Safety Data Sheet

Cat. # 786-513

Triton® X-100

Size: 500ml
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 11/10/2015 Revision date: 05/11/2017 Version: 7.1

SECTION 1: Identification

1.1. Identification

Product form: Substance
Substance name: polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether
Chemical name: Triton® X-100
CAS-No.: 9002-93-1
Product code: 204T
Formula: C34H62O12
Synonyms: 2-[4-(2,4,4-trimethylpentan-2-yl)phenoxy]ethanol / 4(1,1,3,3-tetramethylbutyl)phenylpolyethylene glycol / poly(oxy-1,2-ethanediyl), alpha-(4-(1,1,3,3-tetramethylbutyl)phenyl)-omega-hydroxy / polyethylene glycol tert-octylphenyl ether / tert-octylphenoxypolyethoxyethanol / TRITON X-100
BIG no.: 18801

1.2. Recommended use and restrictions on use

Use of the substance/mixture: Surfactant

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

<table>
<thead>
<tr>
<th>Hazard classification</th>
<th>H302</th>
<th>H319</th>
<th>H401</th>
<th>H411</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral)</td>
<td>Harmful if swallowed</td>
<td>Causes serious eye irritation</td>
<td>Toxic to aquatic life</td>
<td>Toxic to aquatic life with long lasting effects</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation Category 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous to the aquatic environment - Acute</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazard Category 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous to the aquatic environment - Chronic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazard Category 2</td>
<td></td>
<td></td>
<td></td>
<td></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): ![Exclamation Mark] ![Forest Fire]

Signal word (GHS-US): Warning

Hazard statements (GHS-US):

- H302 - Harmful if swallowed
- H319 - Causes serious eye irritation
- H401 - Toxic to aquatic life
- H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US):

- P264 - Wash hands, forearms and face thoroughly after handling.
- P270 - Do not eat, drink or smoke when using this product.
- P273 - Avoid release to the environment.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell
**polyethyleneglycol para- (1,1,3,3-tetramethylbutyl)phenyl ether**

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**2.3. Other hazards which do not result in classification**

No additional information available

**2.4. Unknown acute toxicity (GHS US)**

Not applicable

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

### 3.1. Substances

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Common Name (Synonyms)</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymer</td>
<td>polyethyleneglycol para- (1,1,3,3-tetramethylbutyl)phenyl ether (Main constituent)</td>
<td>(CAS-No.) 9002-93-1</td>
<td>100</td>
<td>Acute Tox. 4 (Oral), H302 Aquatic Acute 2, H401 Aquatic Chronic 2, H411</td>
</tr>
</tbody>
</table>

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**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**: Rinse with water. Soap may be used. Take victim to a doctor if irritation persists.

**First-aid measures after eye contact**: Rinse immediately with plenty of water 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. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

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

**Potential Adverse human health effects and symptoms**: Harmful if swallowed. Non-toxic in contact with skin (LD50 skin> 5000 mg/kg). Slightly irritant to skin. Causes serious eye irritation. Caution! Substance is absorbed through the skin.

**Symptoms/effects after skin contact**: Slight irritation.

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

**Symptoms/effects after ingestion**: AFTER INGESTION OF HIGH QUANTITIES: Nausea. Vomiting. Diarrhoea.

**Chronic symptoms**: No effects known.

### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

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**SECTION 5: Fire-fighting measures**

### 5.1. Suitable (and unsuitable) extinguishing media

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| 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: Not easily combustible. INDIRECT FIRE HAZARD: Temperature above flashpoint: higher fire/explosion hazard. |
Reactivity | Reacts with (strong) oxidizers and with (strong) reducers. |

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire | Exposure to fire/heat: keep upwind. Exposure to fire/heat: seal off low-lying areas. Exposure to fire/heat: have neighbourhood close doors and windows. |
Firefighting instructions | No specific fire-fighting instructions required. |
Protection during firefighting | Heat/fire exposure: compressed air/oxygen apparatus. |

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel
Protective equipment | Gloves. Safety glasses. Protective clothing. |
Emergency procedures | Mark the danger area. 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
For containment | Contain released product, pump into suitable containers. Plug the leak, cut off the supply. |
Methods for cleaning up | Take up liquid spill into inert absorbent material, e.g.: sand, earth, vermiculite. Scoop absorbed substance 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 | Keep away from naked flames/heat. 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. Comply with the legal requirements. Clean contaminated clothing. Keep container tightly closed. |
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 | 15 - 25 °C |
Heat-ignition | KEEP SUBSTANCE AWAY FROM: heat sources. |
Information on mixed storage | KEEP SUBSTANCE AWAY FROM: oxidizing agents. reducing agents. (strong) acids. (strong) bases. |
Storage area | Meet the legal requirements. |
Special rules on packaging | SPECIAL REQUIREMENTS: closing. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers. |
Packaging materials | SUITABLE MATERIAL: metal. glass. MATERIAL TO AVOID: copper. bronze. |

