Safety Data Sheet

Cat. # 786-272

Fab Fragmentation Kit

Size: 10 Reactions
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
- Product form: Mixture
- Product name: Fab Digestion Buffer
- Product code: 003F
- Product group: Blend

1.2. Relevant identified uses of the substance or mixture and uses advised against
1.2.1. Relevant identified uses
No additional information available

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet
Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
63132-1429 Saint Louis - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number
Emergency number: Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP]
Not classified

Adverse physicochemical, human health and environmental effects
To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

2.2. Label elements
Labelling according to Regulation (EC) No. 1272/2008 [CLP]
No labelling applicable

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deionized water</td>
<td>(CAS-No.) 7732-18-5</td>
<td>&gt;= 96</td>
<td>Not classified</td>
</tr>
<tr>
<td>Sodium phosphate monobasic</td>
<td>(CAS-No.) 7558-80-7 (EC-No.) 231-449-2</td>
<td>&lt; 2</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures
- First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing.
- First-aid measures after skin contact: Wash skin with plenty of water.
- First-aid measures after eye contact: Rinse eyes with water as a precaution.
- First-aid measures after ingestion: Call a poison center or a doctor if you feel unwell.

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

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically.
SECTION 5: Firefighting measures

5.1. Extinguishing media

5.2. Special hazards arising from the substance or mixture
Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Advice for firefighters
Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel
Emergency procedures: Ventilate spillage area.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: “Exposure controls/personal protection”.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Take up liquid spill into absorbent material.
Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store in a well-ventilated place. Keep cool.
Storage temperature: 20 °C

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Exposure controls
Appropriate engineering controls:
Ensure good ventilation of the work station.

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: Liquid
Colour: No data available
Odour : No data available
Odour threshold : No data available
pH : No data available
Relative evaporation rate (butylacetate=1) : No data available
Melting point : Not applicable
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : Not applicable
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : No data available
Solubility : No data available
Log Pow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Sodium phosphate monobasic (7558-80-7)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>8290 mg/kg (Rat, Oral)</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>&gt; 7940 mg/kg (Rabbit, Dermal)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified
SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified

Sodium phosphate monobasic (7558-80-7)
LC50 fish 1 > 2400 mg/l (OECD 203: Fish, Acute Toxicity Test, 48 h, Leuciscus idus)

12.2. Persistence and degradability
Sodium phosphate monobasic (7558-80-7)
Persistence and degradability: Biodegradability: not applicable.
Chemical oxygen demand (COD): Not applicable
ThOD: Not applicable
BOD (% of ThOD): Not applicable

12.3. Bioaccumulative potential
Sodium phosphate monobasic (7558-80-7)
Log Pow: -3.96 (Estimated value)
Bioaccumulative potential: Not bioaccumulative.

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
No additional information available

12.6. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number
UN-No. (ADR): Not applicable
UN-No. (IMDG): Not regulated
UN-No. (IATA): Not regulated
UN-No. (ADN): Not applicable
UN-No. (RID): Not applicable

14.2. UN proper shipping name
Proper Shipping Name (ADR): Not applicable
Proper Shipping Name (IMDG): Not regulated
Proper Shipping Name (IATA): Not regulated
Proper Shipping Name (ADN): Not applicable
Proper Shipping Name (RID): Not applicable

14.3. Transport hazard class(es)
ADR
Transport hazard class(es) (ADR): Not applicable

IMDG
Transport hazard class(es) (IMDG): Not regulated

IATA
Transport hazard class(es) (IATA): Not regulated

ADN
Transport hazard class(es) (ADN): Not applicable

RID
Transport hazard class(es) (RID): Not applicable
**14.4. Packing group**

<table>
<thead>
<tr>
<th>Packing group (ADR)</th>
<th>: Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing group (IMDG)</td>
<td>: Not regulated</td>
</tr>
<tr>
<td>Packing group (IATA)</td>
<td>: Not regulated</td>
</tr>
<tr>
<td>Packing group (ADN)</td>
<td>: Not applicable</td>
</tr>
<tr>
<td>Packing group (RID)</td>
<td>: Not applicable</td>
</tr>
</tbody>
</table>

**14.5. Environmental hazards**

| Dangerous for the environment | : No |
| Marine pollutant | : No |
| Other information | : No supplementary information available |

**14.6. Special precautions for user**

**Overland transport**
No data available

**Transport by sea**
Not regulated

**Air transport**
Not regulated

**Inland waterway transport**
No data available

**Rail transport**
No data available

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**
Not applicable

**SECTION 15: Regulatory information**

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

**15.1.1. EU-Regulations**
Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances


**15.1.2. National regulations**
No additional information available

**15.2. Chemical safety assessment**
No chemical safety assessment has been carried out

**SECTION 16: Other information**

Safety Data Sheet applicable for regions : GB - United Kingdom

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.
### SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

<table>
<thead>
<tr>
<th>Product form</th>
<th>Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>Immobilized Papain</td>
</tr>
<tr>
<td>Product code</td>
<td>020I</td>
</tr>
<tr>
<td>Product group</td>
<td>Blend</td>
</tr>
</tbody>
</table>

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

1.2.1. Relevant identified uses
No additional information available

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet

G-Biosciences
9800 Page Avenue
63132-1429 Saint Louis - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

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Emergency number: Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

### SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

**Adverse physicochemical, human health and environmental effects**
To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]
No labelling applicable

2.3. Other hazards
No additional information available

### SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>agarose</td>
<td>(CAS-No.) 9012-36-6 (EC-No.) 232-731-8</td>
<td>50 - 80</td>
<td>Not classified</td>
</tr>
<tr>
<td>glycerol</td>
<td>(CAS-No.) 56-81-5 (EC-No.) 200-289-5</td>
<td>10 - 50</td>
<td>Not classified</td>
</tr>
<tr>
<td>Deionized water</td>
<td>(CAS-No.) 7732-18-5</td>
<td>10 - 50</td>
<td>Not classified</td>
</tr>
<tr>
<td>sodium acetate</td>
<td>(CAS-No.) 127-09-3 (EC-No.) 204-823-8</td>
<td>0.05 - 0.5</td>
<td>Not classified</td>
</tr>
<tr>
<td>sodium azide</td>
<td>(CAS-No.) 26628-22-8 (EC-No.) 247-852-1 (EC Index-No.) 011-004-00-7</td>
<td>&lt; 0.05</td>
<td>Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Aquatic Acute 1, H400 Aquatic Chronic 1, H410</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16
SECTION 4: First aid measures

4.1. Description of first aid measures
First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact: Wash skin with plenty of water.

First-aid measures after eye contact: Rinse eyes with water as a precaution.

First-aid measures after ingestion: Call a poison center or a doctor if you feel unwell.

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

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

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5.1. Extinguishing media

5.2. Special hazards arising from the substance or mixture
Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Advice for firefighters
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6.1.1. For non-emergency personnel
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6.1.2. For emergency responders
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Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Take up liquid spill into absorbent material.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Ensure good ventilation of the work station. Wear personal protective equipment.

Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)
No additional information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

sodium azide (26628-22-8)

EU - Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOELV TWA (mg/m³)</td>
<td>0.1 mg/m³</td>
</tr>
<tr>
<td>IOELV STEL (mg/m³)</td>
<td>0.3 mg/m³</td>
</tr>
</tbody>
</table>

United Kingdom - Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEL TWA (mg/m³)</td>
<td>0.1 mg/m³</td>
</tr>
<tr>
<td>WEL STEL (mg/m³)</td>
<td>0.3 mg/m³</td>
</tr>
</tbody>
</table>
**sodium acetate (127-09-3)**

**United Kingdom - Occupational Exposure Limits**

<table>
<thead>
<tr>
<th>WEL TWA (mg/m³)</th>
<th>10 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 mg/m³</td>
</tr>
</tbody>
</table>

**glycerol (56-81-5)**

**United Kingdom - Occupational Exposure Limits**

<table>
<thead>
<tr>
<th>WEL TWA (mg/m³)</th>
<th>10 mg/m³</th>
</tr>
</thead>
</table>

### 8.2. Exposure controls

**Appropriate engineering controls:**

Ensure good ventilation of the work station.

**Hand protection:**

Protective gloves

**Eye protection:**

Safety glasses

**Skin and body protection:**

Wear suitable protective clothing

**Respiratory protection:**

In case of insufficient ventilation, wear suitable respiratory equipment

**Environmental exposure controls:**

Avoid release to the environment.

---

**SECTION 9: Physical and chemical properties**

### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### 9.2. Other information

No additional information available

---

**SECTION 10: Stability and reactivity**

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.
### 10.2. Chemical stability
Stable under normal conditions.

### 10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials
No additional information available.

### 10.6. Hazardous decomposition products
Hazardous decomposition products.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Substance</th>
<th>Acute toxicity (oral)</th>
<th>Acute toxicity (dermal)</th>
<th>Acute toxicity (inhalation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium azide (26628-22-8)</td>
<td>Not classified</td>
<td>Not classified</td>
<td>Not classified</td>
</tr>
<tr>
<td>sodium acetate (127-09-3)</td>
<td>Not classified</td>
<td>Not classified</td>
<td>Not classified</td>
</tr>
<tr>
<td>glycercol (56-81-5)</td>
<td>Not classified</td>
<td>Not classified</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

**LD50 values:**
- **sodium azide (26628-22-8):**
  - Oral rat: 27 mg/kg
  - Dermal rabbit: 19 - 48 mg/kg bodyweight (Rabbit, Inconclusive, insufficient data, Dermal)

- **sodium acetate (127-09-3):**
  - Oral rat: 5200 mg/kg (Rat, Literature study, Oral)
  - Dermal rabbit: > 10000 mg/kg (Rabbit, Literature study, Dermal)

- **glycerol (56-81-5):**
  - Oral rat: 27200 mg/kg (OECD 401: Acute Oral Toxicity, Rat, Female, Experimental value, Oral)
  - Dermal: 56750 mg/kg (4 day(s), Guinea pig, Male / female, Experimental value, Dermal, 14 day(s))

<table>
<thead>
<tr>
<th>Substance</th>
<th>LC50 values</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium azide (26628-22-8)</td>
<td>0.8 mg/l (Equivalent or similar to OECD 203, 96 h, Gasterosteus aculeatus, Fresh water, Experimental value, Nominal concentration)</td>
</tr>
<tr>
<td>sodium acetate (127-09-3)</td>
<td>&gt; 100 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Semi-static system, Fresh water, Experimental value, GLP)</td>
</tr>
</tbody>
</table>

### SECTION 12: Ecological information

#### 12.1. Toxicity

**Ecology - general:** The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

**Acute aquatic toxicity:** Not classified

**Chronic aquatic toxicity:** Not classified

**LC50 fish 1:**
- sodium azide (26628-22-8): 0.8 mg/l (Equivalent or similar to OECD 203, 96 h, Gasterosteus aculeatus, Fresh water, Experimental value, Nominal concentration)
- sodium acetate (127-09-3): > 100 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Semi-static system, Fresh water, Experimental value, GLP)

**EC50 96h algae (1):**
- sodium azide (26628-22-8): 0.35 mg/l (Equivalent or similar to OECD 201, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)
### EC50 Daphnia 1

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daphnia magna</td>
<td>&gt; 1000 mg/l (EU Method C.2, 48 h, Static system, Fresh water, Experimental value, GLP)</td>
</tr>
</tbody>
</table>

### ErC50 (algae)

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skeletonema costatum</td>
<td>&gt; 1000 mg/l (ISO 10253, 72 h, Salt water, Experimental value, GLP)</td>
</tr>
</tbody>
</table>

### 12.2. Persistence and degradability

#### agarose (9012-36-6)

- **Persistence and degradability**: Biodegradability in water: no data available.

#### sodium azide (26628-22-8)

- **Persistence and degradability**: Biodegradability in soil: not applicable. Biodegradability: not applicable.
- **Chemical oxygen demand (COD)**: Not applicable (inorganic)
- **ThOD**: Not applicable (inorganic)

#### sodium acetate (127-09-3)

- **Persistence and degradability**: Readily biodegradable in water.
- **Chemical oxygen demand (COD)**: 0.675 g O₂/g substance

#### glycerol (56-81-5)

- **Persistence and degradability**: Readily biodegradable in water.
- **Biochemical oxygen demand (BOD)**: 0.87 g O₂/g substance
- **Chemical oxygen demand (COD)**: 1.16 g O₂/g substance
- **ThOD**: 1.217 g O₂/g substance
- **BOD (% of ThOD)**: 0.71

### 12.3. Bioaccumulative potential

#### agarose (9012-36-6)

- **Bioaccumulative potential**: No bioaccumulation data available.

#### sodium azide (26628-22-8)

- **Bioaccumulative potential**: Not bioaccumulative.

#### sodium acetate (127-09-3)

- **BCF other aquatic organisms 1**: 3.162 (BCFWIN, Calculated value)
- **Log Pow**: -3.72 (Calculated, KOWWIN)
- **Bioaccumulative potential**: Low potential for bioaccumulation (BCF < 500).

#### glycerol (56-81-5)

- **Log Pow**: -1.75 (Experimental value, Equivalent or similar to OECD 107, 25 °C)
- **Bioaccumulative potential**: Not bioaccumulative.

### 12.4. Mobility in soil

#### agarose (9012-36-6)

- **Ecology - soil**: No (test)data on mobility of the substance available.
Immobilized Papain
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

**sodium azide (26628-22-8)**
Ecology - soil  Highly mobile in soil.

**sodium acetate (127-09-3)**
Log Koc  0 (log Koc, SRC PCKOCWIN v1.66, Calculated value)
Ecology - soil  Highly mobile in soil.

**glycerol (56-81-5)**
Surface tension  0.0634 N/m (20 °C, 1000 g/l)
Ecology - soil  No (test)data on mobility of the substance available.

