SAFETY DATA SHEET

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

1.1 Product identifiers
   Product name : Triton™ X-100
   Product Number : X100
   Brand : Sigma-Aldrich
   CAS-No. : 9036-19-5

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet
   Company : Sigma-Aldrich Inc.
              3050 SPRUCE ST
              ST. LOUIS MO 63103
              UNITED STATES
   Telephone : +1 314 771-5765
   Fax : +1 800 325-5052

1.4 Emergency telephone
   Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
   Acute toxicity, Oral (Category 4), H302
   Skin irritation (Category 2), H315
   Serious eye damage (Category 1), H318
   Short-term (acute) aquatic hazard (Category 1), H400
   Long-term (chronic) aquatic hazard (Category 1), H410
   For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements
   Pictogram

Sigma-Aldrich - X100
Signal Word: Danger

Hazard statement(s):
- H302: Harmful if swallowed.
- H315: Causes skin irritation.
- H318: Causes serious eye damage.
- H410: Very toxic to aquatic life with long lasting effects.

Precautionary statement(s):
- P264: Wash skin thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P273: Avoid release to the environment.
- P280: Wear protective gloves/eye protection/face protection.
- P301 + P312 + P330: IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
- P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
- P305 + P351 + P338 + P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
- P332 + P313: If skin irritation occurs: Get medical advice/attention.
- P362: Take off contaminated clothing and wash before reuse.
- P391: Collect spillage.
- P501: Dispose of contents/container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Synonyms</th>
<th>t-Octylphenoxy(polyethoxy)ethanol</th>
<th>4-(1,1,3,3-Tetramethylbutyl)phenyl-polyethylene glycol</th>
<th>Polyethylene glycol tert-octylphenyl ether</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Formula</th>
<th>(C2H4O)nC14H22O</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.</td>
<td>9036-19-5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Octylphenol polyethoxyethanol</td>
<td>Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; Aquatic Acute 1; Aquatic Chronic 1; M-Factor - Aquatic Acute: 10 - Aquatic Chronic: 1</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Polyethylene glycol, average MW 8,000</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt;= 1 - &lt; 5 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.
SECTION 4: First aid measures

4.1 Description of first-aid measures

**General advice**
Show this material safety data sheet to the doctor in attendance.

**If inhaled**
After inhalation: fresh air.

**In case of skin contact**
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

**In case of eye contact**
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

**If swallowed**
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Prevent fire extinguishing water from contaminating surface water or the ground water system.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Tightly closed.
Packaged under inert gas.

Storage class
Storage class (TRGS 510): 10: Combustible liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene glycol, average MW 8,000</td>
<td>25322-68-3</td>
<td>TWA</td>
<td>10 mg/m3</td>
<td>USA. Workplace Environmental Exposure Levels (WEEL)</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
Personal protective equipment

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

**Skin protection**
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Butoject® (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Butoject® (KCL 898)

**Body Protection**
protective clothing

**Respiratory protection**
Recommended Filter type: Filter A-(P2)
The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Control of environmental exposure**
Do not let product enter drains.

---

**SECTION 9: Physical and chemical properties**

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

a) Appearance
   Form: viscous liquid
   Color: colorless

b) Odor
   weak

c) Odor Threshold
   No data available
d) pH 5.0 - 8.0 at 10 g/l at 20 °C (68 °F)
e) Melting point/freezing point Solidification point: 6 °C (43 °F)
f) Initial boiling point and boiling range > 200 °C > 392 °F at 1,013 hPa
g) Flash point 251 °C (484 °F) - c.c.
h) Evaporation rate No data available
i) Flammability (solid, gas) No data available
j) Upper/lower flammability or explosive limits No data available
k) Vapor pressure < 0.01 hPa at 20 °C (68 °F)
l) Vapor density No data available
m) Density 1.07 g/cm³ at 20 °C (68 °F)
Relative density No data available
n) Water solubility soluble
o) Partition coefficient: n-octanol/water No data available
p) Autoignition temperature No data available
q) Decomposition temperature No data available
r) Viscosity No data available
s) Explosive properties No data available
t) Oxidizing properties none

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents
Strong acids
10.4 **Conditions to avoid**
Strong heating.

