Safety Data Sheet

Cat. # GZ-02

EZ Yeast™ Plasmid Prep

Size: 100 Preps
SECTION 1: Identification

1.1. Identification

Product form : Mixture
Product name : Longlife Zymolyase
Product code : 085L

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

Geno Technology, Inc./G-Biosciences
9800 Page Avenue
Saint Louis, 63132-1429 - 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: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification
Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling
No labeling applicable

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of HazCom 2012

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/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

No additional information available

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


5.2. Specific hazards arising from the chemical

No additional information available
### Longlife Zymolyase Safety Data Sheet

#### 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.

#### SECTION 8: Exposure controls/personal protection

**8.1. Control parameters**

Longlife Zymolyase
No additional information available

**8.2. Appropriate engineering controls**
Appropriate engineering controls: Ensure good ventilation of the work station.
Environmental exposure controls: Avoid release to the environment.

**8.3. Individual protection measures/Personal protective equipment**

**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

#### SECTION 9: Physical and chemical properties

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

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Cloudy</td>
</tr>
</tbody>
</table>
### Odor
None

### Odor threshold
No data available

### pH
No data available

### Melting point
Not applicable

### Freezing point
No data available

### Boiling point
No data available

### Flash point
No data available

### Relative evaporation rate (butyl acetate=1)
No data available

### Flammability (solid, gas)
Not applicable.

### Vapor pressure
No data available

### Relative vapor density at 20 °C
No data available

### Relative density
No data available

### Solubility
No data available

### Log Pow
No data available

### Auto-ignition temperature
No data available

### Decomposition temperature
No data available

### Viscosity, kinematic
No data available

### Viscosity, dynamic
No data available

### Explosion limits
No data available

### Explosive properties
No data available

### Oxidizing properties
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

<table>
<thead>
<tr>
<th>Property</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>
<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 sensitization</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>Specific target organ toxicity – single exposure</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
Specific target organ toxicity – repeated exposure: Not classified
Aspiration hazard: Not classified
Viscosity, kinematic: No data available

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT
Not regulated

Transportation of Dangerous Goods

Transport by sea
Not regulated

Air transport
Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations
No additional information available

15.2. International regulations

CANADA

EU-Regulations

National regulations
No additional information available

15.3. US State regulations
## SECTION 16: Other information

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

1.1. Identification
Product form : Mixture
Product name : Solution I - Suspension Buffer
Product code : 279S

1.2. Recommended use and restrictions on use
No additional information available

1.3. Supplier
Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
Saint Louis, 63132 - 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: Hazard(s) identification

2.1. Classification of the substance or mixture
GHS US classification
Not classified

2.2. GHS Label elements, including precautionary statements
GHS US labelling
No labeling applicable

2.3. Other hazards which do not result in classification
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures
This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of HazCom 2012

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/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)
No additional information available

4.3. Immediate medical attention and special treatment, if necessary
Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

5.2. Specific hazards arising from the chemical
No additional information available
5.3. Special protective equipment and precautions for fire-fighters

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.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Solution I - Suspension Buffer

No additional information available

8.2. Appropriate engineering controls

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

Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures: Personal protective equipment

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid

Color: No data available
Solution I - Suspension Buffer
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</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>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor 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>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</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>Explosion limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>9.2. Other information</td>
<td>No additional information available</td>
</tr>
<tr>
<td>10. Stability and reactivity</td>
<td></td>
</tr>
<tr>
<td>10.1. Reactivity</td>
<td>The product is non-reactive under normal conditions of use, storage and transport.</td>
</tr>
<tr>
<td>10.2. Chemical stability</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>10.3. Possibility of hazardous reactions</td>
<td>No dangerous reactions known under normal conditions of use.</td>
</tr>
<tr>
<td>10.4. Conditions to avoid</td>
<td>None under recommended storage and handling conditions (see section 7).</td>
</tr>
<tr>
<td>10.5. Incompatible materials</td>
<td>No additional information available</td>
</tr>
<tr>
<td>11. Toxicological information</td>
<td></td>
</tr>
<tr>
<td>11.1. Information on toxicological effects</td>
<td></td>
</tr>
<tr>
<td>Acute toxicity (oral)</td>
<td>Not classified</td>
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</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity – single exposure</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
Solution I - Suspension Buffer
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Specific target organ toxicity – repeated exposure : Not classified
Aspiration hazard : Not classified
Viscosity, kinematic : No data available