### 12.5. Results of PBT and vPvB assessment

<table>
<thead>
<tr>
<th>Component</th>
<th>PBT criteria</th>
<th>vPvB criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium acetate (127-09-3)</td>
<td>This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII</td>
<td>This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII</td>
</tr>
<tr>
<td>glycerol (56-81-5)</td>
<td>This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII</td>
<td>This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII</td>
</tr>
</tbody>
</table>

### 12.6. Other adverse effects
No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

### SECTION 14: Transport information
In accordance with ADR / RID / IMDG / IATA / ADN

#### 14.1. UN number
- UN-No. (ADR)  : Not applicable
- UN-No. (IMDG)  : Not applicable
- UN-No. (IATA)  : Not applicable
- UN-No. (ADN)  : Not applicable
- UN-No. (RID)  : Not applicable

#### 14.2. UN proper shipping name
- Proper Shipping Name (ADR)  : Not applicable
- Proper Shipping Name (IMDG)  : Not applicable
- Proper Shipping Name (IATA)  : Not applicable
- Proper Shipping Name (ADN)  : Not applicable
- Proper Shipping Name (RID)  : Not applicable

#### 14.3. Transport hazard class(es)

<table>
<thead>
<tr>
<th>Agency</th>
<th>Class(es)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR</td>
<td>Not applicable</td>
</tr>
<tr>
<td>IMDG</td>
<td>Not applicable</td>
</tr>
<tr>
<td>IATA</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ADN</td>
<td>Not applicable</td>
</tr>
<tr>
<td>RID</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

#### 14.4. Packing group
- Packing group (ADR)  : Not applicable
- Packing group (IMDG)  : Not applicable
- Packing group (IATA)  : Not applicable
- Packing group (ADN)  : Not applicable
- Packing group (RID)  : Not applicable
14.5. Environmental hazards

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dangerous for the environment</td>
<td>No</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>No</td>
</tr>
<tr>
<td>Other information</td>
<td>No supplementary information available</td>
</tr>
</tbody>
</table>

14.6. Special precautions for user

**Overland transport**
Not applicable

**Transport by sea**
Not applicable

**Air transport**
Not applicable

**Inland waterway transport**
Not applicable

**Rail transport**
Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations
- Contains no REACH substances with Annex XVII restrictions
- Contains no substance on the REACH candidate list
- Contains no REACH Annex XIV substances


#### 15.1.2. National regulations
No additional information available

### 15.2. Chemical safety assessment
No chemical safety assessment has been carried out

SECTION 16: Other information

<table>
<thead>
<tr>
<th>Full text of H- and EUH-statements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 1 (Dermal)</td>
</tr>
<tr>
<td>Acute Tox. 2 (Oral)</td>
</tr>
<tr>
<td>Aquatic Acute 1</td>
</tr>
<tr>
<td>Aquatic Chronic 1</td>
</tr>
<tr>
<td>H300</td>
</tr>
<tr>
<td>H310</td>
</tr>
<tr>
<td>H400</td>
</tr>
<tr>
<td>H410</td>
</tr>
</tbody>
</table>

Safety Data Sheet applicable for regions: GB - United Kingdom
Phosphate Buffered Saline (PBS), [1X]
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Revision date: 5/11/2017

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

- **Product form**: Mixture
- **Product name**: Phosphate Buffered Saline (PBS), [1X]
- **Product code**: 412A_P161_119P
- **Product group**: Blend

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

1.2.1. Relevant identified uses
No additional information available

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet

Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
63132-1429 Saint Louis - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number

Emergency number : Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

Adverse physicochemical, human health and environmental effects
To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]
No labelling applicable

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deionized water</td>
<td>(CAS-No.) 7732-18-5</td>
<td>&gt;= 80</td>
<td>Not classified</td>
</tr>
<tr>
<td>sodium chloride</td>
<td>(CAS-No.) 7647-14-5</td>
<td>0.5 - 2</td>
<td>Not classified</td>
</tr>
<tr>
<td></td>
<td>(EC-No.) 231-598-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium Phosphate (Dibasic)</td>
<td>(CAS-No.) 7558-79-4</td>
<td>0.05 - 0.5</td>
<td>Not classified</td>
</tr>
<tr>
<td></td>
<td>(EC-No.) 231-448-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potassium Phosphate (Monobasic)</td>
<td>(CAS-No.) 7778-77-0</td>
<td>&lt; 0.05</td>
<td>Not classified</td>
</tr>
<tr>
<td></td>
<td>(EC-No.) 231-913-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>potassium chloride</td>
<td>(CAS-No.) 7447-40-7</td>
<td>&lt; 0.05</td>
<td>Not classified</td>
</tr>
<tr>
<td></td>
<td>(EC-No.) 231-211-8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

- **First-aid measures after inhalation**: Remove person to fresh air and keep comfortable for breathing.
- **First-aid measures after skin contact**: Wash skin with plenty of water.
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First-aid measures after eye contact: Rinse eyes with water as a precaution.
First-aid measures after ingestion: Call a poison center or a doctor if you feel unwell.

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

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

SECTION 5: Firefighting measures
5.1. Extinguishing media

5.2. Special hazards arising from the substance or mixture
Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Advice for firefighters
Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel
Emergency procedures: Ventilate spillage area.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Take up liquid spill into absorbent material.
Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Precautions for safe handling: Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection
8.1. Control parameters
No additional information available

8.2. Exposure controls
Appropriate engineering controls:
Ensure good ventilation of the work station.

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls:
Avoid release to the environment.
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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

| Acute toxicity (oral)                       | Not classified            |
| Acute toxicity (dermal)                     | Not classified            |
| Acute toxicity (inhalation)                 | Not classified            |

<table>
<thead>
<tr>
<th>sodium chloride (7647-14-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sodium Phosphate (Dibasic) (7558-79-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
</tr>
</tbody>
</table>
**Phosphate Buffered Saline (PBS), [1X]**

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---

### Potassium Phosphate (Monobasic) (7778-77-0)

<table>
<thead>
<tr>
<th>LD50 oral rat</th>
<th>7100 mg/kg (Rat, Oral)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 dermal rabbit</td>
<td>&gt; 4640 mg/kg (Rabbit, Dermal)</td>
</tr>
</tbody>
</table>

### Potassium Chloride (7447-40-7)

<table>
<thead>
<tr>
<th>LD50 oral rat</th>
<th>3020 mg/kg bodyweight (Rat, Female, Experimental value, Oral)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Respiratory or skin sensitisation</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT-single exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

---

### SECTION 12: Ecological information

#### 12.1. Toxicity

**Ecology - general**: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

**Acute aquatic toxicity**: Not classified

**Chronic aquatic toxicity**: Not classified

### Sodium Chloride (7647-14-5)

| LC50 fish 1 | 5840 mg/l (ASTM, 96 h, Lepomis macrochirus, Flow-through system, Fresh water, Experimental value) |

### Sodium Phosphate (Dibasic) (7558-79-4)

| LC50 fish 1 | > 2400 mg/l (OECD 203: Fish, Acute Toxicity Test, 48 h, Leuciscus idus) |

### Potassium Phosphate (Monobasic) (7778-77-0)

| LC50 fish 1 | > 900 mg/l (48 h, Leuciscus idus) |

### Potassium Chloride (7447-40-7)

| LC50 fish 1 | 2010 mg/l (96 h, Lepomis macrochirus, Static system) |
| LC50 fish 2 | 880 mg/l (EPA 600/4-90/027, 96 h, Pimephales promelas, Static system, Fresh water, Experimental value, Nominal concentration) |
| EC50 Daphnia 1 | 660 mg/l (EPA 600/4-90/027, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Nominal concentration) |
| EC50 72h algae (1) | 2500 mg/l (Scenedesmus subspicatus, Biomass) |
| ErC50 (algae) | > 100 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, GLP) |

#### 12.2. Persistence and degradability

### Sodium Chloride (7647-14-5)

- **Persistence and degradability**: Biodegradability: not applicable.
- **Chemical oxygen demand (COD)**: Not applicable
- **ThOD**: Not applicable
- **BOD (% of ThOD)**: Not applicable

### Sodium Phosphate (Dibasic) (7558-79-4)

- **Persistence and degradability**: Biodegradability: not applicable.
- **Biochemical oxygen demand (BOD)**: Not applicable
### Phosphate Buffered Saline (PBS), [1X]