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No additional information available
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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

Materials for protective clothing:
GIVE EXCELLENT RESISTANCE: nitrile rubber

Hand protection:
Gloves

Eye protection:
Safety glasses

Skin and body protection:
Protective clothing

Respiratory protection:
Respiratory protection not required in normal conditions

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid
Appearance: Liquid.
Color: Light yellow
Odor: Mild odour
Odor threshold: No data available
pH: 9.7
Melting point: 6 °C
Freezing point: No data available
Boiling point: > 200 °C
Flash point: 251 °C (Closed cup)
Relative evaporation rate (butyl acetate=1): < 1
Flammability (solid, gas): Not applicable.
Vapor pressure: < 1.33 hPa (20 °C)
Relative vapor density at 20 °C: > 1
Relative density: 1.007
Specific gravity / density: 1007 kg/m³
Molecular mass: 646.37 g/mol
Water: complete
Log Pow: 4.86 (Estimated value)
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
Other properties: Gas/vapour heavier than air at 20°C. Clear. Slightly volatile. Basic reaction.
**polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether**

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**SECTION 10: Stability and reactivity**

**10.1. Reactivity**
Reacts with (strong) oxidizers and with (strong) reducers.

**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.

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**SECTION 11: Toxicological information**

**11.1. Information on toxicological effects**

<table>
<thead>
<tr>
<th>Acute toxicity (oral)</th>
<th>Oral: Harmful if swallowed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (dermal)</td>
<td>Not classified</td>
</tr>
<tr>
<td>Acute toxicity (inhalation)</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

**polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>1800 mg/kg (Rat, Literature study, Oral)</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>8000 mg/kg (Rabbit, Literature study, Dermal)</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>1800 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>8000 mg/kg body weight</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Not classified
pH: 9.7

Serious eye damage/irritation : Causes serious eye irritation.
pH: 9.7

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

Aspiration hazard : Not classified
Viscosity, kinematic : No data available

Potential Adverse human health effects and symptoms : Harmful if swallowed. Non-toxic in contact with skin (LD50 skin> 5000 mg/kg). Slightly irritant to skin. Causes serious eye irritation. Caution! Substance is absorbed through the skin.

Symptoms/effects after skin contact : Slight irritation.
Symptoms/effects after eye contact : Irritation of the eye tissue.
Chronic symptoms : No effects known.

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**SECTION 12: Ecological information**

**12.1. Toxicity**

Ecology - general : Toxic to aquatic life with long lasting effects. Toxic to aquatic life.


Ecology - water : Harmful to crustacea. Toxic to fishes. pH shift.
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| polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1) |
|-----------------|-----------------|
| LC50 fish 1     | 8.9 mg/l (96 h, Pimephales promelas, Literature study) |
| EC50 Daphnia 1  | 26 mg/l (48 h, Daphnia magna, Literature study) |

12.2. Persistence and degradability

| polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1) |
|-----------------|-----------------|
| Persistence and degradability | Not readily biodegradable in water. |
| Chemical oxygen demand (COD) | 2.19 mg/g |
| ThOD | 2.16 g O₂/g substance |

12.3. Bioaccumulative potential

| polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1) |
|-----------------|-----------------|
| Log Pow | 4.86 (Estimated value) |
| Bioaccumulative potential | Potential for bioaccumulation (4 ≥ Log Kow ≤ 5). |

12.4. Mobility in soil

| polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1) |
|-----------------|-----------------|
| Ecology - soil | No (test)data on mobility of the substance available. |

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations : 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. In authorized incinerator equipped with flue gas scrubber with energy recovery. Dissolve or mix with a combustible solvent. May be discharged to wastewater treatment installation.


SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT
Dangerous for the environment : Yes
Marine pollutant : Yes

Other information : No supplementary information available.

Transportation of Dangerous Goods

Transport by sea
Transport document description (IMDG) : UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III, MARINE POLLUTANT
UN-No. (IMDG) : 3082
Proper Shipping Name (IMDG) : Environmentally hazardous substance, liquid, n.o.s.
Class (IMDG) : 9 - Miscellaneous dangerous substances and articles
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Packing group (IMDG) : III - substances presenting low danger
EmS-No. (1) : F-A
EmS-No. (2) : S-F
Marine pollutant : Yes

Air transport
Transport document description (IATA) : UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III
UN-No. (IATA) : 3082
Proper Shipping Name (IATA) : Environmentally hazardous substance, liquid, n.o.s.
Class (IATA) : 9 - Miscellaneous Dangerous Goods
Packing group (IATA) : III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag : XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).

15.2. International regulations
CANADA
No additional information available
EU-Regulations
No additional information available
National regulations
No additional information available

15.3. US State regulations
No additional information available

SECTION 16: Other information

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Revision date : 05/11/2017

Full text of H-phrases:

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</tr>
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</tr>
</tbody>
</table>

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.
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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.