

MSDS# 0831 COVER SHEET

28340	Surfact-Pak Detergent Sampler
Component #	Description
1854560	CHAPS
1854540	Octyl β -Glucoside
1854530	Octyl β -Thiogluconide
0028314	Surfact-Amps X-100
0028316	Surfact-Amps 35
0028320	Surfact-Amps 20
0028324	Surfact-Amps NP-40
0028328	Surfact-Amps 80
0028332	Surfact-Amps X-114
0028336	Surfact-Amps 58

Material Safety Data Sheet

CHAPS

1. Product and company identification

Product name	: CHAPS		
Synonym	: 1-Propanaminium, N,N-dimethyl-N-(3-sulfopropyl)-3-[[[3.alpha.,5.beta.,7.alpha.,12.alpha.]-3,7,12-trihydroxy-24-oxocholan-24-yl]amino]-, inner salt; 3-[dimethyl(3-[[[3.alpha.,5.beta.,7.alpha.,8.alpha.,9.alpha.,12.alpha.,14.alpha.,17.alpha.,20.alpha.]-3,7,12-trihydroxy-24-oxocholan-24-yl]amino)propyl]ammonio]propane-1-sulfonate		
Chemical formula	: C ₂₈ H ₄₆ N ₂ O ₇ S		
Supplier	Manufacturer	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723	
Code	: 0028299 0028299B 0028300 1854560 1861114 1862285 1877350 1891382 RM2197		
MSDS #	: 0359		
Validation date	: 1/13/2011.		
Print date	: 1/13/2011.		
Responsible name	: MSDS Specialist		
In case of emergency	CHEMTREC:	Material uses	: Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.
	800.424.9300		
	OUTSIDE US:		
	202.483.7616		
Product type	: Powder.		

2. Hazards identification

Emergency overview	
Physical state	: Solid. [Powder.]
Color	: White.
Signal word	: CAUTION!
Hazard statements	: MAY BE HARMFUL IF SWALLOWED. MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
Precautionary measures	: Do not ingest. Avoid breathing dust. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Keep container tightly closed. Wash thoroughly after handling.
OSHA/HCS status	: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects	

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2. Hazards identification

Inhalation	: Slightly irritating to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	: Harmful if swallowed.
Skin	: Slightly irritating to the skin.
Eyes	: Slightly irritating to the eyes.
Potential chronic health effects	
Chronic effects	: Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.
Over-exposure signs/symptoms	
Inhalation	: Adverse symptoms may include the following: respiratory tract irritation coughing
Ingestion	: No specific data.
Skin	: Adverse symptoms may include the following: irritation redness
Eyes	: Adverse symptoms may include the following: irritation watering redness
Medical conditions aggravated by over-exposure	: None known.
See toxicological information (Section 11)	

3. Composition/information on ingredients

United States		
Name	CAS number	%
1-Propanaminium, N,N-dimethyl-N-(3-sulfopropyl)-3-[[[3.alpha.,5.beta.,7.alpha.,12.alpha.]-3,7,12-trihydroxy-24-oxocholan-24-yl]amino]-, inner salt	75621-03-3	98 - 100
Canada		
Name	CAS number	%
1-Propanaminium, N,N-dimethyl-N-(3-sulfopropyl)-3-[[[3.alpha.,5.beta.,7.alpha.,12.alpha.]-3,7,12-trihydroxy-24-oxocholan-24-yl]amino]-, inner salt	75621-03-3	98 - 100

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

- Flammability of the product** : Fine dust clouds may form explosive mixtures with air.
- Extinguishing media**
- Suitable** : Use dry chemical powder.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flames, smoking or flames in hazard area. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Small spill** : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

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6. Accidental release measures

- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 20 to 25°C (68 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

United States

Ingredient	Exposure limits
1-Propanaminium, N,N-dimethyl-N-(3-sulfopropyl)-3-[[[3a,5β,7α,12α)-3,7,12-trihydroxy-24-oxocholan-24-yl]amino]-, inner salt	ACGIH (United States), TWA: 10 ppm

Canada

Occupational exposure limits

No exposure limit value known.

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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8. Exposure controls/personal protection

Personal protection

- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If operating conditions cause high dust concentrations to be produced, use dust goggles.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

- Physical state** : Solid. [Powder.]
- Color** : White.
- Molecular weight** : 614.89 g/mole
- Molecular formula** : $C_{22}H_{36}N_2O_7S$
- pH** : 6 [Conc. (% w/w): 1%]
- Melting/freezing point** : 157°C (314.6°F)
- Solubility** : Soluble in the following materials: cold water and hot water.

10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.
- Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

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11. Toxicological information

United States

Acute toxicity

- Conclusion/Summary** : To the best of our knowledge, the toxicological properties of this substance have not been thoroughly investigated.

Chronic toxicity

- Conclusion/Summary** : Not available.

Irritation/Corrosion

- Conclusion/Summary** : Not available.

Sensitizer

- Conclusion/Summary** : Not available.

Carcinogenicity

- Conclusion/Summary** : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
1-Propanaminium, N,N-dimethyl-N-(3-sulfopropyl)-3-[[[3 α ,5 β ,7 α ,12 α]-3,7,12-trihydroxy-24-oxocholan-24-yl]amino]-, inner salt	-	-	-	-	-	None.

Mutagenicity

- Conclusion/Summary** : Not available.

Teratogenicity

- Conclusion/Summary** : Not available.

Reproductive toxicity

- Conclusion/Summary** : Not available.

Canada

Acute toxicity

- Conclusion/Summary** : To the best of our knowledge, the toxicological properties of this substance have not been thoroughly investigated.

