Safety Data Sheet

Cat. # 786-809

Carboxyl Immobilization Kit

Size: For 5 x 2ml column
1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride

Safety Data Sheet

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

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 : 1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride
Chemical name : EDC
EC-No. : 247-361-2
CAS-No. : 25952-53-8
Product code : 009E
Type of product : Pure substance, Hygroscopic substance. Preventive measures apply to the substance in dry state only
Formula : C8H17N3.HCl
Synonyms : (3-dimethylaminopropyl)ethylcarbodiimide monohydrochloride / 1-(3-dimethylaminopropyl-3-ethylcarbodiimide hydrochloride / 1,3-propanediamine, N'-(ethylcarbonimidoyl)-N,N-dimethyl-, monohydrochloride / EDAP (=1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride) / EDC (=1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride) / EDC-HCl (=1-Ethyl-3-(3-dimethylamino)propyl carbodiimide, Hydrochlorid) / EDCI (=1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride) / N-(3-dimethylaminopropyl)-N'-ethylcarbodiimidhydrochlorid / N'-ethylcarbodiimidhydrochlorid / N-(3-dimethylaminopropyl)-N,N-dimethylpropane-1,3-diamine monohydrochloride / N-ethyl-N'-(3-diethylaminopropyl)carbodiimide hydrochloride / N-Ethyl-N'-(3-dimethylaminopropyl)carbodiimidehydrochlorid / WSC (=1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride) / WSC-HCl (=1-Ethyl-3-(3-dimethylamino)propyl carbodiimid, Hydrochlorid)
Product group : Raw material
BIG no : 26531

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 : Industrial use

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>
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<td>0344 892 0111</td>
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1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

- Skin corrosion/irritation, Category 2 - H315
- Serious eye damage/eye irritation, Category 1 - H318
- Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation - H335

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 damage.

2.2. Label elements

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

- Hazard pictograms (CLP):
  - GHS05
  - GHS07

CLP Signal word: Danger

Hazard statements (CLP):
- H315 - Causes skin irritation.
- H318 - Causes serious eye damage.
- 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.
- P310 - Immediately call a POISON CENTER or doctor.
- P312 - Call a POISON CENTER or doctor if you feel unwell.
- P362+P364 - Take off contaminated clothing and wash it before reuse.
- P403+P405 - Store locked up.
- 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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<td>(CAS-No.) 25952-53-8  (EC-No.) 247-361-2</td>
<td>100</td>
<td>Skin Irrit. 2, H315  Eye Dam. 1, H318  STOT SE 3, H335</td>
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</table>

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable
1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride

Safety Data Sheet

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

SECTION 4: First aid measures

4.1. Description of first aid measures


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. Take victim to a doctor if irritation persists.

First-aid measures after eye contact: Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist.

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.

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

Symptoms/effects after inhalation: Irritation of the respiratory tract. Irritation of the nasal mucous membranes.

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

Symptoms/effects after eye contact: Corrosion of the eye tissue. Inflammation/damage of the eye tissue.

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

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: Dilute toxic gases with water spray.


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. 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.

Methods for cleaning up: Stop dust cloud by covering with sand/earth. 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. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use.

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.

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

Information on mixed storage:
KEEP SUBSTANCE AWAY FROM: water/moisture.

Storage area:
Store in a dry area. Meet the legal requirements.

Special rules on packaging:
SPECIAL REQUIREMENTS: closing. watertight. dry. 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:
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 production: dust mask with filter type P2

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>
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<tr>
<td>Physical state</td>
<td>Solid</td>
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<tr>
<td>Appearance</td>
<td>Crystalline solid. Crystalline powder.</td>
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<td>Molecular mass</td>
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<td>Colour</td>
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<td>Odour</td>
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<td>Odour threshold</td>
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<tr>
<td>pH</td>
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<td>Relative evaporation rate (butylacetate=1)</td>
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<td>Melting point</td>
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<td>Freezing point</td>
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<tr>
<td>Boiling point</td>
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<tr>
<td>Flash point</td>
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<td>Auto-ignition temperature</td>
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<td>Decomposition temperature</td>
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<td>Flammability (solid, gas)</td>
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<td>Vapour pressure</td>
<td>No data available</td>
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</tbody>
</table>
1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride
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Relative vapour density at 20 °C : Not applicable
Relative density : Not applicable
Solubility : Moderately soluble in water.
Water: 3.2 g/100ml
Log Pow : 0.21 (Estimated value)
Viscosity, kinematic : Not applicable
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : Not applicable

9.2. Other information
VOC content : 0 %
Other properties : Hygroscopic.

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
Hygroscopic.

