Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name  BL21(DE3) Competent E.coli
Product No  C2527

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use  This product is for research and development only
Uses advised against  No information available

1.3. Details of the supplier of the safety data sheet

Supplier Address  New England BioLabs
                 240 County Road
                 Ipswich, MA 01938
                 USA

Company Phone Number  978-927-5054
                       800-632-5227 (toll free)
Telefax  978-921-1350
For further information, please contact
E-mail address  info@neb.com

1.4. Emergency telephone number

Emergency telephone  978-927-5054
                      800-632-5227 (toll free)
                      9:00am - 5:00pm Monday-Friday EST

Emergency telephone - §45 - (EC)1272/2008
Europe  112
Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture
Regulation (EC) No 1272/2008
This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

2.2. Label elements
Product identifier
This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]
Signal word
None
EUH210 - Safety data sheet available on request

2.3. Other hazards
Other hazards
Per Centers for Disease Control and Prevention (CDC) Guidelines (Biosafety in Microbiological and Biomedical Laboratories, 5th Edition), this material can be handled at Biological Safety Level One (BSL-1) containment.

Biological Safety Level One (BSL-1) containment, using standard microbiological practices, is suitable for work involving well-characterized microbiological organisms not known to consistently cause disease in immunocompetent adult humans, and present minimal potential hazard to laboratory personnel and the environment.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Not applicable

3.2 Mixtures

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>EC No</th>
<th>CAS No</th>
<th>Weight-%</th>
<th>Classification according to 67/548/EEC</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
<th>REACH Registration No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret</td>
<td>Listed</td>
<td>-</td>
<td>5 - 10</td>
<td>-</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>Trade Secret</td>
<td>Listed</td>
<td>-</td>
<td>1 - 5</td>
<td>Xi; R36</td>
<td>Eye Irrit. 2 (H319)</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Full text of H- and EUH-phrases: see section 16

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

General advice
Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye contact
Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact
Wash skin with soap and water.

Inhalation

Product name  BL21(DE3) Competent E.coli
Page 2 / 9  Product No C2527
Specification No  No information available
Remove to fresh air.

**Ingestion**
Clean mouth with water and drink afterwards plenty of water.

4.2. **Most important symptoms and effects, both acute and delayed**
No information available

4.3. **Indication of any immediate medical attention and special treatment needed**

**Note to physicians**
Treat symptomatically.

---

**Section 5: FIRE FIGHTING MEASURES**

5.1. **Extinguishing media**
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable extinguishing media**
CAUTION: Use of water spray when fighting fire may be inefficient.

5.2. **Special hazards arising from the substance or mixture**
No information available

5.3. **Advice for firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

---

**Section 6: ACCIDENTAL RELEASE MEASURES**

6.1. **Personal precautions, protective equipment and emergency procedures**

**Personal precautions**
Ensure adequate ventilation, especially in confined areas.

**For emergency responders**
Use personal protection recommended in Section 8.

6.2. **Environmental precautions**
See Section 12 for additional Ecological Information.

6.3. **Methods and material for containment and cleaning up**

**Methods for containment**
Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up**
Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. This material and its container must be disposed of as hazardous waste.

---

**Section 7: HANDLING AND STORAGE**

7.1. **Precautions for safe handling**
Handle in accordance with good industrial hygiene and safety practice.

7.2. **Conditions for safe storage, including any incompatibilities**

**Storage temperature**

---

**Product name** BL21(DE3) Competent E.coli

**Page** 3 / 9

**Product No** C2527

**Specification No** No information available
Refer to www.neb.com for specific information.

**Storage Conditions**
Keep/store only in original container.

**Incompatible materials**
None known based on information supplied.

**7.3. Specific end use(s)**

**Risk management methods [RMM]**
The information required is contained in this Safety Data Sheet.

### Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1. Control parameters

**Exposure Limits**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>European Union</th>
<th>United Kingdom</th>
<th>France</th>
<th>Spain</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>TWA: 50 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TWA: 160 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ceiling / Peak: 100 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ceiling / Peak: 320 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Italy</th>
<th>Portugal</th>
<th>Netherlands</th>
<th>Finland</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>TWA: 50 ppm</td>
<td>TWA: 50 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin</td>
<td>TWA: 160 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Austria</th>
<th>Switzerland</th>
<th>Poland</th>
<th>Norway</th>
<th>Ireland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret</td>
<td>Skin</td>
<td>Skin</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>TWA: 50 ppm</td>
<td>STEL: 100 ppm</td>
<td>TWA: 50 ppm</td>
<td>TWA: 160 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**Derived No Effect Level (DNEL)** No information available

