Safety Data Sheet

Cat. # DG521

Proteomic Grade Detergent Variety Pack, 10% Aqueous Solutions

Size: 7 x 10ml

1-(3-sulfonatopropyl)pyridinium

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 12/09/2015 Revision date: 05/11/2017 Version: 7.1

SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Substance name	:	1-(3-sulfonatopropyl)pyridinium
Chemical name	:	NDSB-201 (3-(1-Pyridino)-1-Propane Sulfonate)
CAS-No.	:	15471-17-7
Product code	:	024N
Formula	:	C8H11NO3S
Synonyms	:	1-(3-sulfopropyl)pyridinium betain / 1-(3-sulfopropyl)pyridinium hydroxide, inner salt / 3-(1-pyridinio)-1-propanesulfonate / PPS (=1-(3-sulfonatopropyl)pyridinium / pyridinium, 1-(3-sulfopropyl)-, hydroxide, inner salt
BIG No	:	31169

1.2. Recommended use and restrictions on use

No additional information available

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
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)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Skin corrosion/irritation Category 2	H315 Causes skin irritation
Serious eye damage/eye irritation Category 2	H319 Causes serious eye irritation
Specific target organ toxicity (single exposure) Category 3	H335 May cause respiratory irritation

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Warning

Hazard statements (GHS US) :
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation

Precautionary statements (GHS US) :
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 - If on skin: Wash with plenty of water
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a poison center or doctor if you feel unwell
P321 - Specific treatment (see supplemental first aid instruction on this label)
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.

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 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 : Mono-constituent

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
1-(3-sulfonatopropyl)pyridinium (Main constituent)	1-(3-sulfopropyl)pyridinium betain / 1-(3-sulfopropyl)pyridinium hydroxide, inner salt / 3-(1-pyridinio)-1-propanesulfonate / PPS (=1-(3-sulfonatopropyl)pyridinium / pyridinium, 1-(3-sulfopropyl)-, hydroxide, inner salt	(CAS-No.) 15471-17-7	100	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335

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 general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air.

First-aid measures after skin contact : Wash immediately with lots of water (15 minutes)/shower.

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. Take victim to an ophthalmologist. Do not apply neutralizing agents.

First-aid measures after ingestion : Rinse mouth with water. Ingestion of large quantities: immediately to hospital. Call Poison Information Centre (www.big.be/antigif.htm).

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms : Causes skin irritation. May cause respiratory irritation. Causes serious eye irritation.

Symptoms/effects after inhalation : Irritation of the respiratory tract. Irritation of the nasal mucous membranes.

Symptoms/effects after skin contact : Tingling/irritation of the skin.

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

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Quick-acting ABC powder extinguisher. Class A foam extinguisher. Water (quick-acting extinguisher, reel). Water. Class A foam.

Unsuitable extinguishing media : Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

5.2. Specific hazards arising from the chemical

Fire hazard : DIRECT FIRE HAZARD: Combustible. In finely divided state: increased fire hazard. INDIRECT FIRE HAZARD: Temperature above flashpoint: higher fire/explosion hazard.

Explosion hazard : DIRECT EXPLOSION HAZARD: Fine dust is explosive with air. INDIRECT EXPLOSION HAZARD: Dust cloud can be ignited by a spark.

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions	:	Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
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. Face-shield. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Dust cloud production: dust-tight suit.
Emergency procedures	:	Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.
Measures in case of dust release	:	In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows. In case of dust production: stop engines and no smoking. In case of dust production: no naked flames or sparks. Dust: spark-/explosionproof appliances/lighting equipment.

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

Prevent soil and water pollution. Prevent spreading in sewers.

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. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Powdered form: no compressed air for pumping over spills.
Methods for cleaning up	:	Scoop solid spill into closing containers. Powdered: do not use compressed air for pumping over spills. Carefully collect the spill/leftovers. 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	:	Avoid raising dust. 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. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Powdered form: no compressed air for pumping over. Keep container tightly closed.
Hygiene measures	:	Wash contaminated clothing before reuse. 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 locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Information on mixed storage	:	KEEP SUBSTANCE AWAY FROM: oxidizing agents.
Storage area	:	Store in a dry area. Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. watertight. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

1-(3-sulfonatopropyl)pyridinium (15471-17-7)
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

Hand protection:

Gloves

Eye protection:

Face shield. In case of dust production: protective goggles

Skin and body protection:

Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing

Respiratory protection:

Dust production: dust mask with filter type P2

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Crystalline solid. Crystalline powder.
Color	:	White
Odor	:	No data available
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	280 °C
Freezing point	:	Not applicable
Boiling point	:	Not applicable
Flash point	:	160 °C
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	Non flammable.
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	Not applicable
Relative density	:	Not applicable
Molecular mass	:	201.24 g/mol
Solubility	:	No data available
Log Pow	:	No data available
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	280 °C
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	Not applicable
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

Other properties : Hygroscopic.

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Unstable on exposure to moisture.

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)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Causes skin irritation.
Serious eye damage/irritation	:	Causes serious eye irritation.
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
Specific target organ toxicity – single exposure	:	May cause respiratory irritation.
Specific target organ toxicity – repeated exposure	:	Not classified
Aspiration hazard	:	Not classified
Viscosity, kinematic	:	No data available
Potential Adverse human health effects and symptoms	:	Causes skin irritation. May cause respiratory irritation. Causes serious eye irritation.
Symptoms/effects after inhalation	:	Irritation of the respiratory tract. Irritation of the nasal mucous membranes.
Symptoms/effects after skin contact	:	Tingling/irritation of the skin.
Symptoms/effects after eye contact	:	Irritation of the eye tissue.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	:	The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Ecology - water	:	Mild water pollutant (surface water). No data available on ecotoxicity.

12.2. Persistence and degradability

1-(3-sulfonatopropyl)pyridinium (15471-17-7)	
Persistence and degradability	Biodegradability in water: no data available.

12.3. Bioaccumulative potential

1-(3-sulfonatopropyl)pyridinium (15471-17-7)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods	:	Waste treatment methods.

Product/Packaging disposal recommendations	:	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. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery.
Additional information	:	Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Other information : No supplementary information available.

Transportation of Dangerous Goods

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

1-(3-sulfonatopropyl)pyridinium (15471-17-7)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

EU-Regulations

National regulations

No additional information available

15.3. US State regulations

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 05/11/2017

Full text of H-phrases:

H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

SDS US (GHS HazCom 2012)

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.

Nonidet P-40 Substitute

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 08/31/2015 Revision date: 05/11/2017 Version: 7.1

SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Substance name	:	Nonidet P-40 Substitute
CAS-No.	:	9016-45-9
Product code	:	072N_073N
Formula	:	(C2H4O)n.C15H24O
Synonyms	:	(nonylphenoxy)polyethylene oxide / A 730 / A 730(surfactant) / adekatol NP / adekatol NP 100 / adekatol NP 650 / adekatol NP 660 / adekatol NP 700 / adekatol NP 720 / agral / agral 90 / agral LN / agral R / akyporox NP 105 / akyporox NP 95 / alfenol / alfenol 10 / alfenol 18 / alfenol 22 / alfenol 28 / alfenol 710 / alfenol 8 / alfenol N 8 / alkasurf NP 11 / alkasurf NP 15 / alkasurf NP 8 / alpha-(nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl) / alpha-(nonylphenyl)-omega-hydroxypolyoxyethylene / antarox 897 / antarox CO / antarox CO 430 / antarox CO 530 / antarox CO 730 / antarox CO 850 / antarox CO 970 / arkopal 130 / arkopal 40 / arkopal 60 / arkopal 80 / arkopal 9 / arkopal N / arkopal N 040 / arkopal N 060 / arkopal N 080 / arkopal N 090 / arkopal N 100 / arkopal N 110 / arkopal N 130 / arkopal N 150 / arkopal N 230 / arkopal N 300 / arkopal N 50 / auxipon NP / B 315 / B 350 / berol / berol 02 / berol 09 / berol 259 / berol 26 / berol 267 / berol 268 / berol 296 / BLM / BLM (polymer) / burtemul N / carsonon N / carsonon N 30 / carsonon N 4 / carsonon N 8 / CCC jelly / cemulsol NP 10 / cemulsol NP 12 / cemulsol NP 6 / cemulsol NP 7 / cemulsol NP 8 / cemulsol NP-EO 6 / cemumsol NP 9 / chemax NP 9 / chimipal WN 6 / CO 610 / CO 630 / conco NI / conco NI 190 / dehscoxid 771 / dehscoxid 781 / dehydrophen 100 / dikssol W 92 / dispergator BO / DME / DME (polymer) / dowfax 9N20 / dowfax 9N50 / dowfax 9N6 / dowfax 9N9 / DS 3195 / E 913 / EA 120 / EA 80 / elfapur N 70 / elfapur N 90 / emalex NP 12 / emalex NP 15 / emalex NP 8.5 / emmon 15332 / empilan NP 9 / EMU 02 / EMU 09 / emulgator NP 10 / emulgator U 6 / emulgen 900 / emulgen 903 / emulgen 904 / emulgen 905 / emulgen 906 / emulgen 909 / emulgen 910 / emulgen 911 / emulgen 913 / emulgen 920 / emulgen 921 / emulgen 930 / emulgen 931 / emulgen 935 / emulgen 950 / emulgen 985 / emulgen PI 20T / emulmin 140 / emulmin 240 / emulsit 100 / emulsit 161 / emulson 20B / emulson 9B / emulson PB / esapal NP 90 / ethoxylated nonylphenol / ethylan 20 / ethylan 44 / ethylan 55 / ethylan 77 / ethylan BCP / ethylan HA / ethylan KEO / ethylan N / ethylan N 5.5 / ethylan TU / ethylene oxide-nonylphenol condensate / ethylene oxide-nonylphenol polymer / etolat 914 / eumulgin 286 / fenopal / gafac CO 990 / gedepal CO 210 / glycols, polyethylene, mono(nonylphenyl) ether / hostapal CV / hostapal W / hyonic NP 40 / hyonic NP 4011 / hyonic NP 60 / hyonic NP 90 / hyonic PE 100 / hyonic PE 120 / hyonic PE 60 / iconol NP 40 / iconol NP 9 / igepal BC 16 / igepal CO 220 / igepal CO 436 / igepal CO 520 / igepal CO 530 / igepal CO 610 / igepal CO 620 / igepal CO 630 / igepal CO 660 / igepal CO 710 / igepal CO 720 / igepal CO 730 / igepal CO 850 / igepal CO 887 / igepal CO 890 / igepal CO 970 / igepal CO 977 / igepal CO 987 / igepal CO 990 / igepal CO 997 / igepal CTA 639W / igepal LO 997 / imbentin / imbentin N 52 / inbentine / lerolat N / lerolat N 300 / levelan P 208 / lipal 9N / liponox NC 130 / liponox NC 38 / liponox NC 500F / liponox NC 86 / liponox NC 95 / liponox NCA / liponox NCD / liponox NCG / liponox NCH / liponox NCI / liponox NCM / lissapol N / lissapol NX / lissapol NXP / lissapol TN 450 / lubrol APN 5 / lubrol L / lubrol N / lubrol N 13 / lutensol AP 10 / lutensol AP 20 / lutensol AP 9 / M 812 / macol NP / macol NP 4 / macol NP 9.5 / makon / makon 10 / makon 12 / makon 14 / makon 30 / makon 4 / makon 6 / makon 8 / markophen 85 / marlophen / marlophen 810 / marlophen 812 / marlophen 83 / marlophen 88 / marlophen 89 / mergital OP 2 / meriten NF 9 / merpoxen 230 / merpoxen ON / mono(nonylphenyl)polyethylene glycol / monopol 1020 / mylura N 100 / nemol 1030 / nemol 36 / nemol K 1032 / nemol K 1035 / nemol K 2030 / nemol K 3030 / nemol K 34 / nemol K 36 / nemol K 38 / nemol K 39 / nemol K 539 / nemolm K 1033 / neutronyl 640 / neutronyx 676 / newcol 504 / newcol 506 / newcol 509 / newcol 516 / newcol 520 / newcol 560 / newcol 561H / newcol 562 / newcol 564 / newcol 568 / NF 4 / nikkol NP / nikkol NP 10 / nikkol NP 100 / nikkol NP 15 / nikkol NP 18TX / nikkol NP 2 / nikkol NP 20 / nikkol NP 5 / nikkol NP 7.5 / nissan nonion NS / nissan nonion NS 12 / nissan nonion NS 202s / nissan nonion NS 203 / nissan nonion NS 204.5 / nissan nonion NS 206 / nissan nonion NS 208.5 / nissan nonion NS 210 / nissan nonion NS 215 / nissan nonion NS 220 / nissan nonion NS 230 / nissan nonion NS 270 / nissan nonion NS 402 / noigen EA 130T / noigen EA 150 / noigen EA 50 / noigen EA 70 / noigen EA 80 / nonal 206 / nonal 208 / nonal 210 / nonal 910 / nonaril 930 / nonidet NP 50 / nonidet P 80 / nonio-light PN 12 / nonio-light PN 4 / nonio-light PN 6 / nonion NS / nonion NS 203 / nonion NS 206 / nonion NS 208.5 / nonion NS 210 / nonion NS 212 / nonion NS 215 / nonion NS 220 / nonion NS 230 / nonion NS 240 / nonion NS 270 / nonionik NI / nonipol / nonipol 100 / nonipol 110 / nonipol 120 / nonipol 130 / nonipol 140 / nonipol 160 / nonipol 20 / nonipol 200 / nonipol 40 / nonipol 400 / nonipol 45 / nonipol 500 / nonipol 55 / nonipol 6 / nonipol 60 / nonipol 70 / nonipol 800 / nonipol 85 / nonipol 95 / nonoxinol / nonylphenol ethoxylate / nonylphenol ethylene oxide condensate / nonylphenol polyethylene glycol ether / nonylphenol polyethylene oxide / nonylphenol, ethoxylated / nonylphenoxy polyethoxy ethanol /

