MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: TransformAid™ Bacterial Transformation Kit
Catalog Numbers: #K2710, #K2711
Company Name & Address: Fermentas UAB
V.Graičiūno 8
LT-2028 Vilnius
Lithuania
Tel.: +370 5 260 21 31
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Information Number: Please contact Fermentas distributor in your country.

2. COMPOSITION / INFORMATION ON INGREDIENTS

Description
Enzymes/nucleic acids in buffer solution; water solutions of components listed in table. Volume of each product package varies: 1.25-35ml.

<table>
<thead>
<tr>
<th>Components in Water</th>
<th>CAS#</th>
<th>Concentration, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium chloride</td>
<td>10035-04-8</td>
<td>0.35</td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td>67-68-5</td>
<td>20</td>
</tr>
<tr>
<td>Dithiothreitol (DTT)</td>
<td>3483-12-3</td>
<td>4.63</td>
</tr>
<tr>
<td>HEPES</td>
<td>7365-45-9</td>
<td>0.24</td>
</tr>
<tr>
<td>Magnesium chloride</td>
<td>7791-18-6</td>
<td>≤ 0.48</td>
</tr>
<tr>
<td>Magnesium sulfate</td>
<td>10034-99-</td>
<td>0.25</td>
</tr>
<tr>
<td>Manganese chloride</td>
<td>13446-34-9</td>
<td>1.0</td>
</tr>
<tr>
<td>Peptone</td>
<td>73049-73-7</td>
<td>2.0</td>
</tr>
<tr>
<td>Polyethylene glycol 4000 (PEG)</td>
<td>25322-68-3</td>
<td>25</td>
</tr>
<tr>
<td>Potassium chloride</td>
<td>7447-40-7</td>
<td>≤ 2.6</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>7647-14-5</td>
<td>0.06</td>
</tr>
<tr>
<td>Yeast extract</td>
<td>8013-01-2</td>
<td>0.5</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Primary routes of entry
Skin or eye contact from splashes.
Inhalation of the vapor at room temperature is unlikely.

Ingestion
Polyethylene glycol, dithiothreitol: Harmful if swallowed.
Dimethyl sulfoxide causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea. May cause abdominal pain, drowsiness, chills and chest pains.

Skin contact
Irritating.
Dimethyl sulfoxide causes irritation to skin. Symptoms include redness, itching, and pain. May be absorbed through the skin; symptoms parallel to ingestion.

Eye contact
Irritating.

Evidence for reproductive toxicity, carcinogenicity and mutagenicity
Dimethyl sulfoxide is investigated as a tumorigen, mutagen and reproductive effector.
Dithiothreitol is investigated as a mutagen.
4. **FIRST AID MEASURES**
   **After skin contact**
   Wash skin with water and soap and rinse thoroughly. Remove contaminated clothing. Get medical attention if irritating occurs.
   **After eye contact**
   Rinse opened eyes for several minutes under running water. Get medical attention if eyes become irritating.
   **After swallowing (ingestion)**
   Rinse mouth. Drink plenty of water. Get medical attention if irritating or symptoms occur.

5. **FIRE FIGHTING MEASURES**
   **Fire and explosion hazards**
   Gives off irritating or toxic fumes in a fire.
   **Suitable extinguishing media**
   Water spray, carbon dioxide, extinguishing powder or foam.
   **Protective equipment**
   Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6. **ACCIDENTAL RELEASE MEASURES**
   **Personal precautions**
   Not required.
   **Environmental precautions**
   Do not allow entering sewers, surfaces or ground water.
   **Measures for cleaning / collecting**
   Collect spilled liquid with liquid-binding material or inert absorbent and place it in container for disposal. Wash spill site after material pickup is complete.

7. **HANDLING AND STORAGE**
   **Handling**
   No special measures necessary. Good laboratory technique should be used when handling.
   **Storage**
   No special measures necessary. Store at –20°C.

8. **EXPOSURE CONTROLS / PERSONAL PROTECTION**
   **Exposure limits**
   The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
   **Eye protection**
   Safety goggles (glasses) when risk of splashes.
   **Skin protection**
   Protective gloves, a lab coat.
   **Hygiene measures**
   Keep away from foodstuffs and beverages.
   Avoid contact with the eyes and skin.
   Do not eat, drink or smoke while working with products.
   **Breathing equipment**
   Not required.

9. **PHYSICAL AND CHEMICAL PROPERTIES**
   **Appearance**
   Liquid.
   **Color**
   Colorless.
   **Odor**
   Odorless.
   **Boiling point**
   No data available.
   **Flash point**
   No data available.
   **Explosive properties**
   No data available.
   **Vapor pressure**
   No data available.
   **pH**
   7 - 7.8.
10. STABILITY AND REACTIVITY

**Stability**
Stable, under normal handling and storage conditions.

**Decomposition**
No data available.

**Conditions to avoid**
Contact with strong oxidants, fire.

11. TOXICOLOGICAL INFORMATION

**Eye contact**
Irritating to eyes.

**Skin contact**
Irritating to skin. *Dimethyl sulfoxide* causes irritation to skin. Symptoms include redness, itching, and pain. May be absorbed through the skin; symptoms parallel to ingestion.

**Ingestion**
*Polyethylene glycol, dithiothreitol*: Harmful if swallowed. 
*Dithiothreitol*: oral, rat: LD50 = 400mg/kg. *Polyethylene glycol*: oral, rat: LD50 = 500mg/kg. 
*Dimethyl sulfoxide* causes irritation to the gastrointestinal tract. *Dimethyl sulfoxide*: oral, rat: LD50 = 14500mg/kg

Preparations may cause allergic reactions in certain sensitive individuals.

12. ECOLOGICAL INFORMATION

No data available.

13. DISPOSAL CONSIDERATIONS

Burn the material in a chemical incinerator equipped with an afterburner and scrubber. 
Observe all federal state and local environmental regulations.

14. TRANSPORT INFORMATION

Not regulated.

15. REGULATORY INFORMATION

**R36**
Irritating to eyes.

**R38**
Irritating to skin.

**R22**
Harmful if swallowed.

**S36/37/39**
Wear suitable protective clothing, gloves and eye/face protection.

16. OTHER INFORMATION

This information is based on our present knowledge and shall be used only as a guide. However, this shall not constitute a guarantee for any specific product features. Fermentas is not held liable for any damage resulting from handling or from contact with the above products.

MSDS has been prepared in accordance with EU Directive 67/548/EEC, 91/155/EEC and other EU Community legislations in force.

*Updated 06/2001*