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT
Not applicable

Transportation of Dangerous Goods
Not applicable

Transport by sea
Not applicable

Air transport
Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations
Solution I - Suspension Buffer
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

EU-Regulations

National regulations
No additional information available
SECTION 16: Other information

SDS US (GHS HazCom 2012)

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**

<table>
<thead>
<tr>
<th>1.1. Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product form</td>
</tr>
<tr>
<td>Product name</td>
</tr>
<tr>
<td>Product code</td>
</tr>
<tr>
<td>Mixture</td>
</tr>
<tr>
<td>Solution II - Lysis Buffer</td>
</tr>
<tr>
<td>283S</td>
</tr>
</tbody>
</table>

| 1.2. Recommended use and restrictions on use    |
| No additional information available             |

| 1.3. Supplier                                   |
| Geno Technology, Inc./ G-Biosciences            |
| 9800 Page Avenue                                |
| Saint Louis, 63132-1429 - 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: Hazard(s) identification**

| 2.1. Classification of the substance or mixture |
| GHS US classification                           |
| Not classified                                   |

| 2.2. GHS Label elements, including precautionary statements |
| GHS US labelling                                         |
| No labeling applicable                                  |

| 2.3. Other hazards which do not result in classification |
| No additional information available                     |

| 2.4. Unknown acute toxicity (GHS US)                  |
| Not applicable                                         |

**SECTION 3: Composition/Information on ingredients**

| 3.1. Substances                                     |
| Not applicable                                     |

| 3.2. Mixtures                                      |
| Not applicable                                     |
# Solution II - Lysis Buffer

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Name</th>
<th>Common Name (Synonyms)</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS US classification</th>
</tr>
</thead>
</table>

06/28/2019 EN (English US)
## Solution II - Lysis Buffer

### Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Name</th>
<th>Common Name (Synonyms)</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS US classification</th>
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</table>
Section II - Lysis Buffer Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Name</th>
<th>Common Name (Synonyms)</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS US classification</th>
</tr>
</thead>
</table>

Full text of hazard classes and 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. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

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

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact: Irritation.

Symptoms/effects after eye contact: Eye irritation.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


5.2. Specific hazards arising from the chemical

No additional information available

5.3. Special protective equipment and precautions for fire-fighters

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. Avoid contact with skin and eyes.

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.
Solution II - Lysis Buffer
Safety Data Sheet
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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. Avoid contact with skin and eyes.
- Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Wash contaminated clothing before reuse.

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Solution II - Lysis Buffer</th>
<th>No additional information available</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium hydroxide (1310-73-2)</td>
<td>USA - ACGIH - Occupational Exposure Limits</td>
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<tr>
<td>ACGIH Ceiling (mg/m³)</td>
<td>2 mg/m³</td>
</tr>
<tr>
<td>sodium dodecyl sulphate (151-21-3)</td>
<td>No additional information available</td>
</tr>
</tbody>
</table>

8.2. Appropriate engineering controls
Appropriate engineering controls:
- Ensure good ventilation of the work station.
Environmental exposure controls:
- Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

**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

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>Color</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</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>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
</tbody>
</table>
Solution II - Lysis Buffer
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Relative vapor density at 20 °C : No data available
Relative density : No data available
Solubility : No data available
Log Pow : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosion limits : No data available
Explosive properties : No data available
Oxidizing properties : 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

<table>
<thead>
<tr>
<th>sodium dodecyl sulphate (151-21-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
</tr>
<tr>
<td>ATE US (oral)</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : Not classified
Specific target organ toxicity – repeated exposure : Not classified
**Solution II - Lysis Buffer**
Safety Data Sheet

Aspiration hazard: Not classified
Viscosity, kinematic: No data available
Symptoms/effects after skin contact: Irritation.
Symptoms/effects after eye contact: Eye irritation.