nonylphenoxypoly (ethylenoxy)ethanol / nonylphenoxypoly(oxyethylene)ethanol / nonylphenyl ethoxylate / nonylphenyl polyethylene glycol ether / nonylphenyl polyoxyethylene ether / NOP 9 / noregal LC 4 conc / NP / NP 10 / NP 100 / NP 13 / NP 14 / NP 17 / NP 30 / NP 40 / NP 6 / NP 660 / NP 695 / NP 7.5 / NP 8 / NP 80 / NP 9 / NP 936 / NP(nonionic surfactant) / NPEO10 / NPEO30 / NPEO40 / NPO20 / NPO30 / NS 205.5 / NS 215 / NS 230 / omega-hydroxy-alpha-(nonylphenyl)poly(oxy 1,2-ethanediyl) / ON 10 / OP 2 / oxyethylated nonylphenol / oxyethylene nonylphenol ether / PBI spreader / penerol NO 16 / penerol NP 10 / phenoxol 9/18 / phenoxol 9/20 / pionin D 414 / pnentrax / poly(ethylene oxide)nonylphenyl ether / poly(oxy)-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy- / poly(oxyethylene nonylphenol ether / poly(oxyethylene) nonylphenyl ether / polyethoxylated nonylphenol / polyethylene glycol mono(nonylphenol) ether / polyethylene glycol mono(nonylphenyl) ether / polyethylene glycol nonylphenol ether / polyethylene glycol nonylphenyl monoether / polyethyleneoxide mono(nonylphenyl) ether / polyoxyethylated nonylphenol / polyoxyethylene (15) nonylphenyl ether / polyoxyethylene (20) nonyl phenyl ether / polyoxyethylene mononylphenyl ether / polystep F 10NP40 / polystep F 4 / polystep F 6 / polystep F 8 / polystep F 8NP20 / poly-tergent B / poly-tergent B 150 / poly-tergent B 300 / poly-tergent B 350 / prevocell N 11 / prevocell W-OF 100 / rendells suppository / renex 1000 / renex 110 / renex 230 / renex 300 / renex 40 / renex 647 / renex 648 / renex 678 / renex 679 / renex 682 / renex 688 / renex 697 / renex 698 / retzanol NP 100 / rewopal HV 10 / rewopal HV 25 / rewopal HV 5 / rewopal NP 10 / rexol 25/10 / rexol 25/15 / rexol 25/4 / rexol 25/9 / rexol 25J / rhodiasurf NO 9 / rioklen NF 10 / rioklen NF 9 / SA 1 / sapal / scourol 900 / SER-AD FN 1566 / serdox NNP / serdox NNP 1.5 / serdox NNP 12 / serdox NNP 15 / serdox NNP 20 / serdox NNP 7 / serdox NNP 8 / serdox NNP 8.5 / simulsol 630 / simulsol 830NP / sinnopal NP / siponic NP / siponic NP 9 / slovafol 903 / slovafol 905 / slovafol 906 / slovafol 909 / slovafol 90S / slovafol 910 / slovafol 920 / slovafol A / slovafol X / solar NF / soprophor BC 10 / soprophor BC 17 / soprophor BC 2 / soprophor BC 20 / soprophor BC 4 / soprophor BC 40 / soprophor BC 6 / soprophor BS 10 / soprophor NP 10 / steinapal HV / steinapal HV 10 / steinapal HV 14 / steinapal HV 25 / steinapal HV 3 / steinapal HV 4 / steinapal HV 5 / steinapal HV 8 / steinapal HV 9 / sterling NP 10 / sterox ND / stokolan NS 9 / sunaptol NP 55 / sunmorl X 1 / surfonic N 1 / surfonic N 10 / surfonic N 106 / surfonic N 120 / surfonic N 150 / surfonic N 200 / surfonic N 40 / surfonic N 60 / surfonic N 75 / surfonic N 95 / syn fac N 95 / synperonic N / synperonic NP / synperonic NP 10 / synperonic NP 12 / synperonic NP 13 / synperonic NP 15 / synperonic NP 20 / synperonic NP 30 / synperonic NP 4 / synperonic NP 5 / synperonic NP 6 / synperonic NP 8 / synperonic NP 9 / synperonic NX / synperonic NXP / synthrapol N / syntopon C / T-DET N / T-DET N 10.5 / T-DET N 14 / T-DET N 4 / T-det N 50 / T-DET N 507 / T-DET N 6 / tenzilin 080 / tenzilin FN 65 / tergitol NP / tergitol NP 10 / tergitol NP 101 / tergitol NP 13 / tergitol NP 14 / tergitol NP 15 / tergitol NP 27 / tergitol NP 33 / tergitol NP 35 / tergitol NP 40 / tergitol NP 6 / tergitol NP 7 / tergitol NP 9 / tergitol NPX / tergitol TH / tergitol TP 9 / teric GN / teric GN 5 / teric GN 9 / teric N / teric N 100 / teric N 12 / teric N 15 / teric N 30 / teric N 40 / teric N 450 / teric N 5 / teric N 9 / texofor FN 6 / texofor FN 8 / TN 450 / triton N / triton N 100 / triton N 101 / triton N 111 / triton N 128 / triton N 150 / triton N 302 / triton N 42 / triton N 57 / triton N 60 / triton N 998 / trycol 6940 / trycol 6954 / trycol 6964 / trycol NP 30 / trycol NP 40 / TX 10 / TX 10 (polyoxyalkylene) / value 3706 / varonic N 30-7 / varonic N 6 / veranol N 10 / WASC / wellaid 711W / witconol NP 100 / witconol NP 40 / witconol NP 60 / witconol NP 80 / YF 6500

BIG No : 31813

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Detergent according to Regulation (EC) No 648/2004
Polymer

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
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)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Hazardous to the aquatic environment - Chronic Hazard Category 4 H413 May cause long lasting harmful effects to aquatic life

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard statements (GHS US) : H413 - May cause long lasting harmful effects to aquatic life

Precautionary statements (GHS US) : P273 - Avoid release to the environment.
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 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

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
Nonidet P-40 Substitute (Main constituent)	(nonylphenoxy)polyethylene oxide / A 730 / A 730(surfactant) / adekatol NP / adekatol NP 100 / adekatol NP 650 / adekatol NP 660 / adekatol NP 700 / adekatol NP 720 / agral / agral 90 / agral LN / agral R / akyporox NP 105 / akyporox NP 95 / alfenol / alfenol 10 / alfenol 18 / alfenol 22 / alfenol 28 / alfenol 710 / alfenol 8 / alfenol N 8 / alkasurf NP 11 / alkasurf NP 15 / alkasurf NP 8 / alpha-(nonylphenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl) / alpha-(nonylphenyl)-omega-hydroxypolyoxyethylene / antarox 897 / antarox CO / antarox CO 430 / antarox CO 530 / antarox CO 730 / antarox CO 850 / antarox CO 970 / arkopal 130 / arkopal 40 / arkopal 60 / arkopal 80 / arkopal 9 / arkopal N / arkopal N 040 / arkopal N 060 / arkopal N 080 / arkopal N 090 / arkopal N 100 / arkopal N 110 / arkopal N 130 / arkopal N 150 / arkopal N 230 / arkopal N 300 / arkopal N 50 / auxipon NP / B 315 / B 350 / berol / berol 02 / berol 09 / berol 259 / berol 26 / berol 267 / berol 268 / berol 296 / BLM / BLM (polymer) / burtemul N / carsonon N / carsonon N 30 / carsonon N 4 / carsonon N 8 / CCC jelly / cemulsol NP 10 / cemulsol NP 12 / cemulsol NP 6 / cemulsol NP 7 / cemulsol NP 8 / cemulsol NP-EO 6 / cemumsol NP 9 / chemax NP 9 / chimipal WN 6 / CO 610 / CO 630 / conco NI / conco NI 190 / dehscoxid 771 / dehscoxid 781 / dehydrophen 100 / dikssol W 92 / dispergator BO / DME / DME (polymer) / dowfax 9N20 / dowfax 9N50 / dowfax 9N6 / dowfax 9N9 / DS 3195 / E 913 / EA 120 / EA 80 / elfapur N 70 / elfapur N 90 / emalex NP 12 / emalex NP 15 / emalex NP 8.5 / emmon 15332 / empilan NP 9 / EMU 02 / EMU 09 / emulgator NP 10 / emulgator U 6 / emulgen 900 / emulgen 903 / emulgen 904 / emulgen 905 / emulgen 906 / emulgen 909 / emulgen 910 / emulgen 911 / emulgen 913 / emulgen 920 / emulgen 921 / emulgen 930 / emulgen 931 / emulgen 935 / emulgen 950 / emulgen 985 / emulgen PI 20T / emulmin 140 / emulmin 240 / emulsit 100 / emulsit 161 / emulson 20B / emulson 9B / emulson PB / esapal NP 90 / ethoxylated nonylphenol / ethylan 20 / ethylan 44 / ethylan 55 / ethylan 77 / ethylan BCP / ethylan HA / ethylan KEO / ethylan N / ethylan N 5.5 / ethylan TU / ethylene oxide-nonylphenol condensate / ethylene oxide-nonylphenol polymer / etolat 914 / eumulgin 286 / fenopal / gafac CO 990 / gedepal CO 210 / glycols, polyethylene, mono(nonylphenyl) ether / hostapal CV / hostapal W / hyonic NP 40 / hyonic NP 4011 / hyonic NP 60 / hyonic NP 90 / hyonic PE 100 / hyonic PE 120 / hyonic PE 60 / iconol NP 40 / iconol NP 9 / igepal BC 16 / igepal CO 220 / igepal CO 436 / igepal CO 520 / igepal CO 530 / igepal CO 610 / igepal CO 620 / igepal CO 630 / igepal CO 660 / igepal CO 710 / igepal CO 720 / igepal CO 730 / igepal CO 850 / igepal CO 887 / igepal CO 890 / igepal CO 970 / igepal CO 977 / igepal CO 987 / igepal CO 990 / igepal CO 997 / igepal CTA 639W / igepal LO 997 /	(CAS-No.) 9016-45-9	100	Aquatic Chronic 4, H413

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 general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Wash immediately with lots of water. Take victim to a doctor if irritation persists.

