Safety Data Sheet

Cat. # 786-513

Triton® X-100

Size: 500ml
### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product form</td>
<td>Substance</td>
</tr>
<tr>
<td>Substance name</td>
<td>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>9002-93-1</td>
</tr>
<tr>
<td>Product code</td>
<td>204T</td>
</tr>
<tr>
<td>Type of product</td>
<td>Polymer</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)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 polyethoxylated / TRITON X-100</td>
</tr>
<tr>
<td>Product group</td>
<td>Raw material</td>
</tr>
<tr>
<td>BIG no</td>
<td>18801</td>
</tr>
<tr>
<td>REACH authorisation exemptions</td>
<td>Exempted from REACH registration</td>
</tr>
</tbody>
</table>

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

**1.2.1. Relevant identified uses**

Use of the substance/mixture: Surfactant

**1.2.2. Uses advised against**

No additional information available

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

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

**1.4. Emergency telephone number**

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

<table>
<thead>
<tr>
<th>Country</th>
<th>Organisation/Company</th>
<th>Address</th>
<th>Emergency number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service</td>
<td>Grosvenor Road BT12 6BA Belfast</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Belfast Centre) Royal Victoria Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service</td>
<td>Dudley Road B18 7GH Birmingham</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Birmingham Centre) City Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service</td>
<td>Penarth CF64 2XX Cardiff</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Cardiff Centre) Gwennwy Ward, Llandough Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service</td>
<td>Little France Crescent EH16 4SA Edinburgh</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Edinburgh Royal Infirmary of Edinburgh</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Guy's &amp; St Thomas' Poisons Unit</td>
<td>Avonley Road SE14 5ER London</td>
<td>0870 243 2241</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medical Toxicology Unit, Guy's &amp; St</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thomas' Hospital Trust</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service</td>
<td>Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Newcastle Centre) Regional Drugs and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Therapeutics Centre, Wolfson Unit</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SECTION 2: Hazards identification

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

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

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral), Category 4</td>
<td>H302</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation, Category 2</td>
<td>H319</td>
</tr>
<tr>
<td>Hazardous to the aquatic environment —</td>
<td>H411</td>
</tr>
</tbody>
</table>
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether
Safety Data Sheet


Chronic Hazard, Category 2
Full text of H statements: see section 16

Adverse physicochemical, human health and environmental effects
Harmful if swallowed. Causes serious eye irritation. Toxic to aquatic life with long lasting effects.

2.2. Label elements

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

Hazard pictograms (CLP)

<table>
<thead>
<tr>
<th>GHS07</th>
<th>GHS09</th>
</tr>
</thead>
</table>

CLP Signal word: Warning
Hazard statements (CLP): H302 - Harmful if swallowed.
H319 - Causes serious eye irritation.
H411 - Toxic to aquatic life with long lasting effects.
Precautionary statements (CLP): 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 CENTRE 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 accordance with local, regional, national and/or international regulation.

2.3. Other hazards
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type: Polymer

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenol ether substance listed as REACH Candidate (4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]) substance listed in REACH Annex XIV (4-(1,1,3,3-Tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues])</td>
<td>(CAS-No.) 9002-93-1</td>
<td>100</td>
<td>Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Chronic 2, H411</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

3.2. Mixtures
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures


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

Safety Data Sheet

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

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:

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

Symptoms/effects after skin contact:
- Slight irritation.

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

Symptoms/effects after ingestion:

Chronic symptoms:
- No effects known.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

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

5.2. Special hazards arising from the substance or mixture

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

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

5.3. Advice for firefighters

Precautionary measures fire:
- Exposure to fire/heat: keep upwind. Exposure to fire/heat: 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.
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether  
Safety Data Sheet  
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830  

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 and ignition sources**: 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.  

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

SECTION 8: Exposure controls/personal protection  

8.1. Control parameters  
No additional information available  

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

SECTION 9: Physical and chemical properties  

9.1. Information on basic physical and chemical properties  
- **Physical state**: Liquid  
- **Appearance**: Liquid  
- **Molecular mass**: 646.37 g/mol  
- **Colour**: Light yellow  
- **Odour**: Mild odour  
- **Odour threshold**: No data available  
- **pH**: 9.7  
- **Relative evaporation rate (butylacetate=1)**: < 1  
- **Melting point**: 6 °C  
- **Freezing point**: No data available  
- **Boiling point**: > 200 °C  
- **Flash point**: 251 °C (Closed cup)  
- **Auto-ignition temperature**: No data available  
- **Decomposition temperature**: No data available  
- **Flammability (solid, gas)**: Not applicable  
- **Vapour pressure**: < 1.33 hPa (20 °C)  
- **Relative vapour density at 20 °C**: > 1  
- **Relative density**: 1.007
### 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.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