**SECTION 12: Ecological information**

**12.1. Toxicity**

Ecology - general: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

<table>
<thead>
<tr>
<th>sodium hydroxide (1310-73-2)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>45.4 mg/l (96 h, Salmo gairdneri, Static system, Fresh water, Experimental value, Solution &gt;=50%)</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>40.4 mg/l (48 h, Ceriodaphnia sp., Experimental value, Nominal concentration)</td>
</tr>
</tbody>
</table>

**12.2. Persistence and degradability**

<table>
<thead>
<tr>
<th>sodium hydroxide (1310-73-2)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
<td>Biodegradability: 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>

<table>
<thead>
<tr>
<th>sodium dodecyl sulphate (151-21-3)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
<td>Readily biodegradable in water.</td>
</tr>
</tbody>
</table>

**12.3. Bioaccumulative potential**

<table>
<thead>
<tr>
<th>sodium hydroxide (1310-73-2)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioaccumulative potential</td>
<td>Not bioaccumulative.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>sodium dodecyl sulphate (151-21-3)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BCF fish 1</td>
<td>3.9 - 5.3 (72 h, Cyprinus carpio)</td>
</tr>
<tr>
<td>BCF fish 2</td>
<td>7.15 (Pisces, Chronic)</td>
</tr>
<tr>
<td>Log Pow</td>
<td>&lt;= -2.03 (Calculated, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C)</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>Not bioaccumulative.</td>
</tr>
</tbody>
</table>

**12.4. Mobility in soil**

<table>
<thead>
<tr>
<th>sodium hydroxide (1310-73-2)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology - soil</td>
<td>No (test)data on mobility of the substance available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>sodium dodecyl sulphate (151-21-3)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface tension</td>
<td>0.0252 N/m (23 °C, 1 g/l, EU Method A.5: Surface tension)</td>
</tr>
<tr>
<td>Log Koc</td>
<td>1.545 (log Koc, SRC PCKOCWIN v2.0, Experimental value)</td>
</tr>
<tr>
<td>Ecology - soil</td>
<td>Highly mobile in soil.</td>
</tr>
</tbody>
</table>

**12.5. Other adverse effects**

No additional information available

**SECTION 13: Disposal considerations**

**13.1. Disposal methods**


**SECTION 14: Transport information**

Department of Transportation (DOT)
In accordance with DOT
Not applicable
Solution II - Lysis Buffer
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Transportation of Dangerous Goods
Not applicable

Transport by sea
Not applicable

Air transport
Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations
Solution II - Lysis Buffer
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

sodium hydroxide (1310-73-2)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory
Not subject to reporting requirements of the United States SARA Section 313
CERCLA RG 1000 lb

sodium dodecyl sulphate (151-21-3)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA
EU-Regulations
National regulations
No additional information available

15.3. US State regulations

SECTION 16: Other information
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 05/11/2017

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H-number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H290</td>
<td>May be corrosive to metals</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H312</td>
<td>Harmful in contact with skin</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</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>H402</td>
<td>Harmful to aquatic life</td>
</tr>
</tbody>
</table>

SDS US (GHS HazCom 2012)

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

1.1. Identification
Product form: Mixture
Product name: Solution III - Precipitation Buffer
Product code: 286S

1.2. Recommended use and restrictions on use
No additional information available

1.3. Supplier
Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
Saint Louis, 63132 - 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: Hazard(s) identification

2.1. Classification of the substance or mixture
GHS US classification
Not classified

2.2. GHS Label elements, including precautionary statements
GHS US labeling
No labeling applicable

2.3. Other hazards which do not result in classification
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures
This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of HazCom 2012

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/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)
No additional information available

4.3. Immediate medical attention and special treatment, if necessary
Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

5.2. Specific hazards arising from the chemical
No additional information available
Solution III - Precipitation Buffer

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

5.3. Special protective equipment and precautions for fire-fighters
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.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Solution III - Precipitation Buffer
No additional information available

8.2. Appropriate engineering controls
Appropriate engineering controls: Ensure good ventilation of the work station.
Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid
Color: No data available
Solution III - Precipitation Buffer
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Odor: No data available
Odor threshold: No data available
pH: No data available
Melting point: Not applicable
Freezing point: No data available
Boiling point: No data available
Flash point: No data available
Relative evaporation rate (butyl acetate=1): No data available
Flammability (solid, gas): Not applicable.
Vapor pressure: No data available
Relative vapor density at 20 °C: No data available
Relative density: No data available
Solubility: No data available
Log Pow: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosion limits: No data available
Explosive properties: No data available
Oxidizing properties: 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
Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
Specific target organ toxicity – single exposure: Not classified
Solution III - Precipitation Buffer
Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Specific target organ toxicity – repeated exposure: Not classified
Aspiration hazard: Not classified
Viscosity, kinematic: No data available