First-aid measures after eye contact : Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion : Rinse mouth with water. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms : Practically non-toxic if swallowed (LD50 oral, rat > 2000 mg/kg). Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg). Irritant to the skin. Slightly harmful by inhalation. Irritant to the eyes.

Symptoms/effects after skin contact : Tingling/irritation of the skin.

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

Symptoms/effects after ingestion : Irritation of the gastric/intestinal mucosa.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Quick-acting ABC powder extinguisher. Quick-acting BC powder extinguisher. Quick-acting class B foam extinguisher. Quick-acting CO2 extinguisher. Class B foam (alcohol-resistant). Water spray if puddle cannot expand.

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

No additional information available

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions : Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.

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. Face-shield. Protective clothing.

Emergency procedures : Mark the danger area. 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

Prevent soil and water pollution. Prevent spreading in sewers.

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. Dam up the liquid spill.
Methods for cleaning up	:	Take up liquid spill into inert absorbent material, e.g.: sand. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. 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	:	Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain.
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	:	5 - 40 °C
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Information on mixed storage	:	KEEP SUBSTANCE AWAY FROM: water/moisture.
Storage area	:	Store in a dry area. Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	:	SUITABLE MATERIAL: stainless steel. synthetic material.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Nonidet P-40 Substitute (9016-45-9)
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

Hand protection:

Gloves

Eye protection:

Face shield

Skin and body protection:

Protective clothing

Respiratory protection:

Respiratory protection not required in normal conditions

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Liquid.
Color	:	No data available
Odor	:	Almost odourless

Odor threshold	:	No data available
pH	:	6 - 7
Melting point	:	18 °C
Freezing point	:	No data available
Boiling point	:	> 200 °C
Flash point	:	> 200 °C
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	Not applicable.
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	1.1 (40 °C)
Molecular mass	:	880 g/mol
Solubility	:	Soluble in water. Water: soluble, Literature
Log Pow	:	No data available
Auto-ignition temperature	:	> 400 °C
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	0.3 Pa·s (40 °C)
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

Other properties : Hygroscopic. Slightly volatile.

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Hygroscopic.

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) : Not classified

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

Nonidet P-40 Substitute (9016-45-9)	
LD50 oral rat	> 2000 mg/kg (Rat)
LD50 dermal rabbit	> 2000 mg/kg (Rabbit)

Skin corrosion/irritation : Not classified
pH: 6 - 7

Serious eye damage/irritation : Not classified
pH: 6 - 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	:	Practically non-toxic if swallowed (LD50 oral, rat > 2000 mg/kg). Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg). Irritant to the skin. Slightly harmful by inhalation. Irritant to the eyes.
Symptoms/effects after skin contact	:	Tingling/irritation of the skin.
Symptoms/effects after eye contact	:	Irritation of the eye tissue.
Symptoms/effects after ingestion	:	Irritation of the gastric/intestinal mucosa.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	:	May cause long lasting harmful effects to aquatic life.
Ecology - air	:	Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	:	Water pollutant (surface water).

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods	:	Waste treatment methods.
Product/Packaging disposal recommendations	:	Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery.
Additional information	:	Can be considered as non hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not applicable

Transportation of Dangerous Goods

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

Nonidet P-40 Substitute (9016-45-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	SP - SP - indicates a substance that is identified in a proposed Significant New Use Rule.

15.2. International regulations

CANADA

Nonidet P-40 Substitute (9016-45-9)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

National regulations

No additional information available

15.3. US State regulations

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 05/11/2017

Full text of H-phrases:

H413	May cause long lasting harmful effects to aquatic life

SDS US (GHS HazCom 2012)

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.

3((3-cholamidopropyl)dimethylammonio)1-propanesulfonate,dihydrate

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 12/09/2015 Revision date: 06/01/2017 Version: 7.1

SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Substance name	:	3((3-cholamidopropyl)dimethylammonio)1-propanesulfonate,dihydrate
Chemical name	:	CHAPS
CAS-No.	:	75621-03-3
Product code	:	163C
Formula	:	C32H58N2O7S
Synonyms	:	1-propanaminium, N,N-dimethyl-3-sulfo-N-(3-(((3alpha,5beta,7alpha,12alpha)-3,7,12-trihydroxy-24-oxocholan-24-yl)amino)propyl)-,hydroxide,inner salt
BIG No	:	19945

1.2. Recommended use and restrictions on use

No additional information available

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
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)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Skin corrosion/irritation Category 2	H315 Causes skin irritation
Serious eye damage/eye irritation Category 2	H319 Causes serious eye irritation
Specific target organ toxicity (single exposure) Category 3	H335 May cause respiratory irritation

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Warning

Hazard statements (GHS US) :
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation

Precautionary statements (GHS US) :
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 - If on skin: Wash with plenty of water
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a poison center or doctor if you feel unwell
P321 - Specific treatment (see supplemental first aid instruction on this label)
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.

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 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 : Mono-constituent

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
3((3-cholamidopropyl)dimethylammonio)1-propanesulfonate,dihydrate (Main constituent)	1-propanaminium, N,N-dimethyl-3-sulfo-N-(3-(((3alpha,5beta,7alpha,12alpha)-3,7,12-trihydroxy-24-oxocholan-24-yl)amino)propyl)-,hydroxide,inner salt	(CAS-No.) 75621-03-3	100	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335

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 general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Call a poison center/doctor/physician if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. Call a poison center/doctor/physician if you feel unwell.

First-aid measures after skin contact : Wash immediately with lots of water. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists. Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse immediately with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth with water. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms : Causes skin irritation. May cause respiratory irritation. Causes serious eye irritation.

Symptoms/effects after inhalation : Irritation of the respiratory tract. Irritation of the nasal mucous membranes. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible laryngeal spasm/oedema. May cause respiratory irritation.

Symptoms/effects after skin contact : Tingling/irritation of the skin. Irritation.

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

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Alcohol-resistant foam. Polymer foam. ABC powder. Carbon dioxide. Water spray. Dry powder. Foam.

Unsuitable extinguishing media : Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

5.2. Specific hazards arising from the chemical

No additional information available

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire	:	Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	:	Dilute toxic gases with water spray.
Protection during firefighting	:	Heat/fire exposure: compressed air/oxygen apparatus. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	:	Gloves. Face-shield. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Dust cloud production: dust-tight suit.
Emergency procedures	:	Ventilate spillage area. Mark the danger area. Prevent dust cloud formation. No naked flames. Wash contaminated clothes. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with skin and eyes.
Measures in case of dust release	:	In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

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. Knock down/dilute dust cloud with water spray.
Methods for cleaning up	:	Mechanically recover the product. Stop dust cloud by covering with sand/earth. Scoop solid spill 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	:	Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Avoid raising dust. Keep away from naked flames/heat. Reduce/avoid exposure and/or contact. Keep container tightly closed. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Use only outdoors or in a well-ventilated area. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with skin and eyes. Wear personal protective equipment.
Hygiene measures	:	Wash contaminated clothing before reuse. 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 locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Information on mixed storage	:	KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. (strong) bases.
Storage area	:	Store in a dry area. Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

3((3-cholamidopropyl)dimethylammonio)1-propanesulfonate,dihydrate (75621-03-3)
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

Hand protection:

Gloves

Eye protection:

Face shield. In case of dust production: protective goggles. Safety glasses

Skin and body protection:

Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing

Respiratory protection:

Dust production: dust mask with filter type P2

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Solid.
Color	:	No data available
Odor	:	No data available
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	157 °C
Freezing point	:	Not applicable
Boiling point	:	No data available
Flash point	:	Not applicable
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	Non flammable.
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	Not applicable
Relative density	:	Not applicable
Molecular mass	:	650.92 g/mol
Solubility	:	No data available
Log Pow	:	No data available
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	157 °C
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	Not applicable
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

VOC content : 0 %

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

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)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Causes skin irritation.
Serious eye damage/irritation	:	Causes serious eye irritation.
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
Specific target organ toxicity – single exposure	:	May cause respiratory irritation.
Specific target organ toxicity – repeated exposure	:	Not classified
Aspiration hazard	:	Not classified
Viscosity, kinematic	:	No data available
Potential Adverse human health effects and symptoms	:	Causes skin irritation. May cause respiratory irritation. Causes serious eye irritation.
Symptoms/effects after inhalation	:	Irritation of the respiratory tract. Irritation of the nasal mucous membranes. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible laryngeal spasm/oedema. May cause respiratory irritation.
Symptoms/effects after skin contact	:	Tingling/irritation of the skin. Irritation.
Symptoms/effects after eye contact	:	Irritation of the eye tissue. Eye irritation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	:	The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Ecology - air	:	Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	:	No data available on ecotoxicity.