**Safety Data Sheet**

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<table>
<thead>
<tr>
<th>Chemical property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ThOD</td>
<td>Not applicable</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

#### Potassium Phosphate (Monobasic) (7778-77-0)

**Persistence and degradability**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodegradability</td>
<td>not applicable</td>
</tr>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>not applicable</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>not applicable</td>
</tr>
<tr>
<td>ThOD</td>
<td>not applicable</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

#### potassium chloride (7447-40-7)

**Persistence and degradability**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodegradability</td>
<td>not applicable</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>not applicable (inorganic)</td>
</tr>
<tr>
<td>ThOD</td>
<td>not applicable (inorganic)</td>
</tr>
</tbody>
</table>

#### Logic Pow

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>-3 (Calculated)</td>
</tr>
</tbody>
</table>

#### Sodium Phosphate (Dibasic) (7558-79-4)

**Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodegradability</td>
<td>not applicable</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>not applicable</td>
</tr>
<tr>
<td>ThOD</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

#### Potassium Phosphate (Monobasic) (7778-77-0)

**Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodegradability</td>
<td>not applicable</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>not applicable</td>
</tr>
<tr>
<td>ThOD</td>
<td>not applicable</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

#### potassium chloride (7447-40-7)

**Log Pow**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>-0.46 (Estimated value)</td>
</tr>
</tbody>
</table>

#### sodium chloride (7647-14-5)

**Surface tension**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface tension</td>
<td>73.03 mN/m (23 °C, 14.5 g/l)</td>
</tr>
</tbody>
</table>

**Ecology - soil**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No (test) data on mobility of the substance available.</td>
<td></td>
</tr>
</tbody>
</table>

#### Sodium Phosphate (Dibasic) (7558-79-4)

**Ecology - soil**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No (test) data on mobility of the substance available.</td>
<td></td>
</tr>
</tbody>
</table>

#### Potassium Phosphate (Monobasic) (7778-77-0)

**Ecology - soil**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No (test) data on mobility of the substance available.</td>
<td></td>
</tr>
</tbody>
</table>

#### potassium chloride (7447-40-7)

**Ecology - soil**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No (test) data on mobility of the substance available.</td>
<td></td>
</tr>
</tbody>
</table>

#### 12.5. Results of PBT and vPvB assessment

<table>
<thead>
<tr>
<th>Component</th>
<th>Property</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium chloride (7647-14-5)</td>
<td>This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII</td>
</tr>
<tr>
<td></td>
<td>This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII</td>
</tr>
</tbody>
</table>

#### 12.6. Other adverse effects

No additional information available

---

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods


---

### SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN
**Phosphate Buffered Saline (PBS), [1X]**

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

14.1. UN number

| UN-No. (ADR) | : Not regulated |
| UN-No. (IMDG) | : Not regulated |
| UN-No. (IATA) | : Not regulated |
| UN-No. (ADN) | : Not regulated |
| UN-No. (RID) | : Not regulated |

14.2. UN proper shipping name

| Proper Shipping Name (ADR) | : Not regulated |
| Proper Shipping Name (IMDG) | : Not regulated |
| Proper Shipping Name (IATA) | : Not regulated |
| Proper Shipping Name (ADN) | : Not regulated |
| Proper Shipping Name (RID) | : Not regulated |

14.3. Transport hazard class(es)

| ADR | Transport hazard class(es) (ADR) | : Not regulated |
| IMDG | Transport hazard class(es) (IMDG) | : Not regulated |
| IATA | Transport hazard class(es) (IATA) | : Not regulated |
| ADN | Transport hazard class(es) (ADN) | : Not regulated |
| RID | Transport hazard class(es) (RID) | : Not regulated |

14.4. Packing group

| Packing group (ADR) | : Not regulated |
| Packing group (IMDG) | : Not regulated |
| Packing group (IATA) | : Not regulated |
| Packing group (ADN) | : Not regulated |
| Packing group (RID) | : Not regulated |

14.5. Environmental hazards

| Dangerous for the environment | : No |
| Marine pollutant | : No |
| Other information | : No supplementary information available |

14.6. Special precautions for user

Overland transport
Not regulated

Transport by sea
Not regulated

Air transport
Not regulated

Inland waterway transport
Not regulated

Rail transport
Not regulated

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

**SECTION 15: Regulatory information**

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances


Phosphate Buffered Saline (PBS), [1X]
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

15.1.2. National regulations
No additional information available

15.2. Chemical safety assessment
No chemical safety assessment has been carried out

SECTION 16: Other information

Safety Data Sheet applicable for regions : GB - United Kingdom

SDS EU (REACH Annex II)
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.
# L-Cysteine.HCl

## Safety Data Sheet


Revision date: 5/11/2017  Version: 1.1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

- **Product form**: Substance
- **Substance name**: L-Cysteine.HCl
- **EC-No.**: 200-157-7
- **CAS-No.**: 52-89-1
- **Product code**: 295C
- **Type of product**: Pure substance
- **Formula**: C₃H₇NO₂S.HCl

- **Product group**: Raw material
- **BIG No**: 37494

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

#### 1.2.1. Relevant identified uses

- **Main use category**: Research purposes

#### 1.2.2. Uses advised against

No additional information available

## 1.3. Details of the supplier of the safety data sheet

Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
63132-1429 Saint Louis - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

## 1.4. Emergency telephone number

**Emergency number**: Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)

<table>
<thead>
<tr>
<th>Country</th>
<th>Organisation/Company</th>
<th>Address</th>
<th>Emergency number</th>
<th>Comment</th>
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<tbody>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Belfast Centre)</td>
<td>Grosvenor Road BT12 6BA Belfast</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Royal Victoria Hospital</td>
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<td>Penarth CF64 2XX Cardiff</td>
<td>0344 892 0111</td>
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<tr>
<td></td>
<td>Gwernwyn Ward, Llandough Hospital</td>
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<td>United Kingdom</td>
<td>National Poisons Information Service Edinburgh</td>
<td>Little France Crescent EH16 4SA Edinburgh</td>
<td>0344 892 0111</td>
<td></td>
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<tr>
<td></td>
<td>Royal Infirmary of Edinburgh</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Guy’s &amp; St Thomas’ Poisons Unit</td>
<td>Avonley Road SE14 5ER London</td>
<td>+44 20 7188 7188</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Toxicology Unit</td>
<td></td>
<td></td>
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<td>United Kingdom</td>
<td>National Poisons Information Service (Newcastle Centre)</td>
<td>Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle</td>
<td>0344 892 0111</td>
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<td></td>
<td>Regional Drugs and Therapeutics Centre, Wolfson Unit</td>
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</table>

5/11/2017 (Version: 1.1) EN (English) 1/7
SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Classification</th>
<th>H Code</th>
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<tbody>
<tr>
<td>Skin corrosion/irritation, Category 2</td>
<td></td>
<td>H315</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation, Category 2</td>
<td></td>
<td>H319</td>
</tr>
<tr>
<td>Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation</td>
<td></td>
<td>H335</td>
</tr>
</tbody>
</table>

Full text of H statements: see section 16

Adverse physicochemical, human health and environmental effects
May cause respiratory irritation. Causes skin irritation. Causes serious eye irritation.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) : GHS07

CLP Signal word : Warning

Hazard statements (CLP) :
- H315 - Causes skin irritation.
- H319 - Causes serious eye irritation.
- H335 - May cause respiratory irritation.