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT
Not applicable

Transportation of Dangerous Goods
Not applicable

Transport by sea
Not applicable

Air transport
Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations
No additional information available

15.2. International regulations

CANADA
EU-Regulations

National regulations
No additional information available

15.3. US State regulations
Solution III - Precipitation Buffer
Safety Data Sheet

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 05/11/2017

SDS US (GHS HazCom 2012)

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

### 1.1. Identification

<table>
<thead>
<tr>
<th>Product form</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance name</td>
<td>2-mercaptopoethanol</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>60-24-2</td>
</tr>
<tr>
<td>Product code</td>
<td>P001_103M</td>
</tr>
<tr>
<td>Formula</td>
<td>C₂H₆OS</td>
</tr>
<tr>
<td>BIG No</td>
<td>10274</td>
</tr>
</tbody>
</table>

### 1.2. Recommended use and restrictions on use

<table>
<thead>
<tr>
<th>Use of the substance/mixture</th>
<th>Solvent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pesticide: intermediate product</td>
<td></td>
</tr>
</tbody>
</table>

### 1.3. Supplier

Geno Technology, Inc./ G-Biosciences  
9800 Page Avenue  
Saint Louis, 63132-1429 - 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: Hazard(s) identification

### 2.1. Classification of the substance or mixture

<table>
<thead>
<tr>
<th>GHS US classification</th>
<th>H227 - Combustible liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral) Category 3</td>
<td>H301 - Toxic if swallowed</td>
</tr>
<tr>
<td>Acute toxicity (dermal) Category 3</td>
<td>H311 - Toxic in contact with skin</td>
</tr>
<tr>
<td>Acute toxicity (inhalation) Category 3</td>
<td>H313 - Toxic if inhaled</td>
</tr>
<tr>
<td>Acute toxicity (inhalation:dust,mist) Category 4</td>
<td>H332 - Harmful if inhaled</td>
</tr>
<tr>
<td>Skin corrosion/irritation Category 2</td>
<td>H315 - Causes skin irritation</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation Category 1</td>
<td>H318 - Causes serious eye damage</td>
</tr>
<tr>
<td>Skin sensitization, category 1A</td>
<td>H317 - May cause an allergic skin reaction</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure) Category 2</td>
<td>H373 - May cause damage to organs through prolonged or repeated exposure</td>
</tr>
<tr>
<td>Hazardous to the aquatic environment - Acute Hazard Category 1</td>
<td>H400 - Very toxic to aquatic life</td>
</tr>
<tr>
<td>Hazardous to the aquatic environment - Chronic Hazard Category 1</td>
<td>H410 - Very toxic to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

Full text of H statements : see section 16

### 2.2. GHS Label elements, including precautionary statements

#### GHS US labeling

**Hazard pictograms (GHS US):**

- ![](image)

**Signal word (GHS US):** Danger

**Hazard statements (GHS US):**

- H227 - Combustible liquid
- H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled
- H315 - Causes skin irritation
- H317 - May cause an allergic skin reaction
- H318 - Causes serious eye damage
- H332 - Harmful if inhaled
- H373 - May cause damage to organs through prolonged or repeated exposure
2-mercaptoethanol

Safety Data Sheet

Precautionary statements (GHS US)

H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 - Wash hands; forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing must not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 - If swallowed: Immediately call a poison center or doctor
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
P311 - Call a poison center or doctor
P312 - Call a poison center or doctor if you feel unwell
P314 - Get medical advice/attention if you feel unwell.
P321 - Specific treatment (see supplemental first aid instruction on this label)
P322 - Specific treatment (see supplemental first aid instruction on this label)
P330 - Rinse mouth.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P363 - Wash contaminated clothing before reuse.
P370+P378 - In case of fire: Use media other than water to extinguish.
P391 - Collect spillage.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P403+P235 - Store in a well-ventilated place. Keep cool.
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 which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type: Mono-constituent