12.2. Persistence and degradability

3((3-cholamidopropyl)dimethylammonio)1-propanesulfonate,dihydrate (75621-03-3)	
Persistence and degradability	Biodegradability in water: no data available.

12.3. Bioaccumulative potential

3((3-cholamidopropyl)dimethylammonio)1-propanesulfonate,dihydrate (75621-03-3)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Waste treatment methods.

Product/Packaging disposal recommendations : 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. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery. Dissolve or mix with a combustible solvent.

Additional information : Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Other information : No supplementary information available.

Transportation of Dangerous Goods

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

3((3-cholamidopropyl)dimethylammonio)1-propanesulfonate,dihydrate (75621-03-3)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

EU-Regulations

National regulations
No additional information available

15.3. US State regulations

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 06/01/2017

Full text of H-phrases:

H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

SDS US (GHS HazCom 2012)

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.

Brij 35 (10% purified solution)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 06/03/2013 Revision date: 05/11/2017 Version: 7.1

SECTION 1: Identification

1.1. Identification

Product form	:	Mixture
Product name	:	Brij 35 (10% purified solution)
CAS-No.	:	9002-92-0
Product code	:	200B
Formula	:	C58H118O24
Synonyms	:	alpha-dodecyl-omega-hydroxypoly(oxy-1,2-ethanediyl)(=polyoxyethylene(23)lauryl ether) / atlas g-2135 / brij 35(=polyoxyethylene(23)lauryl ether) / brij 35SP / BRIJ™ L23-PA-(RB) / dodecan-1-ol, ethoxylated (=polyoxyethylene(23)lauryl ether) / dodecanol ethoxylate(23) / dodecanol ethoxylated(23) / dodecyl alcohol condensed with 23 moles ethylene oxide / dodecyl alcohol ethoxylated(23) / ethoxylated(23)dodecanol / ethoxylated(23)lauryl alcohol / Laureth-23 / lauryl alcohol condensed with 23 moles ethylene oxide / lauryl alcohol eo(23) / lauryl alcohol ethoxylated(23) / poly(oxy-1,2-ethanediyl), alpha-dodecyl-omega-hydroxy-(=polyoxyethylene(23)lauryl ether) / poly(oxyethyl)(23)dodecyl ether / poly(oxyethyl)(23)lauryl ether / polyethylene(23)glycoldodecyl ether
BIG No	:	15709

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Non-ionic 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
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)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling

No labeling applicable

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

Not applicable

3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of HazCom 2012

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation	:	Remove the victim into fresh air.
First-aid measures after skin contact	:	Wash immediately with lots of water (15 minutes)/shower. Soap may be used. Do not apply (chemical) neutralizing agents.
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. Take victim to an ophthalmologist if irritation persists. Do not apply neutralizing agents.
First-aid measures after ingestion	:	Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Ingestion of large quantities: immediately to hospital. Call Poison Information Centre (www.big.be/antigif.htm).

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms	:	Non-toxic if swallowed (LD50 oral, rat > 5000 mg/kg). Slightly harmful in contact with skin. Not irritant to skin. Slightly harmful by inhalation. Not irritant to respiratory organs. Slightly irritant to eyes.
Symptoms/effects after eye contact	:	Slight irritation.
Symptoms/effects after ingestion	:	Irritation of the gastric/intestinal mucosa.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	:	Quick-acting ABC powder extinguisher. Class A foam extinguisher. Water (quick-acting extinguisher, reel). Water. Class A foam.
Unsuitable extinguishing media	:	Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

5.2. Specific hazards arising from the chemical

No additional information available

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire	:	Exposure to fire/heat: keep upwind. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	:	Cool tanks/drums with water spray/remove them into safety. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
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. Protective clothing. Dust cloud production: compressed air/oxygen apparatus.
Emergency procedures	:	Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.
Measures in case of dust release	:	In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

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

Prevent soil and water pollution. Prevent spreading in sewers.

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. Dam up the solid spill. Knock down/dilute dust cloud with water spray.
Methods for cleaning up	:	Stop dust cloud by covering with sand/earth. Solid spill: shovel. Clean contaminated surfaces with an excess of water. Carefully collect the spill/leftovers. 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	:	Avoid raising dust. Keep away from naked flames/heat. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Clean contaminated clothing. Do not discharge the waste into the drain. Keep container tightly closed.
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.
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Information on mixed storage	:	KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) bases.
Storage area	:	Store in a dry area. Keep container in a well-ventilated place. Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. dry. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Brij 35 (10% purified solution) (9002-92-0)
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 GOOD RESISTANCE: rubber

Hand protection:

Gloves

Eye protection:

Safety glasses

Skin and body protection:

Protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Solid.
Color	:	White
Odor	:	No data available
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	40 °C
Freezing point	:	No data available
Boiling point	:	> 100 °C
Flash point	:	> 149 °C
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	Not applicable.

Vapor pressure	:	< 1.33 hPa (20 °C)
Relative vapor density at 20 °C	:	Not applicable
Relative density	:	1.05
Molecular mass	:	1199.57 g/mol
Solubility	:	Moderately soluble in water. Soluble in ethanol. Soluble in propyleneglycol. Water: 4 g/100ml
Log Pow	:	No data available
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

VOC content : 100 %

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

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)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Not classified
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	:	Non-toxic if swallowed (LD50 oral, rat > 5000 mg/kg). Slightly harmful in contact with skin. Not irritant to skin. Slightly harmful by inhalation. Not irritant to respiratory organs. Slightly irritant to eyes.
Symptoms/effects after eye contact	:	Slight irritation.

Symptoms/effects after ingestion : Irritation of the gastric/intestinal mucosa.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology - water : Water pollutant (surface water). No data available on ecotoxicity.

12.2. Persistence and degradability

Brij 35 (10% purified solution) (9002-92-0)	
Persistence and degradability	Inherently biodegradable.

12.3. Bioaccumulative potential

Brij 35 (10% purified solution) (9002-92-0)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Waste treatment methods.

Product/Packaging disposal recommendations : Use appropriate containment to avoid environmental contamination. Recycle by distillation. Remove to an authorized waste incinerator for solvents with energy recovery.

Additional information : Can be considered as non hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Other information : No supplementary information available.

Transportation of Dangerous Goods

Transport by sea

Air transport

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

EU-Regulations

National regulations

No additional information available

15.3. US State regulations

SECTION 16: Other information

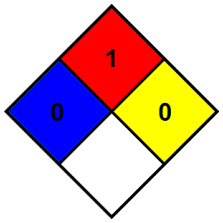
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 05/11/2017

NFPA health hazard : 0 - Materials that, under emergency conditions, would offer no hazard beyond that of ordinary combustible materials.

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)

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.

Triton X-100 (10% purified solution)

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: 02/27/2019 Version: 8.1

SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Substance name	:	Triton X-100 (10% purified solution)
Product code	:	203T
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-octylphenoxypolyethoxyethanol / TRITON X-100
BIG No	:	18801

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
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)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Serious eye damage/eye irritation Category 2	H319 Causes serious eye irritation
Hazardous to the aquatic environment - Acute Hazard Category 3	H402 Harmful to aquatic life
Hazardous to the aquatic environment - Chronic Hazard Category 3	H412 Harmful to aquatic life with long lasting effects

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US)	:	Warning
Hazard statements (GHS US)	:	H319 - Causes serious eye irritation H402 - Harmful to aquatic life H412 - Harmful to aquatic life with long lasting effects
Precautionary statements (GHS US)	:	P264 - Wash hands, forearms and face thoroughly after handling. P273 - Avoid release to the environment. P280 - Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P337+P313 - If eye irritation persists: Get medical advice/attention. 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 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

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

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether	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-octylphenoxypolyethoxyethanol / TRITON X-100	(CAS-No.) 9002-93-1	10 - 50	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 Aquatic Acute 2, H401 Aquatic Chronic 2, H411

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 general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

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.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

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.

