Safety Data Sheet

Cat. # DG517

Triton® X-100

Size: 100ml
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form: Substance
Substance name: Triton X-100 (10% purified solution)
Product code: 203T
Type of product: Polymer
Formula: C34H62O12
Synonyms: 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
Product group: Trade product
BIG no: 18801
REACH authorisation exemptions: Exempted from REACH registration

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 (Belfast Centre)</td>
<td>Grosvenor Road BT12 8BA Belfast</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Birmingham Centre)</td>
<td>Dudley Road B18 7QH Birmingham</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Cardiff Centre)</td>
<td>Penarth CF64 2XX Cardiff</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service Edinburgh</td>
<td>Little France Crescent EH16 4SA Edinburgh</td>
<td>0344 892 0111</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>United Kingdom</td>
<td>National Poisons Information Service (Newcastle Centre)</td>
<td>Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle</td>
<td>0344 892 0111</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]

Acute toxicity (oral), Category 4: H302
Serious eye damage/eye irritation, Category 1: H318
Hazardous to the aquatic environment — Chronic Hazard, Category 2: H411
Full text of H statements: see section 16
Triton X-100 (10% purified solution)
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according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

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

2.2. Label elements

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

Hazard pictograms (CLP):

- GHS05
- GHS07
- GHS09

CLP Signal word: Danger

Hazard statements (CLP):
- H302 - Harmful if swallowed.
- H318 - Causes serious eye damage.
- 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.
- P301+P351+P338 - 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.
- P310 - Immediately call a POISON CENTER or doctor.
- P330 - Rinse mouth.
- 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
Name: Triton X-100 (10% purified solution)

<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>Water, Nuclease free</td>
<td>(CAS-No.) 7732-18-5 (EC-No.) 231-791-2</td>
<td>&gt;= 80</td>
<td>Not classified</td>
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<tr>
<td>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl 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>10 - 50</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.
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, both acute and delayed

Symptoms/effects after skin contact: Slight irritation.

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


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


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.


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.

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

<table>
<thead>
<tr>
<th>Storage conditions</th>
<th>Store in a well-ventilated place. Keep cool.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage temperature</td>
<td>15 - 25 °C</td>
</tr>
<tr>
<td>Heat and ignition sources</td>
<td>KEEP SUBSTANCE AWAY FROM: heat sources.</td>
</tr>
<tr>
<td>Information on mixed storage</td>
<td>KEEP SUBSTANCE AWAY FROM: oxidizing agents. reducing agents. (strong) acids. (strong) bases.</td>
</tr>
<tr>
<td>Storage area</td>
<td>Meet the legal requirements.</td>
</tr>
<tr>
<td>Special rules on packaging</td>
<td>SPECIAL REQUIREMENTS: closing. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.</td>
</tr>
<tr>
<td>Packaging materials</td>
<td>SUITABLE MATERIAL: metal. glass. MATERIAL TO AVOID: copper. bronze.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>646.37 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>Light yellow.</td>
</tr>
<tr>
<td>Odour</td>
<td>Mild odour.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>9.7</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Melting point</td>
<td>6 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>&gt; 200 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>251 °C (Closed cup)</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>&lt; 1.33 hPa (20 °C)</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>&gt; 1</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.007</td>
</tr>
</tbody>
</table>
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Density : 1007 kg/m³
Log Pow : 4.86 (Estimated value)
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

9.2. Other information
Other properties : Gas/vapour heavier than air at 20°C. Clear. Slightly volatile. Substance has basic reaction.

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

<table>
<thead>
<tr>
<th>Triton X-100 (10% purified solution)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
</tr>
<tr>
<td>polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)</td>
</tr>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Not classified
pH: 9.7

Serious eye damage/irritation : Causes serious eye damage.
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 irritant to skin. Causes serious eye irritation. Caution! Substance is absorbed through the skin.
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according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 12: Ecological information

12.1. Toxicity

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


Ecology - water: Harmful to crustacea. Toxic to fishes. pH shift.

急性水生毒性:

- Triton X-100 (10% purified solution)
  - 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)

- 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)

慢性水生毒性:

- Triton X-100 (10% purified solution)
  - 不列为易于生物降解。

12.2. Persistence and degradability

- Triton X-100 (10% purified solution)
  - 持久性和生物降解性: 不容易被生物降解。
  - 化学需氧量 (COD): 2.19 mg/g
  - ThOD: 2.16 g O_2/g substance

- polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)
  - 持久性和生物降解性: 不容易被生物降解。
  - 化学需氧量 (COD): 2.19 mg/g
  - ThOD: 2.16 g O_2/g substance

12.3. Bioaccumulative potential

- Triton X-100 (10% purified solution)
  - 生物累积性: 潜在的生物累积（4 ≥ Log Kow ≤ 5）。
  - Log Pow: 4.86 (Estimated value)
  - 生物累积性潜力: 潜在的生物累积（4 ≥ Log Kow ≤ 5）。

- polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)
  - 生物累积性: 潜在的生物累积（4 ≥ Log Kow ≤ 5）。
  - Log Pow: 4.86 (Estimated value)
  - 生物累积性潜力: 潜在的生物累积（4 ≥ Log Kow ≤ 5）。

12.4. Mobility in soil

- Triton X-100 (10% purified solution)
  - 生物累积性: 潜在的生物累积（4 ≥ Log Kow ≤ 5）。

- polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)
  - 生物累积性: 潜在的生物累积（4 ≥ Log Kow ≤ 5）。

12.5. Results of PBT and vPvB assessment

- Triton X-100 (10% purified solution)
  - 该物质/混合物未达到REACH法规附件XIII的PBT标准。
  - 该物质/混合物未达到REACH法规附件XIII的vPvB标准。

- polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)
  - 该物质/混合物未达到REACH法规附件XIII的PBT标准。
  - 该物质/混合物未达到REACH法规附件XIII的vPvB标准。

12.6. Other adverse effects

无额外信息。

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 |
| 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 |
| Hazard labels (IATA) | 9 |
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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
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- 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
No REACH Annex XVII restrictions
Triton X-100 (10% purified solution) is not on the REACH Candidate List
Contains a substance on the REACH candidate list in concentration \( \geq 0.1\% \) or with a lower specific limit: 4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated (covering well-defined substances and UVCB substances, polymers and homologues) (CAS 9002-93-1)
Triton X-100 (10% purified solution) is not on the REACH Annex XIV List
Contains REACH Annex XIV substances:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Authorisation number</th>
<th>Sunset date</th>
<th>REACH authorisation exemptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-(1,1,3,3-Tetramethylbutyl)phenol, ethoxylated (covering well-defined substances and UVCB substances, polymers and homologues) (CAS 9002-93-1)</td>
<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:

- Acute Tox. 4 (Oral)  : Acute toxicity (oral), Category 4
- Aquatic Chronic 2 : Hazardous to the aquatic environment — Chronic Hazard, Category 2
- Eye Dam. 1 : Serious eye damage/eye irritation, Category 1
- Eye Irrit. 2 : Serious eye damage/eye irritation, Category 2
- H302 : Harmful if swallowed.
- H318 : Causes serious eye damage.
- H319 : Causes serious eye irritation.
- H411 : Toxic to aquatic life with long lasting effects.

Safety Data Sheet applicable for regions : GB - United Kingdom

SDS EU (REACH Annex II)

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