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

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>1800 mg/kg (Rat, Literature study)</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>8000 mg/kg (Rabbit, Literature study)</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 sensitisation | Not classified                             |
| Germ cell mutagenicity            | Not classified                             |
| Carcinogenicity                    | Not classified                             |
| Reproductive toxicity             | Not classified                             |
| STOT-single exposure               | Not classified                             |
| STOT-repeated exposure             | Not classified                             |
| Aspiration hazard                 | Not classified                             |
| Potential adverse human health effects and symptoms | Harmful if swallowed. Non-toxic in contact with skin (LD50 skin> 5000 mg/kg). Slightly irritating to skin. Causes serious eye irritation. Caution! Substance is absorbed through the skin. |

### SECTION 12: Ecological information

#### 12.1. Toxicity

| Ecology - general                  | Toxic to aquatic life. Toxic to aquatic life with long lasting effects. |
| Ecology - water                    | Harmful to crustacea. Toxic to fishes. pH shift. |
12. Acute aquatic toxicity
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)

<table>
<thead>
<tr>
<th></th>
<th>LC50 fish</th>
<th>EC50 Daphnia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.9 mg/l</td>
<td>26 mg/l</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)

<table>
<thead>
<tr>
<th>Persistence and degradability</th>
<th>Chemical oxygen demand (COD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not readily biodegradable in water.</td>
<td>2.19 mg/g</td>
</tr>
</tbody>
</table>

| ThOD | 2.16 g O₂/g substance |

12.3. Bioaccumulative potential
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)

<table>
<thead>
<tr>
<th>Log Pow</th>
<th>Bioaccumulative potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.86 (Estimated value)</td>
<td>Potential for bioaccumulation (4 ≥ Log Kow ≤ 5).</td>
</tr>
</tbody>
</table>

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. Results of PBT and vPvB assessment
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Regional legislation (waste) : LWCA (the Netherlands): KGA category 03.
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.

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

SECTION 14: Transport information

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

14.1. UN number
UN-No. (ADR) : 3082
UN-No. (IMDG) : 3082
UN-No. (IATA) : 3082
UN-No. (ADN) : 3082
UN-No. (RID) : 3082

14.2. UN proper shipping name
Proper Shipping Name (ADR) : Environmentally hazardous substance, liquid, n.o.s.
Proper Shipping Name (IMDG) : Environmentally hazardous substance, liquid, n.o.s.
Proper Shipping Name (IATA) : Environmentally hazardous substance, liquid, n.o.s.
Proper Shipping Name (ADN) : Environmentally hazardous substance, liquid, n.o.s.
Proper Shipping Name (RID) : Environmentally hazardous substance, liquid, n.o.s.
Transport document description (ADR) : UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III, (-)
Transport document description (IMDG) : UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III, MARINE POLLUTANT
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether

Safety Data Sheet

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

| Transport document description (IATA) | : UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III |
| Transport document description (ADN) | : UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III |
| Transport document description (RID) | : UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III |

14.3. Transport hazard class(es)

**ADR**
Transport hazard class(es) (ADR) : 9
Danger labels (ADR) : 9

**IMDG**
Transport hazard class(es) (IMDG) : 9
Danger labels (IMDG) : 9

**IATA**
Transport hazard class(es) (IATA) : 9
Danger labels (IATA) : 9

**ADN**
Transport hazard class(es) (ADN) : 9
Danger labels (ADN) : 9

**RID**
Transport hazard class(es) (RID) : 9
Danger labels (RID) : 9

14.4. Packing group

Packing group (ADR) : III
Packing group (IMDG) : III
Packing group (IATA) : III
Packing group (ADN) : III
Packing group (RID) : III
14.5. Environmental hazards

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

14.6. Special precautions for user

- Overland transport
  Transport regulations (ADR): Subject
  Classification code (ADR): M6
  Hazard identification number (Kemler No.): 90
  Orange plates: 90 3082
  Tunnel restriction code (ADR): -
  EAC code: •3Z

- Transport by sea
  Transport regulations (IMDG): Subject
  EmS-No. (Fire): F-A
  EmS-No. (Spillage): S-F

- Air transport
  Transport regulations (IATA): Subject to the provisions

- Inland waterway transport
  Classification code (ADN): M6
  Carriage permitted (ADN): T

- Rail transport
  Transport regulations (RID): Subject
  Classification code (RID): M6

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

<table>
<thead>
<tr>
<th>Authorisation number</th>
<th>Sunset date</th>
<th>REACH authorisation exemptions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>04/01/2021</td>
<td></td>
</tr>
</tbody>
</table>

15.1.2. National regulations

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Full text of H- and EUH-statements:
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

<table>
<thead>
<tr>
<th>Safety Data Sheet applicable for regions</th>
<th>GB - United Kingdom</th>
</tr>
</thead>
</table>

SDS EU (REACH Annex II)

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