Precautionary statements (CLP) :
- P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264 - Wash hands, forearms and face thoroughly after handling.
- P271 - Use only outdoors or in a well-ventilated area.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P302+P352 - IF ON SKIN: Wash with plenty of water.
- P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 - Call a POISON CENTRE or doctor if you feel unwell.
- P321 - Specific treatment (see supplemental first aid instruction on this label).
- P332+P313 - If skin irritation occurs: Get medical advice/attention.
- P333+P313 - If eye irritation persists: Get medical advice/attention.
- P362+P364 - Take off contaminated clothing and wash it before reuse.
- P403+P405 - Store in a well-ventilated place. Keep container tightly closed.
- P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
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</thead>
<tbody>
<tr>
<td>L-Cysteine.HCl</td>
<td>(CAS-No.) 52-89-1 (EC-No.) 200-157-7</td>
<td>100</td>
<td>Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335</td>
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</tbody>
</table>

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable
SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general:

First-aid measures after inhalation:
- Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact:
- Wash immediately with lots of water. Soap may be used. Take victim to a doctor if irritation persists.

First-aid measures after eye contact:
- Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion:
- Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Call Poison Information Centre (www.big.be/antigif.htm).

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation:

Symptoms/effects after skin contact:
- Tingling/irritation of the skin.

Symptoms/effects after eye contact:
- Irritation of the eye tissue.

Symptoms/effects after ingestion:
- Irritation of the gastric/intestinal mucosa.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Unsuitable extinguishing media:
- Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

5.2. Special hazards arising from the substance or mixture

Fire hazard:
- INDIRECT FIRE HAZARD: Reactions involving a fire hazard: see "Reactivity Hazard".

Hazardous decomposition products in case of fire:
- Toxic fumes may be released.

5.3. Advice for firefighters

Precautionary measures fire:
- Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions:
- Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Dilute toxic gases with water spray.

Protection during firefighting:
- Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment:

Emergency procedures:
- Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.

Measures in case of dust release:
- In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment:
- Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment:
- Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray. On heating: dilute combustible/toxic gases/vapours.

Methods for cleaning up:
- Prevent dust cloud formation. Scoop solid spill into closing containers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

Other information:
- Dispose of materials or solid residues at an authorized site.
6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling:
Avoid raising dust. Keep away from naked flames/heat. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Keep container tightly closed.

Hygiene measures:
Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions:
Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

Storage temperature:
20 °C

Heat and ignition sources:
KEEP SUBSTANCE AWAY FROM: heat sources.

Information on mixed storage:
KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. metals. water/moisture.

Storage area:
Store in a dry area. Store in a dark area. May be stored under argon. Store at room temperature. Keep out of direct sunlight. Meet the legal requirements.

Special rules on packaging:
SPECIAL REQUIREMENTS: hermetical. watertight. dry. clean. opaque. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials:
MATERIAL TO AVOID: iron. copper.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Exposure controls
Appropriate engineering controls:
Ensure good ventilation of the work station.

Hand protection:
Gloves

Eye protection:
Face shield. In case of dust production: protective goggles

Skin and body protection:
Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing

Respiratory protection:
Dust formation: dust mask. On heating: full face mask

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state:
Solid

Appearance:
Crystalline solid.

Molecular mass:
157.62 g/mol

Colour:
White.

Odour:
Unpleasant odour.

Odour threshold:
No data available

pH:
No data available

Relative evaporation rate (butylacetate=1):
No data available

Melting point:
175 °C

Freezing point:
Not applicable

Boiling point:
Not applicable

Flash point:
Not applicable

Auto-ignition temperature:
Not applicable
Decomposition temperature: 175 °C
Flammability (solid, gas): Non flammable.
Vapour pressure: No data available
Relative vapour density at 20 °C: Not applicable
Relative density: Not applicable
Solubility: Soluble in water. Soluble in ethanol. Soluble in acetone.

Log Pow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidising properties: No data available
Explosive limits: Not applicable

9.2. Other information
Other properties: Hygroscopic. Acid reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity
Oxidizes slowly on exposure to air.

10.2. Chemical stability
Discolours on exposure to light. Discolours on exposure to air. Hygroscopic. Unstable on exposure to air.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity (oral): Not classified
Acute toxicity (dermal): Not classified
Acute toxicity (inhalation): Not classified
Skin corrosion/irritation: Causes skin irritation.
Serious eye damage/irritation: Causes serious eye irritation.
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
STOT-single exposure: May cause respiratory irritation.
STOT-repeated exposure: Not classified
Aspiration hazard: Not classified
Potential adverse human health effects and symptoms: Causes skin irritation. May cause respiratory irritation. Causes serious eye irritation.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Ecology - air: Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water: No water pollutant (surface water). Insufficient data available on ecotoxicity. pH shift.
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified

12.2. Persistence and degradability
L-Cysteine.HCl (52-89-1)
Persistence and degradability: Biodegradability in water: no data available.
12.3. Bioaccumulative potential

<table>
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<th>L-Cysteine.HCl (52-89-1)</th>
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<tr>
<td>Bioaccumulative potential</td>
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12.4. Mobility in soil

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<th>L-Cysteine.HCl (52-89-1)</th>
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<td>Mobility in soil</td>
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12.5. Results of PBT and vPvB assessment

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<th>L-Cysteine.HCl (52-89-1)</th>
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<td>Results of PBT and vPvB assessment</td>
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12.6. Other adverse effects

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<tbody>
<tr>
<td>Other adverse effects</td>
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</table>

SECTION 13: Disposal considerations

13.1. Waste treatment methods


Product/Packaging disposal recommendations: Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove to an incinerator for chlorinated waste materials with energy recovery. Dissolve or mix with a combustible solvent.


European List of Waste (LoW) code: 15 01 10* - packaging containing residues of or contaminated by dangerous substances

16 03 05* - organic wastes containing dangerous substances

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

<table>
<thead>
<tr>
<th>L-Cysteine.HCl (52-89-1)</th>
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<tr>
<td>UN-No. (ADR)</td>
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<td>UN-No. (ADN)</td>
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<td>UN-No. (RID)</td>
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14.2. UN proper shipping name

<table>
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<td>Proper Shipping Name (ADR)</td>
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<td>Proper Shipping Name (ADN)</td>
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<td>Proper Shipping Name (RID)</td>
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14.3. Transport hazard class(es)

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<td>ADR</td>
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<td>RID</td>
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14.4. Packing group

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<td>Packing group (ADN)</td>
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<td>Packing group (RID)</td>
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14.5. Environmental hazards

<table>
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<tr>
<th>L-Cysteine.HCl (52-89-1)</th>
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<tbody>
<tr>
<td>Dangerous for the environment</td>
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<tr>
<td>Marine pollutant</td>
</tr>
<tr>
<td>Other information</td>
</tr>
</tbody>
</table>
L-Cysteine.HCl
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

14.6. Special precautions for user

Overland transport
Transport regulations (ADR): Insufficient data

Transport by sea
Not regulated

Air transport
Not regulated

Inland waterway transport
No data available

Rail transport
Transport regulations (RID): Insufficient data

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations
No REACH Annex XVII restrictions
L-Cysteine.HCl is not on the REACH Candidate List
L-Cysteine.HCl is not on the REACH Annex XIV List
L-Cysteine.HCl is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

15.1.2. National regulations
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. Chemical safety assessment
No chemical safety assessment has been carried out