Symptoms/effects after ingestion : AFTER INGESTION OF HIGH QUANTITIES: Nausea. Vomiting. Diarrhoea.

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

Suitable extinguishing media : Quick-acting ABC powder extinguisher. Quick-acting BC powder extinguisher. Quick-acting class B foam extinguisher. Quick-acting CO2 extinguisher. Class B foam (alcohol-resistant). Water spray if puddle cannot expand.

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.

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 : 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. Keep container tightly closed.

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 : 2 - 8 °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

Triton X-100 (10% purified solution)
No additional information available

polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)
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

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.

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) : Not classified

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

Triton X-100 (10% purified solution)	
LD50 oral rat	1800 mg/kg (Rat, Literature study, Oral)
LD50 dermal rabbit	8000 mg/kg (Rabbit, Literature study, Dermal)

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.

Symptoms/effects after ingestion : AFTER INGESTION OF HIGH QUANTITIES: Nausea. Vomiting. Diarrhoea.

Chronic symptoms : No effects known.

SECTION 12: Ecological information

12.1. Toxicity

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

Ecology - air : Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

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

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)

12.2. Persistence and degradability

Triton X-100 (10% purified solution)	
Persistence and degradability	Not readily biodegradable in water.
Chemical oxygen demand (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)	
Persistence and degradability	Not readily biodegradable in water.
Chemical oxygen demand (COD)	2.19 mg/g
ThOD	2.16 g O_2/g substance

12.3. Bioaccumulative potential

Triton X-100 (10% purified solution)	
Log Pow	4.86 (Estimated value)
Bioaccumulative potential	Potential for bioaccumulation (4 ≥ Log Kow ≤ 5).

polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)	
Log Pow	4.86 (Estimated value)
Bioaccumulative potential	Potential for bioaccumulation (4 ≥ Log Kow ≤ 5).

12.4. Mobility in soil

Triton X-100 (10% purified solution)	
Ecology - soil	No (test)data on mobility of the substance available.

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. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Waste treatment 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.

Additional information : Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

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

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

Triton X-100 (10% purified solution)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

polyethyleneglycol para-(1,1,3,3-tetramethylbutyl)phenyl ether (9002-93-1)	
Not listed on the United States TSCA (Toxic Substances Control Act) inventory	
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

EU-Regulations

National regulations
No additional information available

15.3. US State regulations

SECTION 16: Other information

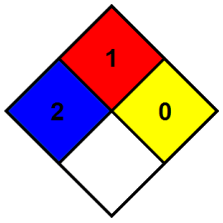
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 02/27/2019

Full text of H-phrases:

H302	Harmful if swallowed
H319	Causes serious eye irritation
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

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)

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.

Brij 58 (10% purified solution)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 01/01/2017 Revision date: 05/11/2017 Version: 7.1

SECTION 1: Identification

1.1. Identification

Product form : Mixture

Product name : Brij 58 (10% purified solution)

CAS-No. : 9004-95-9

Product code : 206B

1.2. Recommended use and restrictions on use

No additional information available

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
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)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling

No labeling applicable

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

Not applicable

3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of HazCom 2012

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact : Wash skin with plenty of water.

First-aid measures after eye contact : Rinse eyes with water as a precaution.

First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

No additional information available

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Specific hazards arising from the chemical

No additional information available

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area.

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

Methods for cleaning up : Take up liquid spill into absorbent material.

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 : Ensure good ventilation of the work station. Wear personal protective equipment.

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.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Brij 58 (10% purified solution) (9004-95-9)
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

Hand protection:

Protective gloves

Eye protection:

Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	No data available
Odor	:	No data available
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	Not applicable.
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Log Pow	:	No data available
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

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

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)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Not classified
Serious eye damage/irritation	:	Not classified
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

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Waste treatment methods.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

Transportation of Dangerous Goods

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

EU-Regulations

National regulations
No additional information available

15.3. US State regulations

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 05/11/2017

SDS US (GHS HazCom 2012)

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.

tertiary-octylphenoxypoly(ethoxyethanol)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 06/15/2012 Revision date: 05/11/2017 Version: 7.1

SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Substance name	:	tertiary-octylphenoxypoly(ethoxyethanol)
Chemical name	:	Triton® X-114, Regular concentration
CAS-No.	:	9036-19-5
Product code	:	211T_210T
Formula	:	(C2H4O)n.C14H22O
Synonyms	:	2-methyl-2-propenoic acid, polymer with 2-propenoic acid and N-octy-2-propenamide / alpha((1,1,3,3-tetramethylbutyl)phenyl)omega-hydroxypoly(oxy-1,2-ethanediyl) / charger E / ethoxylated octylphenol / ethylan CP / glycols, polyethylene, mono((1,1,3,3-tetramethylbutyl) phenyl)ether / igepal CA / igepal CA210 / igepal CA520 / neutronyx 622 / neutronyx 675 / nonidet P40 / nonion HS206 / nonion HS208 / NP-40 / octoxylol-9 / octyl phenol condensed with 20 moles ethylene oxide / octyl phenol condensed with 3 moles ethylene oxide / octyl phenol condensed with16 moles ethylene oxide / octyl phenol EO (16) / octyl phenol EO (3) / octylphenol polyethoxylate / octylphenoxypoly(ethoxyethanol) / octylphenoxypoly(ethyleneoxy)ethanol) / OP 1062 / OPE-3 / poly(ethylene oxide)octylphenyl ether / poly(ethylene oxide)tertiary-octylphenyl ether / poly(oxy-1,2-ethanediyl), alpha-((1,1,3,3-tetramethylbutyl)phenyl)-omega-hydroxy- / poly(oxyethylene)octylphenol ether / poly(oxyethylene)tertiary-octylphenol ether / poly(oxyethylene)tertiary-octylphenyl ether / polyethyleneglycol octylphenyl ether / polyethyleneglycol tertiary-octylphenyl ether / polyethyleneglycolmono((1,1,3,3-tetramethylbutyl)phenyl)ether / polyethyleneglycolmono(octylphenyl)ether / polyoxyethylenemono-tertiary-octylphenyl ether / secopal OP 20 / synperonic OP / synperonic OP 10 / T 45 / T 45,polyglycol / tertiary-octylphenoxypoly(ethyleneoxy)ethanol / tertiary-octylphenoxypoly(oxyethylene)ethanol / tertiary-octylphenoxypolyethoxyethanol,nonionic,surfactant / tert-octylphenoxypoly(ethoxyethanol) / triton X 114 / triton X 15 / triton X 207
BIG No	:	13845

1.2. Recommended use and restrictions on use

Use of the substance/mixture	:	Emulsifier Detergent according to Regulation (EC) No 648/2004

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
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)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Skin corrosion/irritation Category 2	H315	Causes skin irritation
Serious eye damage/eye irritation Category 2	H319	Causes serious eye irritation

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Warning

Hazard statements (GHS US) : H315 - Causes skin irritation
H319 - Causes serious eye irritation

Precautionary statements (GHS US) : P264 - Wash hands, forearms and face thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 - If on skin: Wash with plenty of water
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P321 - Specific treatment (see supplemental first aid instruction on this label)
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.