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 damage.
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 damage.

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 data available on ecotoxicity.
Acute aquatic toxicity : Not classified
Chronic aquatic toxicity : Not classified
1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride

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

### 12.2. Persistence and degradability

| 1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride (25952-53-8) | Persistence and degradability | Biodegradability in water: no data available. |

### 12.3. Bioaccumulative potential

| 1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride (25952-53-8) | Log Pow | 0.21 (Estimated value) |
| | Bioaccumulative potential | Low potential for bioaccumulation (Log Kow < 4). |

### 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

Regional legislation (waste) : LWCA (the Netherlands): KGA category 04.
Product/Packaging disposal recommendations : Use appropriate containment to avoid environmental contamination. 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

| 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 |
1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride

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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**

- No REACH Annex XVII restrictions
- 1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride is not on the REACH Candidate List
- 1-ethyl-3-(3-dimethylamino)propyl carbodiimide, hydrochloride is not on the REACH Annex XIV List

- **VOC content:** 0 %

**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:

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<thead>
<tr>
<th>H- and EUH-statement</th>
<th>Description</th>
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<tr>
<td>Eye Dam. 1</td>
<td>Serious eye damage/eye irritation, Category 1</td>
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<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>H318</td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation.</td>
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Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

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: Carboxyl Coupling Resin Columns
Product code: 035C-A
Product group: Trade product

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

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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)

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<td>0344 892 0111</td>
<td></td>
</tr>
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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>
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<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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<tbody>
<tr>
<td>ethanol</td>
<td>(CAS-No.) 64-17-5</td>
<td>&gt; 50</td>
<td>Flam. Liq. 2, H225</td>
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<td>(EC-No.) 200-578-6</td>
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<td></td>
<td>(EC Index-No.) 603-002-00-5</td>
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<tr>
<td>DADPA resin</td>
<td>&lt; 50</td>
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</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.
Carboxyl Coupling Resin Columns
Safety Data Sheet

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

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

<table>
<thead>
<tr>
<th>Ethanol (64-17-5)</th>
<th>United Kingdom</th>
<th>WEL TWA (mg/m³)</th>
<th>1920 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>United Kingdom</td>
<td>WEL TWA (ppm)</td>
<td>1000 ppm</td>
</tr>
</tbody>
</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>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<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>65 °C</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
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

<table>
<thead>
<tr>
<th>Substance (64-17-5)</th>
<th>LD50 oral rat</th>
<th>LD50 dermal rabbit</th>
<th>LC50 inhalation rat (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethanol</td>
<td>10740 mg/kg bodyweight (Rat; OECD 401: Acute Oral Toxicity; Experimental value)</td>
<td>&gt; 16000 mg/kg (Rabbit; Literature study)</td>
<td>&gt; 20 mg/l (4 h, Rat)</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