10.5 **Incompatible materials**
Strong oxidizing agents

10.6 **Hazardous decomposition products**
In the event of fire: see section 5

---

### SECTION 11: Toxicological information

11.1 **Information on toxicological effects**

**Acute toxicity**
LD50 Oral - Rat - 1,900 - 5,000 mg/kg
Remarks: (External MSDS)
Symptoms: Vomiting, Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract., Risk of aspiration upon vomiting., Aspiration may cause pulmonary edema and pneumonitis.
Inhalation: No data available
LD50 Dermal - Rabbit - > 3,000 mg/kg
LD50 Dermal - Rabbit - > 3,000 mg/kg
Remarks: (External MSDS)

**Skin corrosion/irritation**
Skin - Rabbit
Result: irritating - 4 h
(OECD Test Guideline 404)
Remarks: The value is given in analogy to the following substances: 4-(1,1,3,3-tetramethylbutyl)phenol

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: Risk of serious damage to eyes.
(Draize Test)
Remarks: Risk of corneal clouding.

**Respiratory or skin sensitization**
Sensitisation test: - Human
Result: negative
Remarks: (External MSDS)
Patch test on human volunteers did not demonstrate sensitization properties.

**Germ cell mutagenicity**
No data available

**Carcinogenicity**
No data available

- **IARC:** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- **NTP:** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- **OSHA:** No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.
**Reproductive toxicity**
Ingestion of excessive amounts by pregnant animals resulted in maternal and fetal toxicity. Did not show teratogenic effects in animal experiments.

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

**11.2 Additional Information**
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Ingestion of large amounts may cause: Nausea, Diarrhea
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

---

**SECTION 12: Ecological information**

**12.1 Toxicity**

<table>
<thead>
<tr>
<th>Toxicity to fish</th>
<th>LC50 - Pimephales promelas (fathead minnow) - 4 - 8.9 mg/l - 96 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>semi-static test LC50 - Leuciscus idus (Golden orfe) - 0.26 mg/l - 96 h</td>
</tr>
<tr>
<td></td>
<td>(OECD Test Guideline 203)</td>
</tr>
<tr>
<td></td>
<td>Remarks: The value is given in analogy to the following substances: 4-(1,1,3,3-tetramethylbutyl)phenol</td>
</tr>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>LC50 - Daphnia magna (Water flea) - 18 - 26 mg/l - 48 h</td>
</tr>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>static test EC50 - Daphnia magna (Water flea) - 0.011 mg/l - 48 h</td>
</tr>
<tr>
<td></td>
<td>Remarks: (ECOTOX Database)</td>
</tr>
<tr>
<td></td>
<td>The value is given in analogy to the following substances: 4-(1,1,3,3-tetramethylbutyl)phenol</td>
</tr>
<tr>
<td>Toxicity to algae</td>
<td>static test EC50 - Pseudokirchneriella subcapitata (green algae) - 1.9 mg/l - 96 h</td>
</tr>
<tr>
<td></td>
<td>Remarks: (ECHA)</td>
</tr>
<tr>
<td></td>
<td>The value is given in analogy to the following substances: 4-(1,1,3,3-tetramethylbutyl)phenol</td>
</tr>
<tr>
<td>Toxicity to fish(Chronic toxicity)</td>
<td>flow-through test - Danio rerio (zebra fish) - 0.012 mg/l</td>
</tr>
<tr>
<td></td>
<td>(OECD Test Guideline 210)</td>
</tr>
<tr>
<td></td>
<td>Remarks: The value is given in analogy to the following substances: 4-(1,1,3,3-tetramethylbutyl)phenol</td>
</tr>
</tbody>
</table>
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

**semi-static test NOEC - Daphnia magna (Water flea) -**

- **0.03 mg/l - 21 d**

(OECD Test Guideline 202)

Remarks: The value is given in analogy to the following substances:

- 4-(1,1,3,3-tetramethylbutyl)phenol

12.2 **Persistence and degradability**

Biodegradability

- aerobic - Exposure time 28 d
- Result: 22 % - Not readily biodegradable.

(OECD Test Guideline 301C)

12.3 **Bioaccumulative potential**

No data available

12.4 **Mobility in soil**

No data available

12.5 **Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 **Endocrine disrupting properties**

No data available

12.7 **Other adverse effects**

Causes endocrine disruption.

Discharge into the environment must be avoided.

**SECTION 13: Disposal considerations**

13.1 **Waste treatment methods**

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

**SECTION 14: Transport information**

**DOT (US)**

Not dangerous goods

**IMDG**

- UN number: 3082
- Class: 9
- Packing group: III
- EMS-No: F-A, S-F
- Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (p-tertiary-Octylphenoxy polyethyl alcohol)
- Marine pollutant: yes
- Marine pollutant: no
IATA
UN number: 3082    Class: 9    Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (p-tertiary-Octylphenoxy polyethyl alcohol)
Further information
Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.
The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sal.com.
Version: 6.12    Revision Date: 09/28/2023    Print Date: 12/02/2023