<table>
<thead>
<tr>
<th>Name</th>
<th>Common Name (Synonyms)</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-mercaptoethanol (Main constituent)</td>
<td>1-ethanol-2-thiol / 1-hydroxy-2-mercaptoethane / 1-mercaptop-2-hydroxyethane / 2-hydroxy-1-ethanethiol / 2-hydroxyethanethiol / 2-hydroxyethyl mercaptan / 2-ME / 2-mercapto-1-ethanol / 2-mercaptoethanol / 2-mercaptoethyl alcohol / 2-thioethanol / beta-hydroxyethanethiol / beta-hydroxyethyl mercaptan / beta-mercaptoethanol / BME / emery 5791 / ethanol, 2-mercapto- / ethylene glycol, monothio- / ethylene thioiglycol / hydroxyethyl mercaptan / mercapto-2 ethanol / METH / monothioethyleneglycol / monothioglycol / thiethylene glycol / thioglycol / trimethyleneglycol / USAF EK-4196</td>
<td>(CAS-No.) 60-24-2</td>
<td>100</td>
<td>Flam. Liq. 4, H227 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1A, H317 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements: see section 16

3.2. Mixtures

Not applicable
2-mercaptoethanol
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 4: First-aid measures

4.1. Description of first aid measures


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

First-aid measures after skin contact: Wash immediately with lots of water. Do not apply (chemical) neutralizing agents. Remove clothing before washing. Consult a doctor/medical service.

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. Take victim to an ophthalmologist. Do not apply neutralizing agents.


4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms: Odour tolerance may develop. Toxic if swallowed. Fatal in contact with skin. Causes skin irritation. Toxic if inhaled. Causes serious eye damage. Caution! Substance is absorbed through the skin.


Symptoms/effects after skin contact: Red skin. Tingling/irritation of the skin. ON CONTINUOUS EXPOSURE/CONTACT: Caustic burns/corrosion of the skin.

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


Chronic symptoms: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Skin rash/inflammation.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


Unsuitable extinguishing media: Water (quick-acting extinguisher, reel); risk of puddle expansion. Water; risk of puddle expansion.

5.2. Specific hazards arising from the chemical

Fire hazard: DIRECT FIRE HAZARD: Material presenting a fire hazard. INDIRECT FIRE HAZARD: Temperature above flashpoint: higher fire/explosion hazard. Reactions involving a fire hazard: see "Reactivity Hazard".

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire: Exposure to fire/heat; keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: seal off low-lying areas. 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. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.


SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

**2-mercaptoethanol**  
Safety Data Sheet  
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1.2. For emergency responders</td>
<td>: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: &quot;Exposure controls/personal protection&quot;.</td>
</tr>
<tr>
<td>6.2. Environmental precautions</td>
<td>Prevent soil and water pollution. Prevent spreading in sewers.</td>
</tr>
</tbody>
</table>
| 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. Dam up the liquid spill. Hazardous reaction: measure explosive gas-air mixture. If reacting: dilute combustible/toxic gases/vapours. Take account of toxic/corrosive precipitation water. On heating: dilute combustible/toxic gases/vapours. Take account of toxic/corrosive precipitation water.  
Methods for cleaning up: Take up liquid spill into absorbent material, e.g.: dry sand/earth/vermiculite powdered limestone or saw dust. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Leftovers: neutralize with an aqueous solution of sodium hypochlorite. Damaged/cooled tanks must be emptied. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling. |
| 6.4. Reference to other sections | Other information: Dispose of materials or solid residues at an authorized site.  
For further information refer to section 13. |

### SECTION 7: Handling and storage

| 7.1. Precautions for safe handling |  
Precautions for safe handling: Use earthed equipment. Keep away from naked flames/heat. At temperature > flashpoint: use spark-/explosionproof appliances. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Exhaust gas must be neutralised. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain.  
Hygiene measures: Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. 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. Store locked up. Keep container tightly closed.  
Maximum storage period: 24 months  
Heat-ignition: KEEP SUBSTANCE AWAY FROM: heat sources.  
Special rules on packaging: SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers. |

