<table>
<thead>
<tr>
<th>Product code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1651</td>
<td>Glu-C</td>
</tr>
</tbody>
</table>

Components:

<table>
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<tbody>
<tr>
<td>V165A</td>
<td>Glu-C, Sequencing Grade</td>
</tr>
</tbody>
</table>
1 Identification

Product identifier
Trade name: Glu-C, Sequencing Grade

Article number: V165A

Application of the substance / the mixture Laboratory chemicals

Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Promega Corporation
2800 Woods Hollow Road
Madison, WI 53711
U.S.A.
1-800-356-9526 or (608)-274-4330

Information department: SDS author: Regulatory.Affairs@promega.com

Emergency telephone number:
For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300
Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

Classification of the substance or mixture
The product is not classified as hazardous according to the Globally Harmonized System (GHS).

Label elements
GHS label elements Void
Hazard pictograms Void
Signal word Void
Hazard statements Void

Classification system:
NFPA ratings (scale 0 - 4)
Health = 0
Fire = 0
Reactivity = 0

HMIS-ratings (scale 0 - 4)
Health = 0
Fire = 0
Reactivity = 0

OSHA Hazard Overview (Criteria according to 29CFR1910.1200): Not applicable
Target Organ(s): Not applicable or unknown

Other hazards
This mixture has not been tested to determine the overall health hazard; therefore in accordance with 29CFR1910.1200, the data reported above pertains to the hazardous ingredients of this mixture.

Results of PBT and vPvB assessment
PBT: Not applicable.
**3 Composition/information on ingredients**

Chemical characterization: Mixtures

*Description:* The product is a mixture of the hazardous substances listed below along with unlisted nonhazardous substances. The exact concentration percentages of the hazardous substances may be withheld as a Promega Corp. trade secret.

*Dangerous components:* Void

*Additional information:* For the wording of the listed risk phrases refer to section 15.

**4 First-aid measures**

*Description of first aid measures*

*General information:* No special measures required.

*After inhalation:* If the patient feels unwell or is concerned, obtain medical advice.

*After skin contact:* Generally the product does not irritate the skin.

*After eye contact:* Rinse opened eye for several minutes under running water.

*After swallowing:* If the patient feels unwell or is concerned, obtain medical advice.

*Information for doctor:*

*Most important symptoms and effects, both acute and delayed:* None

*Indication of any immediate medical attention and special treatment needed:* No further relevant information available.

**5 Fire-fighting measures**

*Extinguishing media*

*Suitable extinguishing agents:* CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

*Special hazards arising from the substance or mixture:* None known

*Advice for firefighters:* No special advice

*Protective equipment:* No special measures required.

**6 Accidental release measures**

*Personal precautions, protective equipment and emergency procedures:* Not required.

*Environmental precautions:* Do not allow to enter sewers/surface or ground water.

*Methods and material for containment and cleaning up:* Pick up mechanically.

*Reference to other sections*

No dangerous substances are released.

See Section 7 for information on safe handling.

See Section 13 for disposal information.

**7 Handling and storage**

*Handling:*

*Precautions for safe handling:* No special measures required.
Trade name: Glu-C, Sequencing Grade

Information about protection against explosions and fires: The product is not flammable.

Conditions for safe storage, including any incompatibilities

Storage:
Requirements to be met by storerooms and receptacles: No special requirements.
Information about storage in one common storage facility: Not required.
Further information about storage conditions: None.
Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Control parameters
Components with limit values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
Additional information: The lists that were valid during the creation were used as basis.

Exposure controls
Personal protective equipment:
General protective and hygienic measures:
The usual precautionary measures for handling chemicals should be followed.
Breathing equipment: Not required.
Protection of hands: Not required.
Material of gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
Eye protection: Not required.

9 Physical and chemical properties

Information on basic physical and chemical properties
General Information
Appearance:
Form: Solid
Color: Colorless
Odor: Not determined
Odor threshold: Not determined.

pH-value: Not applicable.

Change in condition
Melting point/Melting range: Undetermined.
Boiling point/Boiling range: Undetermined.
Flash point: Not applicable.

Flammability (solid, gaseous): Not determined.

Ignition temperature:
Decomposition temperature: Not determined.

Auto igniting: Product is not selfigniting.

Danger of explosion: Product does not present an explosion hazard.
Explosion limits:
Lower: Not determined.
Upper: Not determined.

Density:
Relative density: Not determined.
Vapor density: Not applicable.
Evaporation rate: Not applicable.

Solubility in / Miscibility with Water: Soluble.
Partition coefficient (n-octanol/water): Not determined.

Viscosity:
Dynamic: Not applicable.
Kinematic: Not applicable.

Organic solvents: 0.0 %
Solids content: 100.0 %
Other information: No further relevant information available.

10 Stability and reactivity

Reactivity: No further relevant information available.

Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
Possibility of hazardous reactions: No dangerous reactions known.
Conditions to avoid: No further relevant information available.
Incompatible materials: No further relevant information available.
Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

Information on toxicological effects
Acute toxicity:
LD/LC50 values that are relevant for classification: No data available
Primary irritant effect:
on the skin: No irritant effect.
on the eye: Irritating effect.
Sensitization: No sensitizing effects known.

Additional toxicological information:
The product is not subject to classification according to internally approved calculation methods for preparations:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

Carcinogenic categories

IARC (International Agency for Research on Cancer)
None of the ingredients are listed.

NTP (National Toxicology Program)
None of the ingredients are listed.
Trade name: Glu-C, Sequencing Grade

OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients are listed.

### 12 Ecological information

**Toxicity**
- **Aquatic toxicity:** Not harmful to the aquatic environment
- **Persistence and degradability:** Not available
- **Behavior in environmental systems:**
- **Bioaccumulative potential:** Not known
- **Mobility in soil:** No further relevant information available.

**Ecotoxicological effects:**
- **Remark:** Not available

**Additional ecological information:**
- **General notes:**
  - Water hazard class 1 (Self-assessment): slightly hazardous for water
  - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

**Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

**Other adverse effects:** No further relevant information available.

### 13 Disposal considerations

**Waste treatment methods**
- **Recommendation:**
  - Disposal should be in accordance with applicable regional, national and local laws and regulations.
  - Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

**Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

| UN-Number | Not hazardous for transportation |
| DOT, ADR, ADN, IMDG, IATA | Void |
| UN proper shipping name | None |
| DOT, ADR, ADN, IMDG, IATA | Void |
| Transport hazard class(es) | None |
| DOT, ADR, ADN, IMDG, IATA | Void |
| Packing group | None |
| DOT, ADR, IMDG, IATA | Void |
| Environmental hazards: Marine pollutant | No |

(Contd. of page 4)
**Trade name:** Glu-C, Sequencing Grade

<table>
<thead>
<tr>
<th><strong>15 Regulatory information</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Safety, health and environmental regulations/legislation specific for the substance or mixture</strong></td>
</tr>
<tr>
<td><strong>Sara</strong></td>
</tr>
<tr>
<td><strong>Section 355 (extremely hazardous substances):</strong></td>
</tr>
<tr>
<td>None of the ingredients are listed.</td>
</tr>
<tr>
<td><strong>Section 313 (Specific toxic chemical listings):</strong></td>
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<tr>
<td>None of the ingredients are listed.</td>
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<tr>
<td><strong>TSCA (Toxic Substances Control Act):</strong></td>
</tr>
<tr>
<td>99-20-7 α,α-Trehalose</td>
</tr>
<tr>
<td><strong>Proposition 65</strong></td>
</tr>
<tr>
<td><strong>Chemicals known to cause cancer:</strong></td>
</tr>
<tr>
<td>None of the ingredients are listed.</td>
</tr>
<tr>
<td><strong>Chemicals known to cause reproductive toxicity for females:</strong></td>
</tr>
<tr>
<td>None of the ingredients are listed.</td>
</tr>
<tr>
<td><strong>Chemicals known to cause reproductive toxicity for males:</strong></td>
</tr>
<tr>
<td>None of the ingredients are listed.</td>
</tr>
<tr>
<td><strong>Chemicals known to cause developmental toxicity:</strong></td>
</tr>
<tr>
<td>None of the ingredients are listed.</td>
</tr>
<tr>
<td><strong>Cancerogenicity categories</strong></td>
</tr>
<tr>
<td><strong>EPA (Environmental Protection Agency)</strong></td>
</tr>
<tr>
<td>None of the ingredients are listed.</td>
</tr>
<tr>
<td><strong>TLV (Threshold Limit Value established by ACGIH)</strong></td>
</tr>
<tr>
<td>None of the ingredients are listed.</td>
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<tr>
<td><strong>NIOSH-Ca (National Institute for Occupational Safety and Health)</strong></td>
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<tr>
<td>None of the ingredients are listed.</td>
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<tr>
<td><strong>GHS label elements</strong></td>
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<tr>
<td><strong>Signal word</strong></td>
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<tr>
<td><strong>Hazard statements</strong></td>
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<tr>
<td><strong>National regulations:</strong></td>
</tr>
<tr>
<td><strong>Water hazard class:</strong> Water hazard class 1 (Self-assessment): slightly hazardous for water.</td>
</tr>
<tr>
<td><strong>Chemical safety assessment:</strong> A Chemical Safety Assessment has not been carried out.</td>
</tr>
</tbody>
</table>

**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
Trade name: Glu-C, Sequencing Grade

Department issuing SDS:
Promega Corporation
Environmental Health and Safety Department
2800 Woods Hollow Road
Madison, WI
Ph:(608)274-4330

Date of preparation / last revision 07/04/2016 / -

Abbreviations and acronyms:
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: Internation Civil Aviation Organization
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit

* Data compared to the previous version altered.