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

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
tertiary-octylphenoxypoly(ethoxyethanol) (Main constituent)	2-methyl-2-propenoic acid, polymer with 2-propenoic acid and N-octy-2-propenamide / alpha((1,1,3,3-tetramethylbutyl)phenyl)omega-hydroxypoly(oxy-1,2-ethanediyl) / charger E / ethoxylated octylphenol / ethylan CP / glycols, polyethylene, mono((1,1,3,3-tetramethylbutyl) phenyl)ether / igepal CA / igepal CA210 / igepal CA520 / neutronyx 622 / neutronyx 675 / nonidet P40 / nonion HS206 / nonion HS208 / NP-40 / octoxylol-9 / octyl phenol condensed with 20 moles ethylene oxide / octyl phenol condensed with 3 moles ethylene oxide / octyl phenol condensed with16 moles ethylene oxide / octyl phenol EO (16) / octyl phenol EO (3) / octylphenol polyethoxylate / octylphenoxypoly(ethoxyethanol) / octylphenoxypoly(ethyleneoxy)ethanol) / OP 1062 / OPE-3 / poly(ethylene oxide)octylphenyl ether / poly(ethylene oxide)tertiary-octylphenyl ether / poly(oxy-1,2-ethanediyl), alpha-((1,1,3,3-tetramethylbutyl)phenyl)-omega-hydroxy- / poly(oxyethylene)octylphenol ether / poly(oxyethylene)tertiary-octylphenol ether / poly(oxyethylene)tertiary-octylphenyl ether / polyethyleneglycol octylphenyl ether / polyethyleneglycol tertiary-octylphenyl ether / polyethyleneglycolmono((1,1,3,3-tetramethylbutyl)phenyl)ether / polyethyleneglycolmono(octylphenyl)ether / polyoxyethylenemono-tertiary-octylphenyl ether / secopal OP 20 / synperonic OP / synperonic OP 10 / T 45 / T 45,polyglycol / tertiary-octylphenoxypoly(ethyleneoxy)ethanol / tertiary-octylphenoxypoly(oxyethylene)ethanol / tertiary-octylphenoxypolyethoxyethanol,nonionic,surfactant / tert-octylphenoxypoly(ethoxyethanol) / triton X 114 / triton X 15 / triton X 207	(CAS-No.) 9036-19-5	> 99	Skin Irrit. 2, H315 Eye Irrit. 2, H319

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 general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms : Practically non-toxic if swallowed (LD50 oral 2000/5000 mg/kg). Causes skin irritation. Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg). Causes serious eye irritation.

Symptoms/effects after inhalation : ON CONTINUOUS EXPOSURE/CONTACT: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes.

Symptoms/effects after skin contact : Irritation.

Symptoms/effects after eye contact : Irritation of the eye tissue. ON CONTINUOUS EXPOSURE/CONTACT: Inflammation/damage of the eye tissue.

Symptoms/effects after ingestion : Gastrointestinal complaints.

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

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

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: Non-flammable. INDIRECT FIRE HAZARD: Heating increases the fire hazard.

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 : Cool tanks/drums with water spray/remove them into safety.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Face-shield. Protective clothing.

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes.

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 absorbent material.
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	:	Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment.
Hygiene measures	:	Wash contaminated clothing before reuse. 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.
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Information on mixed storage	:	KEEP SUBSTANCE AWAY FROM: oxidizing agents. reducing agents. (strong) bases. water/moisture.
Storage area	:	Store in a cool area. Store in a dry area. Store in a dark area. Ventilation at floor level. May be stored under argon. Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. dry. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	:	SUITABLE MATERIAL: steel with plastic inner lining.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

tertiary-octylphenoxypoly(ethoxyethanol) (9036-19-5)
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 GOOD RESISTANCE: rubber. plastics

Hand protection:

Gloves

Eye protection:

Safety glasses

Skin and body protection:

Protective clothing

Respiratory protection:

Mist formation: aerosol mask

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Liquid.
Color	:	Light yellow
Odor	:	Almost odourless
Odor threshold	:	No data available
pH	:	6 - 7.5 (1 %)

Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	> 177 °C
Flash point	:	> 110 °C
Relative evaporation rate (butyl acetate=1)	:	< 1
Flammability (solid, gas)	:	Not applicable.
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	> 2
Relative density	:	1.05
Specific gravity / density	:	1050 kg/m³
Solubility	:	Soluble in water. Water: complete
Log Pow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	371.429 mm²/s
Viscosity, dynamic	:	0.39 Pa·s (20 °C)
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

VOC content	:	100 %
Other properties	:	Gas/vapour heavier than air at 20°C. Clear. Hygroscopic. Slightly volatile.

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Hygroscopic.

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)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

tertiary-octylphenoxypoly(ethoxyethanol) (9036-19-5)	
LD50 oral rat	4190 mg/kg (Rat, Oral)
LD50 dermal rabbit	> 3000 mg/kg (Rabbit, Dermal)

Skin corrosion/irritation	:	Causes skin irritation. pH: 6 - 7.5 (1 %)
Serious eye damage/irritation	:	Causes serious eye irritation. pH: 6 - 7.5 (1 %)
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	:	371.429 mm²/s
Potential Adverse human health effects and symptoms	:	Practically non-toxic if swallowed (LD50 oral 2000/5000 mg/kg). Causes skin irritation. Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg). Causes serious eye irritation.
Symptoms/effects after inhalation	:	ON CONTINUOUS EXPOSURE/CONTACT: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes.
Symptoms/effects after skin contact	:	Irritation.
Symptoms/effects after eye contact	:	Irritation of the eye tissue. ON CONTINUOUS EXPOSURE/CONTACT: Inflammation/damage of the eye tissue.
Symptoms/effects after ingestion	:	Gastrointestinal complaints.
Chronic symptoms	:	No effects known.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	:	The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Ecology - air	:	Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water	:	Mild water pollutant (surface water). Insufficient data available on ecotoxicity.

12.2. Persistence and degradability

tertiary-octylphenoxypoly(ethoxyethanol) (9036-19-5)	
Persistence and degradability	Biodegradability in water: no data available.

12.3. Bioaccumulative potential

tertiary-octylphenoxypoly(ethoxyethanol) (9036-19-5)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods	:	Waste treatment methods.
Product/Packaging disposal recommendations	:	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. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery.
Additional information	:	Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description	:	UN3082 Environmentally hazardous substances, liquid, n.o.s. (α-[(1,1,3,3-Tetramethylbutyl)phenyl]-ω-hydroxy-poly(oxy-1,2-ethanediyl)), 9, III
UN-No.(DOT)	:	UN3082
Proper Shipping Name (DOT)	:	Environmentally hazardous substances, liquid, n.o.s. α-[(1,1,3,3-Tetramethylbutyl)phenyl]-ω-hydroxy-poly(oxy-1,2-ethanediyl)
Class (DOT)	:	9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140
Packing group (DOT)	:	III - Minor Danger
Hazard labels (DOT)	:	9 - Class 9 (Miscellaneous dangerous materials)

DOT Packaging Non Bulk (49 CFR 173.xxx)	:	203
DOT Packaging Bulk (49 CFR 173.xxx)	:	241
DOT Symbols	:	G - Identifies PSN requiring a technical name
DOT Special Provisions (49 CFR 172.102)	:	8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description “Other regulated substances, liquid or solid, n.o.s.”, as appropriate. In addition, for solid materials, special provision B54 applies. 146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination. 173 - An appropriate generic entry may be used for this material. 335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as “Environmentally hazardous substances, solid, n.o.s,” UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leak-proof when used as bulk packaging. IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. TP29 - A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	155
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	No limit
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	No limit
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
Emergency Response Guide (ERG) Number	:	171
Other information	:	No supplementary information available.

Transportation of Dangerous Goods

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

tertiary-octylphenoxypoly(ethoxyethanol) (9036-19-5)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

EU-Regulations

National regulations

No additional information available

15.3. US State regulations

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 05/11/2017

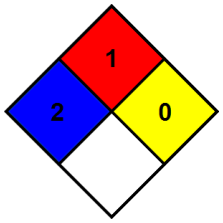
Full text of H-phrases:

H315	Causes skin irritation
H319	Causes serious eye irritation

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)

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.

