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

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## 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>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether</td>
</tr>
<tr>
<td>Chemical name</td>
<td>Triton® X-100</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>9002-93-1</td>
</tr>
<tr>
<td>Product code</td>
<td>204T</td>
</tr>
<tr>
<td>Formula</td>
<td>C34H62O12</td>
</tr>
<tr>
<td>Synonyms</td>
<td>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-octylyphenoxypolyethoxyethanol / TRITON X-100</td>
</tr>
<tr>
<td>BIG no</td>
<td>18801</td>
</tr>
</tbody>
</table>

### 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, 63132-1429 - United States  
T 800-628-7730 - F 314-991-1504

### 1.4. Emergency telephone number

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

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## SECTION 2: Hazard(s) identification

### 2.1. Classification of the substance or mixture

<table>
<thead>
<tr>
<th>GHS-US classification</th>
<th>Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral) Category 4</td>
<td>H302 - Harmful if swallowed</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation Category 2</td>
<td>H319 - Causes serious eye irritation</td>
</tr>
<tr>
<td>Hazardous to the aquatic environment - Acute Hazard Category 2</td>
<td>H401 - Toxic to aquatic life</td>
</tr>
<tr>
<td>Hazardous to the aquatic environment - Chronic Hazard Category 2</td>
<td>H411 - 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**

<table>
<thead>
<tr>
<th>Hazard pictograms (GHS US)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="warning.png" alt="Signal word" /> <img src="eye.png" alt="Hazard statements" /></td>
</tr>
</tbody>
</table>

**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.  
P380 - Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P330 - Rinse mouth.  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P391 - Collect spillage.  
P501 - Dispose of contents/container to hazardous or special waste collection point, in
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

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type: Polymer

<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>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (Main constituent)</td>
<td>2-[4-(2,4,4-trimethylpentan-2-yl)phenoxy]ethanol / 4(1,1,3,3-tetramethylbutyl)phenyl polyethylene glycol / poly(oxy-1,2-ethanediyl), alpha-(4-(1,1,3,3-tetramethylbutyl)phenyl-omega-hydroxy- / polyethylene glycol tert-octylphenyl ether / tert-octylphenoxy polyethoxyethanol / TRITON X-100</td>
<td>(CAS-No.) 9002-93-1</td>
<td>100</td>
<td>Acute Tox. 4 (Oral), H302</td>
</tr>
</tbody>
</table>

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

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures


First-aid measures 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.


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.


Chronic symptoms: No effects known.

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: Not easily combustible. INDIRECT FIRE HAZARD: Temperature above flashpoint: higher fire/explosion hazard.
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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

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

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:**

Protective gloves against chemicals (EN374)

**Eye protection:**

Safety glasses

**Skin and body protection:**

Protective clothing

**Respiratory protection:**

Respiratory protection not required in normal conditions

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**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
- **Solubility**: Soluble in water. Soluble in ethanol. Soluble in acetone. Soluble in aromatic hydrocarbons. 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.

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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.
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether

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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) : Harmful if swallowed.
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

| polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1) |
|---------------------------|---------------------------------|
| LD50 oral rat             | 1800 mg/kg (Rat, Literature study, Oral) |
| LD50 dermal rabbit        | 8000 mg/kg (Rabbit, Literature study, Dermal) |
| ATE US (oral)             | 1800 mg/kg body weight          |
| ATE US (dermal)           | 8000 mg/kg body weight          |

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.

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.

| 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. |
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether
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</tr>
</thead>
<tbody>
<tr>
<td>Chemical oxygen demand (COD)</td>
</tr>
<tr>
<td>ThOD</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
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</table>

12.4. Mobility in soil

<table>
<thead>
<tr>
<th>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology - soil</td>
</tr>
</tbody>
</table>

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
Packing group (IMDG) : III - substances presenting low danger
EmS-No. (1) : F-A
EmS-No. (2) : S-F
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether

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| 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

<table>
<thead>
<tr>
<th>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not listed on the United States TSCA (Toxic Substances Control Act) inventory</td>
</tr>
</tbody>
</table>

- 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

SECTION 16: Other information

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Revision date: 05/11/2017

Full text of H-phrases:

<table>
<thead>
<tr>
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<td>H411</td>
<td>Toxic to aquatic life with long lasting effects</td>
</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.

SDS US (GHS HazCom 2012)
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether
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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.