

MATERIAL SAFETY DATA SHEET

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Version 1.10

Section 1 - Product and Company Information

Product Name TRITON(R) X-100, FOR MOLECULAR BIOLOGY
Product Number 93426
Brand FLUKA
Company Sigma-Aldrich
Street Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS MO 63103 US
Technical Phone: 800-325-5832
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Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
P-TERTIARY-OCTYLPHENOXY POLYETHYL ALCOHOL	9002-93-1	No

Formula (C₂H₄O)_nC₁₄H₂₂O
Synonyms AntaroX A-200 * Ethoxylated p-tert-octylphenol *
Hydrol SW * Octylphenoxypolyethoxyethanol *
Polyethylene glycol
mono(p-(1,1,3,3-tetramethylbutyl)phenyl) ether *
Polyethylene glycol
p-1,1,3,3-tetramethylbutylphenyl ether *
Polyethyleneglycol 4-(tert-octyl)phenyl ether *
Poly(oxy-1,2-ethanediyl),
alpha-(4-(1,1,3,3-tetramethylbutyl)phenyl)-omega-hydroxy- (9CI) * Preceptin * Texofor FP 300 *
Triton X * Triton X 100 * Triton X 101 * Triton X 165 * Triton X 305 * Triton X 405 * Triton X 705 * TX 100 * Triton * IGEPAL *
Polyoxyethylene(*)octylphenyl ether, branched
RTECS Number: MD0907700

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Harmful.

Harmful if swallowed. Risk of serious damage to eyes.

HMIS RATING

HEALTH: 2

FLAMMABILITY: 1

REACTIVITY: 0

NFPA RATING

HEALTH: 2

FLAMMABILITY: 1

REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

DERMAL EXPOSURE

In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT

485 °F 251 °C Method: closed cup

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam. Foam and water spray are effective but may cause frothing.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

ENVIRONMENTAL PRECAUTION(S)

Avoid contaminating water supply. Do not allow material to enter drains or water courses.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed.
Store at 2-8°C

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
	ACGIH	TLV	1 ppm

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Clear liquid Color: Faintly yellow		
Property	Value	At Temperature or Pressure	
pH	9.7		
BP/BP Range	> 200 °C		
MP/MP Range	N/A		
Freezing Point	6 °C		
Vapor Pressure	< 1 mmHg	20 °C	
Vapor Density	> 1 g/l		
Saturated Vapor Conc.	N/A		
SG/Density	1.07 g/cm ³		
Bulk Density	N/A		
Odor Threshold	N/A		
Volatile%	65 %		
VOC Content	N/A		
Water Content	N/A		
Solvent Content	N/A		
Evaporation Rate	< 0.01		
Viscosity	N/A		
Surface Tension	N/A		
Partition Coefficient	N/A		
Decomposition Temp.	N/A		
Flash Point	485 °F 251 °C	Method: closed cup	
Explosion Limits	N/A		
Flammability	N/A		
Autoignition Temp	N/A		
Refractive Index	1.49 1.49		

Optical Rotation N/A
Miscellaneous Data N/A
Solubility Solubility in Water:Soluble.

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong acids, Strong bases, Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes severe eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: Harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Oral
rat, female
707 mg/kg

LD50
Oral
rat, male
500 mg/kg

LD50
Skin
Rabbit
12,300 mg/kg

LD50
Skin
Rabbit
8,000 mg/kg
LD50

Oral
Rat
1800 mg/kg
LD50

Intravenous
Mouse
1200 MG/KG
LD50

IRRITATION DATA

Eyes
Rabbit
0.01 ml
Remarks: Severe irritation effect
Eyes
Rabbit
0.01 ml

Skin
Rabbit
0.5 ml
24H
Remarks: Mild irritation effect

Eyes
Rabbit
0.01 ml
24H
Remarks: Moderate irritation effect

CHRONIC EXPOSURE - MUTAGEN

Species: Human
Dose: 21 MG/L
Cell Type: HeLa cell
Mutation test: DNA inhibition

Species: Human
Dose: 14 MG/L
Cell Type: HeLa cell
Mutation test: Other mutation test systems

Species: Mouse
Dose: 200 PPM
Cell Type: Ascites tumor
Mutation test: Unscheduled DNA synthesis

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 65500 MG/KG
Route of Application: Oral
Exposure Time: (26W PRE)
Result: Maternal Effects: Ovaries, fallopian tubes.

Species: Rat
Dose: 40 ML/KG
Route of Application: Skin
Exposure Time: (6-15D PREG)
Result: Specific Developmental Abnormalities: Musculoskeletal system. Maternal Effects: Other effects.

Species: Rat
Dose: 5 MG/KG
Route of Application: Parenteral
Exposure Time: (1D PRE)
Result: Maternal Effects: Ovaries, fallopian tubes.

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: IC50 Algae
Species: other microorganisms
Value: 5,000 mg/l

Test Type: EC50 Daphnia
Species: Daphnia
Time: 48 h
Value: 26 mg/l

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: 8.9 mg/l

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: 4.3 - 6.0 mg/l

ELIMINATION

Elimination: 90 %

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Environmentally hazardous substances, liquid, n.o.s.
UN#: 3082
Class: 9
Packing Group: Packing Group III
Hazard Label: Class 9
PIH: Not PIH

IATA

Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s.
IATA UN Number: 3082
Hazard Class: 9
Packing Group: III

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: Xn
Indication of Danger: Harmful.
R: 22-41
Risk Statements: Harmful if swallowed. Risk of serious damage to eyes.
S: 26-36/39
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing and eye/face protection.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Harmful.

Risk Statements: Harmful if swallowed. Risk of serious damage to eyes.

Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing and eye/face protection.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

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 Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2006 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.