**Predicted No Effect Concentration (PNEC)** No information available

#### 8.2. Exposure controls

**Engineering controls**
Showers. Eyewash stations.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**
Wear safety glasses with side shields (or goggles).

**Skin and body protection**
Wear suitable protective clothing and gloves.

**Respiratory protection**
Use in well ventilated areas.

**General hygiene considerations**
Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls**
See Section 12: ECOLOGICAL INFORMATION.

---

**Product name** BL21(DE3) Competent E.coli

**Page** 4 / 9

**Product No** C2527

**Specification No** No information available
### Section 9: PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>6.2</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td>No information available</td>
</tr>
<tr>
<td>Upper flammability limit</td>
<td>No information available</td>
</tr>
<tr>
<td>Lower flammability limit</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>
<tr>
<td>Relative density</td>
<td>No information available</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>No information available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>No information available</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No information available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No information available</td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No information available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
</tr>
<tr>
<td>Softening point</td>
<td>No information available</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No information available</td>
</tr>
<tr>
<td>VOC content (%)</td>
<td>No information available</td>
</tr>
<tr>
<td>Density</td>
<td>No information available</td>
</tr>
<tr>
<td>Bulk density</td>
<td>No information available</td>
</tr>
</tbody>
</table>

### Section 10: STABILITY AND REACTIVITY

10.1. Reactivity
No data available.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Can react briskly with oxidizers - danger of explosion.

10.4. Conditions to avoid

10.5. Incompatible materials
Strong oxidizing agents.

10.6. Hazardous decomposition products
Thermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon monoxide. Carbon dioxide (CO2).

---

**Product name**  BL21(DE3) Competent E.coli  
**Page**  5 / 9  
**Product No**  C2527

**Specification No**  No information available
Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

Product information
Product does not present an acute toxicity hazard based on known or supplied information.

Inhalation
Avoid breathing vapors or mists
May cause irritation of respiratory tract

Eye contact
Redness
May cause slight irritation

Skin contact
Prolonged contact may cause redness and irritation
Repeated exposure may cause skin dryness or cracking

Ingestion
May cause drowsiness or dizziness
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea
Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting

Unknown acute toxicity
20.76 % of the mixture consists of ingredient(s) of unknown toxicity

The following values are calculated based on chapter 3.1 of the GHS document

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>&gt; 90 mL/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td>12600 mg/kg (Rat)</td>
<td>&gt; 10 g/kg (Rabbit)</td>
<td>&gt; 570 mg/m² (Rat) 1 h</td>
</tr>
<tr>
<td>Trade Secret</td>
<td>14500 mg/kg (Rat)</td>
<td>= 40 g/kg (Rat)</td>
<td>-</td>
</tr>
<tr>
<td>Trade Secret</td>
<td>1000 mg/kg (Rat)</td>
<td>= 2630 mg/kg (Rat)</td>
<td>-</td>
</tr>
<tr>
<td>Trade Secret</td>
<td>250 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Trade Secret</td>
<td>2800 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Trade Secret</td>
<td>3250 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation | Mild
Serious eye damage/eye irritation | Mild
Sensitization | Not applicable
Germ cell mutagenicity | Not applicable
Carcinogenicity | No information available
Reproductive toxicity | No information available
Developmental toxicity | No information available
Teratogenicity | No information available
STOT - single exposure | No information available
STOT - repeated exposure | No information available
Neurological effects | No information available
Target organ effects | Blood, Central nervous system, Eyes, Kidneys, Respiratory system, Skin.
Other adverse effects | No information available
Symptoms | No information available
Aspiration hazard | No information available
Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

