
| <b>Vapor Pressure:</b>      | Not available   |

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## 10. STABILITY AND REACTIVITY

**Stability:** Stable under ordinary conditions of use and storage.

**Thermal Decomposition:** Component B: Glycerin decomposes upon heating above 290°C, forming corrosive gas (acrolein).

**Dangerous Reactions:** Component A: not compatible with strong oxidizing agents, acids, bases, aluminum, brass, copper. Component B: not compatible with strong oxidizers. Can react violently with acetic anhydride, calcium oxochloride, chromium oxides, and alkali metal hydrides.

#### Dangerous Products of Decomposition:

##### Component A:

Tris-HCl: nitrogen oxides, carbon monoxide, carbon dioxide.

EDTA: carbon oxides, nitrogen oxides, and some metallic oxides.

**Component B:**

Glycerol: toxic gases and vapors may be released if involved in a fire.

Ficoll: carbon monoxide, carbon dioxide.

Patent blue: carbon oxides, nitrogen oxides (NOx), sulfur oxides.

Bromophenol blue: burning may produce bromines, sulfur oxides, carbon dioxide, and carbon dioxide.

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## 11. TOXICOLOGICAL INFORMATION

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**Glycerol (CAS: 56-81-5)**

**Routes of Exposure:** Multiple routes: May cause irritation. May be harmful by inhalation, ingestion, or skin absorption.

**RTECS Number:** Not available

**Toxicity:** Oral rat LD<sub>50</sub>: 12,600 mg/kg

**Carcinogenicity:** Not listed by NTP, IARC or OSHA

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## 12. ECOLOGICAL INFORMATION

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Do not allow product to enter drinking water supplies, wastewater or soil. Adverse ecological effects cannot be excluded in the event of improper handling or disposal.

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## 13. DISPOSAL CONSIDERATIONS

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Consult local, state or national regulations for proper disposal. Chemical residues are generally classified as hazardous or special waste, and as such are covered by regulations, which vary according to location. Contact your local waste disposal authority for advice, or pass to a chemical disposal company.

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## 14. TRANSPORT INFORMATION

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**DOT**

**Hazards Class:** Not available

**UN Number:** Not available

**Packing Group:** Not classified

**Proper Shipping Name (Technical Name):** Not available

**IATA**

**Hazardous for air Transport:** Non-Hazardous for air transport.

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## 15. REGULATIONS

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**EDTA (CAS 64-02-8):****EU Regulations:**

Classification: irritant

Risk phrases: R36/37/38 – irritating to eyes, respiratory system and skin.

Safety phrases: S26- in case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36 – wear suitable protective clothing.

**US Regulations:**

Irritant. Irritating to eyes, respiratory system, skin. In case of contact with eyes, wash thoroughly and see medical attention.

SARA Listed: No

Canada: DSL: No; NDSL: No

**Tris-HCl (CAS 1185-53-1):**

Listed under TSCA, EC, Australia, Philippines, and Canada DSL

SARA 311/312: acute: yes; chronic: no; fire: no; pressure: no; reactivity: no.

Chemical weapons convention: no

TSCA 12(b): NO

CDTA: No

**Glycerol (CAS 56-81-5):**

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Listed under TSCA, EC, Japan, Australia, Korea, and Canada DSL.  
SARA 311/312: acute: yes; chronic: yes; fire: no; pressure: no; reactivity: no  
Chemical weapons convention: no  
TSCA 12(b): no  
CDTA: no

**Ficoll PM400 (CAS 26873-85-8):**

SARA Listed: No  
Canada Regulatory Information:  
DSL: No  
NDSL: Yes

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## 16. OTHER INFORMATION

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**Disclaimer:** 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.