SECTION 16: Other information

Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>Eye Irrit. 2</td>
<td>Serious eye damage/eye irritation, Category 2</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation, Category 2</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation.</td>
</tr>
</tbody>
</table>

Safety Data Sheet applicable for regions: GB - United Kingdom

SDS EU (REACH Annex II)
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

5/11/2017 (Version: 1.1) EN (English) 7/7
### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

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<th>: Mixture</th>
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<tr>
<td>Product name</td>
<td>: SpinOUT GT-600</td>
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<tr>
<td>Product code</td>
<td>: 326S_323S_325S_324S_321S_320S</td>
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<tr>
<td>Type of product</td>
<td>: Pure substance</td>
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<td>Synonyms</td>
<td>: sephadex Q25 fine 20-80</td>
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<tr>
<td>Product group</td>
<td>: Trade product</td>
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<td>BIG No</td>
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#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**1.2.1. Relevant identified uses**

Use of the substance/mixture: Laboratory chemical

**1.2.2. Uses advised against**

No additional information available

#### 1.3. Details of the supplier of the safety data sheet

Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
63132-1429 Saint Louis - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

#### 1.4. Emergency telephone number

Emergency number: Chemtrec **1-800-424-9300** (USA/Canada), **+1-703-527-3887** (Intl)

<table>
<thead>
<tr>
<th>Country</th>
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<tbody>
<tr>
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<td>0344 892 0111</td>
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<td></td>
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<tr>
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<td>Dudley Road B18 7QH Birmingham</td>
<td>0344 892 0111</td>
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<td>City Hospital</td>
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<td>United Kingdom</td>
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<td></td>
<td>Gwendyn Ward, Llandough Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service Edinburgh</td>
<td>Little France Crescent EH16 4SA Edinburgh</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Royal Infirmary of Edinburgh</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Guy's &amp; St Thomas' Poisons Unit Medical Toxicology Unit</td>
<td>Avonley Road SE14 5ER London</td>
<td>+44 20 7188 7188</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guy's &amp; St Thomas' Hospital Trust</td>
<td></td>
<td></td>
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<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Newcastle Centre)</td>
<td>Claremont Place Newcastle-upon-Tyne</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regional Drugs and Therapeutics Centre, Wolfson Unit</td>
<td>NE1 4LP Newcastle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

**Adverse physicochemical, human health and environmental effects**

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.
2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]
No labelling applicable

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>SpinOUT Resin</td>
<td>(CAS-No.) 9041-35-4</td>
<td>&gt;= 80</td>
<td>Not classified</td>
</tr>
<tr>
<td>Water, Nuclease free</td>
<td>(CAS-No.) 7732-18-5</td>
<td>10 - 50</td>
<td>Not classified</td>
</tr>
<tr>
<td>(EC-No.) 231-791-2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: If you feel unwell, seek medical advice.
First-aid measures after inhalation: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact: Rinse with water. Do not apply (chemical) neutralizing agents without medical advice. Soap may be used. Take victim to a doctor if irritation persists.
First-aid measures after eye contact: Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply (chemical) neutralizing agents without medical advice. Take victim to an ophthalmologist if irritation persists.
First-aid measures after ingestion: Rinse mouth with water. Do not apply (chemical) neutralizing agents without medical advice. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation: No effects known.
Symptoms/effects after skin contact: No effects known.
Symptoms/effects after eye contact: No effects known.
Symptoms/effects after ingestion: No effects known.
Chronic symptoms: No effects known.

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

SECTION 5: Firefighting measures

5.1. Extinguishing media


5.2. Special hazards arising from the substance or mixture

Fire hazard: Combustible liquid.
Explosion hazard: DIRECT EXPLOSION HAZARD: Most organic solids are liable to dust explosion hazard. INDIRECT EXPLOSION HAZARD: Dust cloud can be ignited by a spark.
Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Advice for firefighters

Precautionary measures fire: Exposure to fire/heat: keep upwind. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions: No specific fire-fighting instructions required.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures: Mark the danger area. Prevent dust cloud formation, e.g. by wetting. Wash contaminated clothes.
Measures in case of dust release:

In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment:

Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment:

Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.

Methods for cleaning up:

Stop dust cloud by humidifying. Scoop solid spill into closing containers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

Other information:

Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling:


Hygiene measures:

Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions:

Store in a well-ventilated place. Keep cool.

Heat and ignition sources:

KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.

Information on mixed storage:

KEEP SUBSTANCE AWAY FROM: oxidizing agents. water/moisture.

Storage area:

Store in a cool area. Store in a dry area. Keep container in a well-ventilated place. Meet the legal requirements.

Special rules on packaging:

SPECIAL REQUIREMENTS: closing. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

7.3. Specific end use(s)

No additional information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available.

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Hand protection:

Protective gloves against chemicals (EN374)

Eye protection:

Safety glasses. In case of dust production: protective goggles

Skin and body protection:

Protective clothing

Respiratory protection:

Dust production: dust mask with filter type P1

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:

Liquid

Appearance:

Solid. Powder.
9.2. Other information

VOC content: 0 %

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral): Not classified
Acute toxicity (dermal): Not classified
Acute toxicity (inhalation): Not classified
Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
STOT-single exposure: Not classified
STOT-repeated exposure: Not classified
Aspiration hazard: Not classified

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
12.2. Persistence and degradability

**SpinOUT GT-600**

Persistence and degradability: Biodegradability in water: no data available.

**SpinOUT Resin (9041-35-4)**

Persistence and degradability: Biodegradability in water: no data available.

12.3. Bioaccumulative potential

**SpinOUT GT-600**

Bioaccumulative potential: No bioaccumulation data available.

**SpinOUT Resin (9041-35-4)**

Bioaccumulative potential: No bioaccumulation data available.

12.4. Mobility in soil

**SpinOUT GT-600**

Ecology - soil: No (test)data on mobility of the substance available.

**SpinOUT Resin (9041-35-4)**

Ecology - soil: No (test)data on mobility of the substance available.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods


Product/Packaging disposal recommendations: Remove waste in accordance with local and/or national regulations. Remove to an authorized waste treatment plant.


**European List of Waste (LoW) code**

16 05 09 - discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

| UN-No. (ADR) | : Not regulated |
| UN-No. (IMDG) | : Not regulated |
| UN-No. (IATA) | : Not regulated |
| UN-No. (ADN) | : Not regulated |
| UN-No. (RID) | : Not regulated |

14.2. UN proper shipping name

| Proper Shipping Name (ADR) | : Not regulated |
| Proper Shipping Name (IMDG) | : Not regulated |
| Proper Shipping Name (IATA) | : Not regulated |
| Proper Shipping Name (ADN) | : Not regulated |
| Proper Shipping Name (RID) | : Not regulated |

14.3. Transport hazard class(es)

**ADR**

Transport hazard class(es) (ADR): Not regulated
### IMDG
Transport hazard class(es) (IMDG) : Not regulated

### IATA
Transport hazard class(es) (IATA) : Not regulated

### ADN
Transport hazard class(es) (ADN) : Not regulated

### RID
Transport hazard class(es) (RID) : Not regulated

### 14.4. Packing group
Packaging group (ADR) : Not regulated
Packaging group (IMDG) : Not regulated
Packaging group (IATA) : Not regulated
Packaging group (ADN) : Not regulated
Packaging group (RID) : Not regulated

### 14.5. Environmental hazards
Dangerous for the environment : No
Marine pollutant : No
Other information : Remarks: IATA Special Provision A 58-Aqueous solutions containing 24% or less alcohol by volume is not subject to these regulations.