### SECTION 8: Exposure controls/personal protection

| 8.1. Control parameters |  
**2-mercaptoethanol (60-24-2)**  
No additional information available |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8.2. Appropriate engineering controls</td>
<td>: Ensure good ventilation of the work station.</td>
</tr>
<tr>
<td>Environmental exposure controls</td>
<td>: Avoid release to the environment.</td>
</tr>
<tr>
<td>8.3. Individual protection measures/Personal protective equipment</td>
<td></td>
</tr>
</tbody>
</table>
...
2-mercaptoethanol
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Materials for protective clothing:
GIVE GOOD RESISTANCE: neoprene, nitrile rubber, PVC, plastics, rubber

Hand protection:
Gloves

Eye protection:
Face shield

Skin and body protection:
Protective clothing

Respiratory protection:
High gas/vapour concentration: full face mask with filter type A

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>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colourless to light yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>Repulsive odour</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>4.6 - 6.0 (50 %)</td>
</tr>
<tr>
<td>Melting point</td>
<td>&lt;-100 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>155.8 °C (1013.3 hPa)</td>
</tr>
<tr>
<td>Flash point</td>
<td>74 °C (Open cup, 1013.25 hPa)</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>1.33 hPa (20 °C)</td>
</tr>
<tr>
<td>Vapor pressure at 50 °C</td>
<td>11 hPa</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>2.7</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.11 (20 °C)</td>
</tr>
<tr>
<td>Relative density of saturated gas/air mixture</td>
<td>1</td>
</tr>
<tr>
<td>Specific gravity / density</td>
<td>1110 kg/m³ (20 °C)</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>78.13 g/mol</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water. Soluble in ethanol. Soluble in ether. Soluble in other organic solvents. Water: 100 g/100ml (20 °C)</td>
</tr>
<tr>
<td>Log Pow</td>
<td>-0.056 (Experimental value, Equivalent or similar to OECD 107, 25 °C)</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>295 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>157 °C</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>2.9 mm²/s (20 °C, Calculated)</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>0.322 mPa·s (20 °C)</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>2.3 - 18 vol %</td>
</tr>
<tr>
<td></td>
<td>Lower explosive limit (LEL): 2.3 vol %</td>
</tr>
<tr>
<td></td>
<td>UEL: 18 vol %</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information

VOC content : 100 %

Other properties : Gas/vapour heavier than air at 20°C. Clear. Slightly volatile. Acid reaction.
SECTION 10: Stability and reactivity

10.1. Reactivity
Reacts violently with (strong) oxidizers: (increased) risk of fire. Reacts violently with many compounds e.g.: with (strong) bases and (strong) reducers. Decomposes slowly on exposure to water (moisture) with (some) acids.

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
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) : Toxic if swallowed.
Acute toxicity (dermal) : Toxic in contact with skin.
Acute toxicity (inhalation) : Toxic if inhaled. Harmful if inhaled.

2-mercaptoethanol (60-24-2)

LD50 oral rat : 98 - 168 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Weight of evidence, Oral)
LD50 dermal rabbit : 112 - 224 mg/kg body weight (Other, 24 h, Rabbit, Male / female, Experimental value, Dermal)
LC50 inhalation rat (mg/l) : 2.03 mg/l (Other, 4 h, Rat, Male, Weight of evidence, Inhalation (vapours))
ATE US (oral) : 98 mg/kg body weight
ATE US (dermal) : 112 mg/kg body weight
ATE US (gases) : 700 ppmV/4h
ATE US (vapors) : 2.03 mg/l/4h
ATE US (dust, mist) : 2.03 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.
   pH: 4.6 - 6.0 (50 %)
Serious eye damage/irritation : Causes serious eye damage.
   pH: 4.6 - 6.0 (50 %)
Respiratory or skin sensitization : May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
Specific target organ toxicity – single exposure : Not classified
Specific target organ toxicity – repeated exposure : May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard : Not classified
Viscosity, kinematic : 2.9 mm²/s (20 °C, Calculated)

Potential Adverse human health effects and symptoms : Odour tolerance may develop. Toxic if swallowed. Fatal in contact with skin. Causes skin irritation. Toxic if inhaled. Causes serious eye damage. Caution! Substance is absorbed through the skin.