0.4 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret</td>
<td>12350 - 25500: 96 h Skeletonema costatum mg/L EC50</td>
<td>34000: 96 h Pimephales promelas mg/L LC50 40: 96 h Lepomis macrochirus g/L LC50 static 33 - 37: 96 h Oncorhynchus mykiss g/L LC50 static 41.7: 96 h Cyprinus carpio g/L LC50</td>
<td>7000: 24 h Daphnia species mg/L EC50</td>
</tr>
<tr>
<td>Trade Secret</td>
<td>-</td>
<td>10650: 96 h Lepomis macrochirus mg/L LC50 static</td>
<td>2400: 48 h Daphnia magna mg/L LC50</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
No information available

12.3. Bioaccumulative potential
No information available

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret</td>
<td>-2.03</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
No information available

12.5. Results of PBT and vPvB assessment
No information available

12.6. Other adverse effects

Other adverse effects
No information available

Endocrine disruptor information
No information available

Ozone
No information available

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Relevant Information
Keep out of drains, sewers, ditches and waterways.

Waste from Residues/Unused Products
Disposal should be in accordance with applicable regional, national and local laws and regulations. Send to a licensed recycler, reclamer or incinerator.

Contaminated packaging
Empty containers must be tripled rinsed prior to disposal.

Section 14: TRANSPORT INFORMATION

Product name  BL21(DE3) Competent E.coli
Page  7 / 9  Product No  C2527
Specification No  No information available
IMDG
14.1 UN/ID No Not regulated
14.2 Proper shipping name Not regulated
14.3 Hazard class Not regulated
14.4 Packing group Not regulated
14.5 Marine pollutant Not applicable
14.6 Special Provisions None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available

RID
14.1 UN/ID No Not regulated
14.2 Proper shipping name Not regulated
14.3 Hazard class Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazard Not applicable
14.6 Special Provisions None

ADR
14.1 UN/ID No Not regulated
14.2 Proper shipping name Not regulated
14.3 Hazard class Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazard Not applicable
14.6 Special Provisions None

ICAO (air)
14.1 UN/ID No Not regulated
14.2 Proper shipping name Not regulated
14.3 Hazard class Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazard Not applicable
14.6 Special Provisions None

IATA
14.1 UN/ID No Not regulated
14.2 Proper shipping name Not regulated
14.3 Hazard class Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazard Not applicable
14.6 Special Provisions None

Section 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National Regulations

Occupational Illnesses (R-463-3, France)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>French RG number</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Secret</td>
<td>RG 84</td>
<td></td>
</tr>
</tbody>
</table>

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at

Product name BL21(DE3) Competent E.coli
Specification No No information available
**International Inventories**

All of the components in the product are on the following Inventory lists: TSCA (United States); Canada (DSL/NDSL), Europe (EINECS/ELINCS), Australia (AICS), South Korea (KECL); China (IECSC), Philippines (PICCS).

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCA</td>
<td>Complies</td>
</tr>
<tr>
<td>EINECS</td>
<td>Complies</td>
</tr>
<tr>
<td>ELINCS</td>
<td>-</td>
</tr>
<tr>
<td>DSL</td>
<td>Complies</td>
</tr>
<tr>
<td>NDSL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>ENCS</td>
<td>-</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
</tbody>
</table>

**Legend**

- **TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- **EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- **DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- **PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- **ENCS** - Japan Existing and New Chemical Substances
- **IECSC** - China Inventory of Existing Chemical Substances
- **AICS** - Australian Inventory of Chemical Substances
- **KECL** - Korean Existing and Evaluated Chemical Substances

**15.2. Chemical safety assessment**

No information available

**Section 16: OTHER INFORMATION**

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**Full text of H-Statements referred to under sections 2 and 3**

H319 - Causes serious eye irritation

**Prepared by**

EH&S Manager
978-927-5054

**Prepared by**

New England BioLabs

**Issue date**

No data available

**Revision note**

SDS is valid 3 years from revision date. Contact info@neb.com for latest revision.

**Disclaimer**

**IMPORTANT:** The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties or merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since conditions of use of the product are not under the control of New England Biolabs, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. New England Biolabs will not be liable for any damages resulting from handling or contact with the product.

End of Safety Data Sheet