### 14.6. Special precautions for user
Overland transport
Not regulated

Transport by sea
Not regulated

Air transport
Not regulated

Inland waterway transport
Not regulated

Rail transport
Not regulated

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

### SECTION 15: Regulatory information
#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

**15.1.1. EU-Regulations**
Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances


VOC content : 0 %

**15.1.2. National regulations**
No additional information available

**15.2. Chemical safety assessment**
No chemical safety assessment has been carried out

### SECTION 16: Other information
Safety Data Sheet applicable for regions : GB - United Kingdom

SDS EU (REACH Annex II)
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
- Product form: Mixture
- Product name: IgG Elution Buffer
- Product code: 442P
- Product group: Blend

1.2. Relevant identified uses of the substance or mixture and uses advised against
1.2.1. Relevant identified uses
No additional information available

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet
Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
63132-1429 Saint Louis - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number
Emergency number: Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
- Not classified

Adverse physicochemical, human health and environmental effects
To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

2.2. Label elements
Labelling according to Regulation (EC) No. 1272/2008 [CLP]
- No labelling applicable

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances
- Not applicable

3.2. Mixtures
<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
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</thead>
<tbody>
<tr>
<td>Deionized water</td>
<td>(CAS-No.) 7732-18-5</td>
<td></td>
<td>Not classified</td>
</tr>
<tr>
<td>Glycine</td>
<td>(CAS-No.) 56-40-6</td>
<td>(EC-No.) 200-272-2</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures
- First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing.
- First-aid measures after skin contact: Wash skin with plenty of water.
- First-aid measures after eye contact: Rinse eyes with water as a precaution.
- First-aid measures after ingestion: Call a poison center or a doctor if you feel unwell.

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

4.3. Indication of any immediate medical attention and special treatment needed
- Treat symptomatically.
SECTION 5: Firefighting measures

5.1. Extinguishing media

5.2. Special hazards arising from the substance or mixture
Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Advice for firefighters
Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel
Emergency procedures: Ventilate spillage area.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Take up liquid spill into absorbent material.
Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available

8.2. Exposure controls
Appropriate engineering controls:
Ensure good ventilation of the work station.

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: Liquid
Colour: No data available
Odour: No data available
Odour threshold: No data available
pH: No data available
Relative evaporation rate (butylacetate=1): No data available
Melting point: Not applicable
Freezing point: No data available
Boiling point: No data available
Flash point: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): Not applicable
Vapour pressure: No data available
Relative vapour density at 20 °C: No data available
Relative density: No data available
Solubility: No data available
Log Pow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidising properties: No data available
Explosive limits: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity (oral): Not classified
Acute toxicity (dermal): Not classified
Acute toxicity (inhalation): Not classified

Glycine (56-40-6)
LD50 oral rat: 7930 - 9550 mg/kg (Rat, Male / female, Experimental value, Oral, 7 day(s))

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
STOT-single exposure: Not classified
STOT-repeated exposure: Not classified
Aspiration hazard: Not classified

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified

**Glycine (56-40-6)**

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>&gt; 1000 mg/l (Equivalent or similar to OECD 203, 96 h, Oryzias latipes, Static system, Fresh water, Experimental value, Nominal concentration)</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>&gt;= 220 mg/l (OECD 202: Daphnia sp. Acute Immoobilisation Test, 48 h, Daphnia magna, Semi-static system, Fresh water, Experimental value, GLP)</td>
</tr>
<tr>
<td>EC50 72h algae (1)</td>
<td>&gt; 1000 mg/l (Equivalent or similar to OECD 201, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Biomass)</td>
</tr>
</tbody>
</table>

**12.2. Persistence and degradability**

**Glycine (56-40-6)**

Persistence and degradability: Readily biodegradable in water.
BOD (% of ThOD): 0.86 (5 day(s), Literature study)

**12.3. Bioaccumulative potential**

**Glycine (56-40-6)**

BCF fish 1: 0.893 l/kg (BCFBAF v3.01, Pisces, QSAR)
Log Pow: -3.21 (Experimental value)
Bioaccumulative potential: Not bioaccumulative.

**12.4. Mobility in soil**

**Glycine (56-40-6)**

Log Koc: 0 (log Koc, SRC PCKOCWIN v2.0, QSAR)
Ecology - soil: Highly mobile in soil.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

**SECTION 13: Disposal considerations**

13.1. Waste treatment methods


**SECTION 14: Transport information**

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

| UN-No. (ADR) | Not regulated |
| UN-No. (IMDG) | Not regulated |
| UN-No. (IATA) | Not regulated |
| UN-No. (ADN) | Not regulated |
| UN-No. (RID) | Not regulated |

14.2. UN proper shipping name

| Proper Shipping Name (ADR) | Not regulated |
| Proper Shipping Name (IMDG) | Not regulated |
| Proper Shipping Name (IATA) | Not regulated |
| Proper Shipping Name (ADN) | Not regulated |

14.3. Transport hazard class(es)

**ADR**

| Transport hazard class(es) (ADR) | Not regulated |

**IMDG**

| Transport hazard class(es) (IMDG) | Not regulated |

**IATA**

| Transport hazard class(es) (IATA) | Not regulated |

**ADN**

| Transport hazard class(es) (ADN) | Not regulated |
IgG Elution Buffer
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

RID
Transport hazard class(es) (RID) : Not regulated

14.4. Packing group
Packing group (ADR) : Not regulated
Packing group (IMDG) : Not regulated
Packing group (IATA) : Not regulated
Packing group (ADN) : Not regulated
Packing group (RID) : Not regulated

14.5. Environmental hazards
Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

Overland transport
Not regulated

Transport by sea
Not regulated

Air transport
Not regulated

Inland waterway transport
Not regulated

Rail transport
Not regulated

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations
Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances

15.1.2. National regulations
No additional information available

15.2. Chemical safety assessment
No chemical safety assessment has been carried out

SECTION 16: Other information
Safety Data Sheet applicable for regions : GB - United Kingdom

SDS EU (REACH Annex II)
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
- Product form: Mixture
- Product name: Protein A Resin
- Product code: 440P, 443P, 439P
- Product group: Blend

1.2. Relevant identified uses of the substance or mixture and uses advised against
1.2.1. Relevant identified uses
No additional information available

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet
- Geno Technology, Inc./G-Biosciences
  9800 Page Avenue
  63132-1429 Saint Louis - United States
  T 800-628-7730 - F 314-991-1504
  technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number
- Emergency number: Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP]
- Not classified

Adverse physicochemical, human health and environmental effects
To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

2.2. Label elements
Labelling according to Regulation (EC) No. 1272/2008 [CLP]
- No labelling applicable

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>agarose</td>
<td>(CAS-No.) 9012-36-6 EC-No.) 232-731-8</td>
<td>50 - 80</td>
<td>Not classified</td>
</tr>
<tr>
<td>Deionized water</td>
<td>(CAS-No.) 7732-18-5</td>
<td>10 - 50</td>
<td>Not classified</td>
</tr>
<tr>
<td>ethanol</td>
<td>(CAS-No.) 64-17-5 EC-No.) 200-578-6 EC Index-No.) 603-002-00-5</td>
<td>10 - 50</td>
<td>Flam. Liq. 2, H225</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing.
- First-aid measures after skin contact: Wash skin with plenty of water.
- First-aid measures after eye contact: Rinse eyes with water as a precaution.
- First-aid measures after ingestion: Call a poison center or a doctor if you feel unwell.
4.2. Most important symptoms and effects, both acute and delayed
No additional information available