<table>
<thead>
<tr>
<th>Substance (64-17-5)</th>
<th>LC50 fish 1</th>
<th>EC50 Daphnia 1</th>
<th>EC50 72h algae (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethanol</td>
<td>14200 mg/l (US EPA, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value)</td>
<td>9300 mg/l (48 h, Daphnia magna)</td>
<td>275 mg/l (Equivalent or similar to OECD 201, Chlorella vulgaris, Static system, Fresh water, Experimental value)</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Substance (64-17-5)</th>
<th>Persistence and degradability</th>
<th>Biochemical oxygen demand (BOD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethanol</td>
<td>Readily biodegradable in water. Biodegradable in the soil. No (test)data on mobility of the substance available.</td>
<td>0.8 - 0.967 g O₂/g substance</td>
</tr>
</tbody>
</table>
**12.3. Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethanol (64-17-5)</td>
<td>BCF fish 1 (Other, 72 h, Cyprinus carpio, Static system, Fresh water, Read-across) 1 (Other, 72 h, Cyprinus carpio, Static system, Fresh water, Read-across)</td>
</tr>
<tr>
<td>Log Pow</td>
<td>-0.35 (Experimental value; OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method; 24 °C)</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>Low potential for bioaccumulation (Log Kow &lt; 4).</td>
</tr>
</tbody>
</table>

**12.4. Mobility in soil**

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethanol (64-17-5)</td>
<td>Surface tension 0.0245 N/m (20 °C) Ecology - soil Highly mobile in soil.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</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</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

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14.1. UN number</td>
</tr>
<tr>
<td>UN-No. (ADR)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>UN-No. (IMDG)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>UN-No. (IATA)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>UN-No. (ADN)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>UN-No. (RID)</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td>14.2. UN proper shipping name</td>
</tr>
<tr>
<td>Proper Shipping Name (ADR)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Proper Shipping Name (IMDG)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Proper Shipping Name (IATA)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Proper Shipping Name (ADN)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Proper Shipping Name (RID)</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td>14.3. Transport hazard class(es)</td>
</tr>
<tr>
<td>ADR</td>
<td>Transport hazard class(es) (ADR) Not applicable</td>
</tr>
<tr>
<td>IMDG</td>
<td>Transport hazard class(es) (IMDG) Not applicable</td>
</tr>
<tr>
<td>IATA</td>
<td>Transport hazard class(es) (IATA) Not applicable</td>
</tr>
<tr>
<td>ADN</td>
<td>Transport hazard class(es) (ADN) Not applicable</td>
</tr>
<tr>
<td>RID</td>
<td>Transport hazard class(es) (RID) Not applicable</td>
</tr>
</tbody>
</table>
14.4. Packing group

<table>
<thead>
<tr>
<th>Packing group</th>
<th></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>

14.5. Environmental hazards

<table>
<thead>
<tr>
<th>Hazard</th>
<th></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
  No data available

- Transport by sea
  No data available

- Air transport
  No data available

- 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

Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>Code</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.
**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

1.1. Product identifier

- **Product form**: Mixture
- **Product name**: Wash Solution
- **Product code**: 102W
- **Product group**: Trade product

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

- **Relevant identified uses**: Research purposes
- **Use of the substance/mixture**: Research and development

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]

- **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

- **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>
</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. Remove the victim into fresh air.

First-aid measures after skin contact: Wash immediately with lots of water (15 minutes)/shower. Soap may be used. Wash skin with plenty of water.

First-aid measures after eye contact: Rinse immediately with plenty of water for 15 minutes. Take victim to an ophthalmologist. Do not apply neutralizing agents. Rinse eyes with water as a precaution.

First-aid measures after ingestion: Rinse mouth with water. Victim is fully conscious: immediately induce vomiting. Ingestion of large quantities: immediately to hospital. Call Poison Information Centre (www.big.be/antigif.htm). Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation: Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Coughing.

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

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media: Container may slop over if solid jet (water/foam) is applied.

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

Firefighting instructions: Dilute toxic gases with water spray.


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

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. Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. 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


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: RT

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. Safety glasses

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

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: Clear.
Odour: None.
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
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
Unstable on exposure to moisture.