TWEEN 20, conc=10%, aqueous solution

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 08/27/2015 Revision date: 05/11/2017 Version: 7.1

SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Substance name	:	TWEEN 20, conc=10%, aqueous solution
Chemical name	:	Tween® 20,10% solution
CAS-No.	:	9005-64-5
Product code	:	359T_T118
Formula	:	C58H114O26
Synonyms	:	ethoxylated sorbitan monolaurate (=TWEEN 20) / polyoxyethylene (20)sorbitan monolaurate / polysorbate 20
BIG No	:	25479

1.2. Recommended use and restrictions on use

Use of the substance/mixture	:	Surfactant Laboratory chemical

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
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)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling

No labeling applicable

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

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
TWEEN 20, conc=10%, aqueous solution (Main constituent)	ethoxylated sorbitan monolaurate (=TWEEN 20) / polyoxyethylene (20)sorbitan monolaurate / polysorbate 20	(CAS-No.) 9005-64-5	100	Not classified

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 general	:	Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

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 with water. Remove contact lenses, if present and easy to do. Continue rinsing. Take victim to an ophthalmologist if irritation persists.
First-aid measures after ingestion	:	Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Call Poison Information Centre (www.big.be/antigif.htm). Ingestion of large quantities: immediately to hospital. Consult a doctor/medical service if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms	:	Non-toxic if swallowed (LD50 oral, rat > 5000 mg/kg). Slightly irritant to skin. Slightly harmful by inhalation. Slightly irritant to eyes.
Symptoms/effects after skin contact	:	Slight irritation.
Symptoms/effects after eye contact	:	Slight irritation.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	:	Quick-acting ABC powder extinguisher. Quick-acting BC powder extinguisher. Quick-acting class B foam extinguisher. Quick-acting CO2 extinguisher. Class B foam (alcohol-resistant). Water spray if puddle cannot expand.
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

No additional information available

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	:	Cool tanks/drums with water spray/remove them into safety.
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. 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 absorbent material, e.g.: sand, earth, vermiculite. Scoop absorbed substance into closing containers. Wash down leftovers with plenty of water. 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. Keep container tightly closed.

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	:	20 °C
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Information on mixed storage	:	KEEP SUBSTANCE AWAY FROM: oxidizing agents.
Storage area	:	Store in a dry area. Ventilation at floor level. Protect against frost. 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: glass.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

TWEEN 20, conc=10%, aqueous solution (9005-64-5)
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

Hand protection:

Gloves

Eye protection:

Safety glasses

Skin and body protection:

Protective clothing

Respiratory protection:

Respiratory protection not required in normal conditions

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Liquid.
Color	:	No data available
Odor	:	Odourless
Odor threshold	:	No data available
pH	:	6 (10 %)
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	148 °C
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	Not applicable.
Vapor pressure	:	< 1.3 hPa (20 °C)
Relative vapor density at 20 °C	:	No data available
Relative density	:	1.1 (25 °C)
Specific gravity / density	:	1100 kg/m³
Molecular mass	:	1227.52 g/mol

Solubility	:	Soluble in water. Soluble in ethanol. Soluble in methanol. Soluble in propyleneglycol. Soluble in isopropanol. Soluble in ethyleneglycol. Water: complete
Log Pow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	363.636 mm²/s
Viscosity, dynamic	:	0.4 Pa·s (25 °C)
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. Slightly volatile. Neutral reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

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)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified
Skin corrosion/irritation	:	Not classified pH: 6 (10 %)
Serious eye damage/irritation	:	Not classified pH: 6 (10 %)
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	:	363.636 mm²/s
Potential Adverse human health effects and symptoms	:	Non-toxic if swallowed (LD50 oral, rat > 5000 mg/kg). Slightly irritant to skin. Slightly harmful by inhalation. Slightly irritant to eyes.
Symptoms/effects after skin contact	:	Slight irritation.
Symptoms/effects after eye contact	:	Slight irritation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology - water : Slightly harmful to fishes. Mild water pollutant (surface water). Not harmful to bacteria. Insufficient data available on ecotoxicity.

12.2. Persistence and degradability

TWEEN 20, conc=10%, aqueous solution (9005-64-5)	
Persistence and degradability	Readily biodegradable in water.

12.3. Bioaccumulative potential

TWEEN 20, conc=10%, aqueous solution (9005-64-5)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Waste treatment methods.

Product/Packaging disposal recommendations : Remove waste in accordance with local and/or national regulations. Obtain the consent of pollution control authorities before discharging to wastewater treatment plants.

Additional information : Can be considered as non hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

Transportation of Dangerous Goods

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

TWEEN 20, conc=10%, aqueous solution (9005-64-5)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

EU-Regulations

National regulations
No additional information available

15.3. US State regulations

SECTION 16: Other information

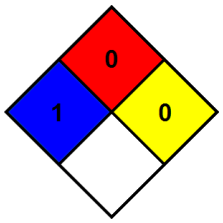
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 05/11/2017

NFPA health hazard : 1 - Materials that, under emergency conditions, can cause significant irritation.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



SDS US (GHS HazCom 2012)

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.

TWEEN 80, conc=10%, aqueous solution

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 01/04/2016 Revision date: 05/11/2017 Version: 7.1

SECTION 1: Identification

1.1. Identification

Product form	:	Mixture
Product name	:	TWEEN 80, conc=10%, aqueous solution
CAS-No.	:	9005-65-6
Product code	:	366T
Formula	:	(C64H123O26)n
BIG No	:	28671

1.2. Recommended use and restrictions on use

Use of the substance/mixture	:	Detergent according to Regulation (EC) No 648/2004

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
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)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling

No labeling applicable

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

Not applicable

3.2. Mixtures

This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of HazCom 2012

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general	:	If you feel unwell, seek medical advice.
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 with water. Remove contact lenses, if present and easy to do. Continue rinsing. Take victim to an ophthalmologist if irritation persists.
First-aid measures after ingestion	:	Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects	:	Unlikely to cause harmful effects.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Quick-acting ABC powder extinguisher. Quick-acting BC powder extinguisher. Quick-acting class B foam extinguisher. Quick-acting CO2 extinguisher. Class B foam (alcohol-resistant). Water spray if puddle cannot expand.

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

No additional information available

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire : Exposure to fire/heat: keep upwind. 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. 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 or 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. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Keep container tightly closed.

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.

Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources.

Information on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) bases. metals.

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.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

TWEEN 80, conc=10%, aqueous solution (9005-65-6)
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

Hand protection:

Gloves

Eye protection:

Safety glasses

Skin and body protection:

Protective clothing

Respiratory protection:

Respiratory protection not required in normal conditions

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Appearance	:	Liquid.
Color	:	Colourless
Odor	:	No data available
Odor threshold	:	No data available
pH	:	5 - 7 (5 %)
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	> 230 °C
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	Not applicable.
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	No data available
Solubility	:	Soluble in water. Soluble in ethanol. Soluble in acetone. Insoluble in oils/fats. Soluble in methanol. Water: > 10 g/100ml
Log Pow	:	No data available
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 : Clear. Neutral reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

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) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

TWEEN 80, conc=10%, aqueous solution (9005-65-6)	
LD50 oral rat	34500 mg/kg (Rat, Oral)
ATE US (oral)	34500 mg/kg body weight

Skin corrosion/irritation : Not classified
pH: 5 - 7 (5 %)
Serious eye damage/irritation : Not classified
pH: 5 - 7 (5 %)
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
Symptoms/effects : Unlikely to cause harmful effects.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
Ecology - water : Not harmful to aquatic organisms. Contains ground water contaminating component(s). Mild water pollutant (surface water).

12.2. Persistence and degradability

TWEEN 80, conc=10%, aqueous solution (9005-65-6)	
Persistence and degradability	Biodegradability in water: no data available.

12.3. Bioaccumulative potential

TWEEN 80, conc=10%, aqueous solution (9005-65-6)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

TWEEN 80, conc=10%, aqueous solution (9005-65-6)	
Ecology - soil	No (test)data on mobility of the components available.

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Waste treatment methods.

Product/Packaging disposal recommendations : Do not discharge into drains or the environment. Dispose of at authorized waste collection point.

Additional information : Can be considered as non hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Other information : No supplementary information available.

Transportation of Dangerous Goods

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

EU-Regulations

National regulations

No additional information available

15.3. US State regulations

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 05/11/2017

SDS US (GHS HazCom 2012)

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.