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

SECTION 5: Firefighting measures

5.1. Extinguishing media

5.2. Special hazards arising from the substance or mixture
Fire hazard: Combustible liquid.
Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Advice for firefighters
Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel
Emergency procedures: Ventilate spillage area. No open flames, no sparks, and no smoking.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: “Exposure controls/personal protection”.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Ensure good ventilation of the work station. Wear personal protective equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store in a well-ventilated place. Keep cool.
Storage temperature: 4 °C

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
ethanol (64-17-5)
United Kingdom - Occupational Exposure Limits
WEL TWA (mg/m³): 1920 mg/m³
WEL TWA (ppm): 1000 ppm

8.2. Exposure controls
Appropriate engineering controls:
Ensure good ventilation of the work station.

Hand protection:
Protective gloves

Eye protection:
Safety glasses
Protein A Resin
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties
Physical state: Liquid
Colour: No data available
Odour: No data available
Odour threshold: No data available
pH: No data available
Relative evaporation rate (butylacetate=1): No data available
Melting point: Not applicable
Freezing point: No data available
Boiling point: No data available
Flash point: 65 °C
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): Not applicable
Vapour pressure: No data available
Relative vapour density at 20 °C: No data available
Relative density: No data available
Solubility: No data available
Log Pow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidising properties: No data available
Explosive limits: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity
10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Hazardous decomposition products.

SECTION 11: Toxicological information
11.1. Information on toxicological effects
Acute toxicity (oral): Not classified
Acute toxicity (dermal): Not classified
Acute toxicity (inhalation): Not classified

ethanol (64-17-5)
LD50 oral rat: 10740 mg/kg bodyweight (Rat; OECD 401: Acute Oral Toxicity; Experimental value)
LD50 dermal rabbit: > 16000 mg/kg (Rabbit; Literature study)

5/11/2017 (Version: 1.1)
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<table>
<thead>
<tr>
<th>LC50 inhalation rat (mg/l)</th>
<th>&gt; 20 mg/l (4 h, Rat, Inhalation)</th>
</tr>
</thead>
</table>

**Skin corrosion/irritation**: Not classified

**Serious eye damage/irritation**: Not classified

**Respiratory or skin sensitisation**: Not classified

**Germ cell mutagenicity**: Not classified

**Carcinogenicity**: Not classified

**ethanol (64-17-5)**

<table>
<thead>
<tr>
<th>IARC group</th>
<th>1 - Carcinogenic to humans</th>
</tr>
</thead>
</table>

**Reproductive toxicity**: Not classified

**STOT-single exposure**: Not classified

**STOT-repeated exposure**: Not classified

**Aspiration hazard**: Not classified

### SECTION 12: Ecological information

#### 12.1. Toxicity

**Ecology - general**: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

**Acute aquatic toxicity**: Not classified

**Chronic aquatic toxicity**: Not classified

**ethanol (64-17-5)**

<table>
<thead>
<tr>
<th>LC50 fish 1</th>
<th>14200 mg/l (US EPA, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 Daphnia 1</td>
<td>9300 mg/l (48 h, Daphnia magna, Pure substance)</td>
</tr>
<tr>
<td>EC50 72h algae (1)</td>
<td>275 mg/l (Equivalent or similar to OECD 201, Chlorella vulgaris, Static system, Fresh water, Experimental value, Growth rate)</td>
</tr>
</tbody>
</table>

#### 12.2. Persistence and degradability

**ethanol (64-17-5)**

<table>
<thead>
<tr>
<th>Persistence and degradability</th>
<th>Readily biodegradable in water. Biodegradable in the soil. No (test)data on mobility of the substance available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>0.8 - 0.967 g O₂/g substance</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>1.7 g O₂/g substance</td>
</tr>
<tr>
<td>ThOD</td>
<td>2.1 g O₂/g substance</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>0.43</td>
</tr>
</tbody>
</table>

**agarose (9012-36-6)**

<table>
<thead>
<tr>
<th>Persistence and degradability</th>
<th>Biodegradability in water: no data available.</th>
</tr>
</thead>
</table>

#### 12.3. Bioaccumulative potential

**ethanol (64-17-5)**

<table>
<thead>
<tr>
<th>BCF fish 1</th>
<th>1 (Other, 72 h, Cyprinus carpio, Static system, Fresh water, Read-across)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>-0.35 (Experimental value; OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method; 24 °C)</td>
</tr>
</tbody>
</table>

**agarose (9012-36-6)**

<table>
<thead>
<tr>
<th>Bioaccumulative potential</th>
<th>Low potential for bioaccumulation (Log Kow &lt; 4).</th>
</tr>
</thead>
</table>

#### 12.4. Mobility in soil

**ethanol (64-17-5)**

<table>
<thead>
<tr>
<th>Surface tension</th>
<th>0.0245 N/m (20 °C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology - soil</td>
<td>Highly mobile in soil.</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Component</th>
<th>12.5. Results of PBT and vPvB assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethanol (64-17-5)</td>
<td>This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12.6. Other adverse effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>No additional information available</td>
</tr>
</tbody>
</table>

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**


**SECTION 14: Transport information**

In accordance with ADR / RID / IMDG / IATA / ADN

**14.1. UN number**

| UN-No. (ADR) | Not regulated |
| UN-No. (IMDG) | Not regulated |
| UN-No. (IATA) | Not regulated |
| UN-No. (ADN) | Not regulated |
| UN-No. (RID) | Not regulated |

**14.2. UN proper shipping name**

| Proper Shipping Name (ADR) | Not regulated |
| Proper Shipping Name (IMDG) | Not regulated |
| Proper Shipping Name (IATA) | Not regulated |
| Proper Shipping Name (ADN) | Not regulated |
| Proper Shipping Name (RID) | Not regulated |

**14.3. Transport hazard class(es)**

| ADR | Transport hazard class(es) (ADR) | Not regulated |
| IMDG | Transport hazard class(es) (IMDG) | Not regulated |
| IATA | Transport hazard class(es) (IATA) | Not regulated |
| ADN | Transport hazard class(es) (ADN) | Not regulated |
| RID | Transport hazard class(es) (RID) | Not regulated |

**14.4. Packing group**

| Packing group (ADR) | Not regulated |
| Packing group (IMDG) | Not regulated |
| Packing group (IATA) | Not regulated |
| Packing group (ADN) | Not regulated |
| Packing group (RID) | Not regulated |

**14.5. Environmental hazards**

| Dangerous for the environment | No |
| Marine pollutant | No |
| Other information | No supplementary information available |

**14.6. Special precautions for user**

| Overland transport | Not regulated |
| Transport by sea | Not regulated |
| Air transport | Not regulated |
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Inland waterway transport
Not regulated

Rail transport
Not regulated

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations
Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances

15.1.2. National regulations
No additional information available

15.2. Chemical safety assessment
No chemical safety assessment has been carried out

SECTION 16: Other information

Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>H- and EUH-statements</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 2</td>
<td>Flammable liquids, Category 2</td>
</tr>
<tr>
<td>H225</td>
<td>Highly flammable liquid and vapour.</td>
</tr>
</tbody>
</table>

Safety Data Sheet applicable for regions: GB - United Kingdom

SDS EU (REACH Annex II)
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.