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 : 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

12.2. Persistence and degradability

| Wash Solution | Persistence and degradability | Biodegradability in water: no data available. |

12.3. Bioaccumulative potential

| Wash Solution | Bioaccumulative potential | Bioaccumulation: not applicable. |

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

<table>
<thead>
<tr>
<th>Waste treatment methods</th>
<th>Waste treatment methods.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product/Packaging disposal recommendations</td>
<td>Specific preliminary treatment. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery.</td>
</tr>
</tbody>
</table>

### SECTION 14: Transport information

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

#### 14.1. UN number

<table>
<thead>
<tr>
<th>UN-No. (ADR)</th>
<th>Not regulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN-No. (IMDG)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>UN-No. (IATA)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>UN-No. (ADN)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>UN-No. (RID)</td>
<td>Not regulated</td>
</tr>
</tbody>
</table>

#### 14.2. UN proper shipping name

<table>
<thead>
<tr>
<th>Proper Shipping Name (ADR)</th>
<th>Not regulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name (IMDG)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Proper Shipping Name (IATA)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Proper Shipping Name (ADN)</td>
<td>Not regulated</td>
</tr>
<tr>
<td>Proper Shipping Name (RID)</td>
<td>Not regulated</td>
</tr>
</tbody>
</table>

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

#### ADR

<table>
<thead>
<tr>
<th>Transport hazard class(es) (ADR)</th>
<th>Not regulated</th>
</tr>
</thead>
</table>

#### IMDG

<table>
<thead>
<tr>
<th>Transport hazard class(es) (IMDG)</th>
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</tr>
</thead>
</table>

#### IATA

<table>
<thead>
<tr>
<th>Transport hazard class(es) (IATA)</th>
<th>Not regulated</th>
</tr>
</thead>
</table>

#### ADN

<table>
<thead>
<tr>
<th>Transport hazard class(es) (ADN)</th>
<th>Not regulated</th>
</tr>
</thead>
</table>

#### RID

<table>
<thead>
<tr>
<th>Transport hazard class(es) (RID)</th>
<th>Not regulated</th>
</tr>
</thead>
</table>

#### 14.4. Packing group

<table>
<thead>
<tr>
<th>Packing group (ADR)</th>
<th>Not regulated</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 regulated</td>
</tr>
<tr>
<td>Packing group (RID)</td>
<td>Not regulated</td>
</tr>
</tbody>
</table>

#### 14.5. Environmental hazards

<table>
<thead>
<tr>
<th>Dangerous for the environment</th>
<th>No</th>
</tr>
</thead>
<tbody>
<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 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: Optimizer Buffer IV [5X]
Product code: 264O
Product group: Trade product

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

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>50 - 80</td>
<td>Not classified</td>
</tr>
<tr>
<td>MES (2-(N-Morpholino)ethanesulfonic acid)</td>
<td>(CAS-No.) 4432-31-9</td>
<td>10 - 50</td>
<td>Not classified</td>
</tr>
<tr>
<td>sodium chloride</td>
<td>(CAS-No.) 7647-14-5 (EC-No.) 231-598-3</td>
<td>2 - 5</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

<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>Toxicity</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Acute toxicity (dermal)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Acute toxicity (inhalation)</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
**sodium chloride (7647-14-5)**

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 3980 mg/kg bodyweight (Rat, Experimental value)</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>&gt; 10000 mg/kg (Rabbit, Experimental value)</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>&gt; 42 mg/l (1 h, Rat, Male, Experimental value)</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 chloride (7647-14-5)**

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>5840 mg/l (ASTM, 96 h, Lepomis macrochirus, Flow-through system, Fresh water, Experimental value)</td>
</tr>
</tbody>
</table>

**12.2. Persistence and degradability**

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

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
<td>Biodegradability: 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>ThOД</td>
<td>Not applicable</td>
</tr>
<tr>
<td>BOD (% of ThOД)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**12.3. Bioaccumulative potential**

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

- **Log Pow**: -3 (Calculated)
- **Bioaccumulative potential**: Not bioaccumulative.

**12.4. Mobility in soil**

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

- **Surface tension**: 73.03 mN/m (23 °C, 14.5 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>Description</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
### 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)

- **ADR**
  - Transport hazard class(es) (ADR): Not applicable

- **IMDG**
  - Transport hazard class(es) (IMDG): Not applicable

- **IATA**
  - Transport hazard class(es) (IATA): Not applicable

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

- **RID**
  - Transport hazard class(es) (RID): Not applicable

### 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

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

### 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
Optimier Buffer IV [5X]
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

**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

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**

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.