Symptoms/effects after skin contact : Red skin. Tingling/irritation of the skin. ON CONTINUOUS EXPOSURE/CONTACT: Caustic burns/corrosion of the skin.

Symptoms/effects after eye contact : Corrosion of the eye tissue. Inflammation/damage of the eye tissue.
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Chronic symptoms: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Skin rash/inflammation.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: Dangerous for the environment.
Ecology - air: Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014).
Photolysis in the air. Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

2-mercaptoethanol (60-24-2)

<table>
<thead>
<tr>
<th>LC50 fish 1</th>
<th>37 mg/l (DIN 38412-15, 96 h, Leuciscus idus, Static system, Fresh water, Experimental value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 Daphnia 1</td>
<td>0.4 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

2-mercaptoethanol (60-24-2)

<table>
<thead>
<tr>
<th>Persistence and degradability</th>
<th>Non degradable in the soil. Not readily biodegradable in water.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>0.105 g O₂/g substance</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>1.894 g O₂/g substance</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

2-mercaptoethanol (60-24-2)

<table>
<thead>
<tr>
<th>Log Pow</th>
<th>-0.056 (Experimental value, Equivalent or similar to OECD 107, 25 °C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioaccumulative potential</td>
<td>Not bioaccumulative.</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

2-mercaptoethanol (60-24-2)

<table>
<thead>
<tr>
<th>Log Koc</th>
<th>0.122 (log Koc, PCKOCWIN v1.66, Calculated value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology - soil</td>
<td>Highly mobile in soil.</td>
</tr>
</tbody>
</table>

12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Product/Packaging disposal recommendations</td>
<td>: Do not discharge into drains or the environment. 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. Recycle by distillation. Remove to an authorized waste incinerator for solvents with energy recovery.</td>
</tr>
</tbody>
</table>


SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT

<table>
<thead>
<tr>
<th>Transport document description</th>
<th>: UN2966 Thioglycol, 6.1, II</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN-No.(DOT)</td>
<td>: UN2966</td>
</tr>
<tr>
<td>Proper Shipping Name (DOT)</td>
<td>: Thioglycol</td>
</tr>
<tr>
<td>Packing group (DOT)</td>
<td>: II - Medium Danger</td>
</tr>
</tbody>
</table>

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Hazard labels (DOT) : 6.1 - Poison

Dangerous for the environment : Yes
Marine pollutant : Yes

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 243
DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.

DOT Packaging Exceptions (49 CFR 173.xxx) : 153
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L
DOT Vessel Stowage Location : A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.
Other information : No supplementary information available.

Transportation of Dangerous Goods

Transport by sea
Transport document description (IMDG) : UN 2966 thioglycol, 6.1, II, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS
UN-No. (IMDG) : 2966
Proper Shipping Name (IMDG) : thioglycol
Class (IMDG) : 6.1 - Toxic substances
Packing group (IMDG) : II - substances presenting medium danger
EmS-No. (1) : F-A
EmS-No. (2) : S-A
Marine pollutant : Yes

Air transport
Transport document description (IATA) : UN 2966 Thioglycol, 6.1, II, ENVIRONMENTALLY HAZARDOUS
UN-No. (IATA) : 2966
Proper Shipping Name (IATA) : Thioglycol
Class (IATA) : 6.1 - Toxic Substances
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Packing group (IATA) : II - Medium Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

2-mercaptoethanol (60-24-2)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

EU-Regulations

National regulations
No additional information available

15.3. US State regulations

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 05/11/2017

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H-phrases</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H227</td>
<td>Combustible liquid</td>
</tr>
<tr>
<td>H301</td>
<td>Toxic if swallowed</td>
</tr>
<tr>
<td>H311</td>
<td>Toxic in contact with skin</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H331</td>
<td>Toxic if inhaled</td>
</tr>
<tr>
<td>H332</td>
<td>Harmful if inhaled</td>
</tr>
<tr>
<td>H373</td>
<td>May cause damage to organs through prolonged or repeated exposure</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life</td>
</tr>
<tr>
<td>H410</td>
<td>Very toxic to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.

NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.

SDS US (GHS HazCom 2012)

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.