Chronic toxicity

- Conclusion/Summary** : Not available.

Irritation/Corrosion

- Conclusion/Summary** : Not available.

Sensitizer

- Conclusion/Summary** : Not available.

Carcinogenicity

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Mutagenicity

- Conclusion/Summary** : Not available.

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11. Toxicological informationTeratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

United StatesAquatic ecotoxicity

Conclusion/Summary : Not available.

Persistence/degradability

Conclusion/Summary : Not available.

CanadaAquatic ecotoxicity

Conclusion/Summary : Not available.

Persistence/degradability

Conclusion/Summary : Not available.

Other adverse effects

: No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*
DOT Classification	Not regulated.	-	-	-
IATA-DGR Class	Not regulated.	-	-	-

PG* : Packing group

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15. Regulatory informationUnited States

HCS Classification : Not regulated.

U.S. Federal regulations : TSCA 8(a) IUR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): Not determined.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

State regulations

Massachusetts : This material is not listed.

New York : This material is not listed.

New Jersey : This material is not listed.

Pennsylvania : This material is not listed.

United States inventory (TSCA 8b) : Not determined.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

Canadian lists

Canadian NPRI : This material is not listed.

CEPA Toxic substances : This material is not listed.

Canada inventory

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

International lists : Australia inventory (AICS): Not determined.

China inventory (IECSC): This material is listed or exempted.

Japan inventory: Not determined.

Korea inventory: Not determined.

New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.

Philippines inventory (PICCS): Not determined.

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16. Other information

Label requirements : MAY BE HARMFUL IF SWALLOWED. MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	0
Physical hazards	0

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



Date of printing : 1/13/2011.

Date of issue : 1/13/2011.

Date of previous issue : No previous validation.

Version : 1

Prepared by : MSDS Specialist

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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1. 21#2' S' %271.; 88 > 81# S#1 5/77%8# / 7'. 1 P S . 07". # 8 . S". # 2 S % 23 # 2' 1 2 / . # 2 1 # 3# 0# # S# . S' 28 # 2
; 87#1%2.

D'X%7"! %3 #! 70\$#7

@ # 1. 211" < QD ! L 9 8 4 6 % 5 E " . % 5 # 9 5 " 1 1 " % 5 + + % 9 8 E . - . 1" 3 9 8 + D % # . + 9 8 ' D 9 8 5 # 9 # 8 1 " 4
H 4 6 % 1 + % = 5 5 " . + 8 8 ! 1 + * 5 1 5 # 9 8 1 5 1 9 D. % 3 3 . 4 6 6 - % 8 B. 4 6 # \$ - + % . % 5 . - . 1 1 5
1 " . 5 " ; 5 % E E . - . 1 " #
(L % 1. 211" < 8 9 % + % 4 6 " 5 " 1 1 " 9 8 E . - . 1" 3 9 8 + D % 5 9 8 ' D 9 8 5 # 9 # 8 1 " 4 8 4 6 % 1 + % = 5 5 " . +
B D S % E " . 5 1 % 5 " 1 E . 5 1 " - % 8 " D 5 1 % 5 - % D " + % 6 1 + D 9 8 " D 5 1 % 8 H 4 %) + / 9 8 S 1 5
+ D " . + 9 D " 4) 1 D 9 8 H 4 %) + / % . % 5 . - . 1 1 3 6 " . 5 " ; 5 % E E . - . 1 " #
@ 1. 8 % 2 < S " . % J 3 " + - % 4 4 " 5 % 9 8 + D % 4 % 9 8 6 " 9 4 1 D 5 1 8 9 8 4 1 D 5 1 8 9 8 4 1 D 5 1 % 9 4 1) 3 4 6 6 4
4 + 3. 4 1 " 4 # 8 4 1 + 9 1) 4 8 3 4 " . - % 4 H . 1 9 6 + 3. 4 1 " 5 % 8 % # . 5 9 # 8 1 5 . - 9 8 . 4 4 " 5 5 . 9
N " + . 5 9 8 D " 9 8 " D 5 1 %) 1 D % + % 6 " 9 8 4 3 8 8 9 8 4 6 1 + 0 1 5 - / % . % 5 . - . 1 1 3 6 " . 5 " ; 5
. E E . - . 1 " #
@8#7%2 < A 1 + D %) " 5 ") D 8 " D 8 1 " 4 9 8 " % " 9 6 -) ! . % E " 5 1 % 5 5 + % 4 1 " . - % % % 9 8 5 . - . 1 1 5
3 . 4 " 5 5 . 3 9 8 4 " 4 6 " . % 6 # D 5 1 9 8 # 5 ") D 8 % 6 % 5 " 5 H ") + 9 8 . 4 4 " 5 / % . % 5 . - . 1 1 5
1 " . 5 " ; 5 % E E . - . 1 " #

9ERREFC9C 2!"
NH9L. 5L. X. + 14 D. # % J % < ? % " 1 L H 4. 0 # % < = U 5 C 9 7 ? ? % # B B / D. 4 E " 1 " E
A. 4. % " ! D 5 " \$ 1 # 9 7 7 ? % W S. 4. 1 5 % " 1. % < < 7 = % # C = U 5 C 9 7 ? ? % # B B / D. 4 E " 1 " E

#S%() "+, S-./01

9\:'=#80&". \$'! "%2

L2%#/(L#Z
74 ('4 & 7798U "%2
I :('X#/#3 &S#0& "%27
< C14 . "%4 15%#H! "+
< A(4 QBUVB = @#3 ; 'R1 \$'S%#T#3 : "%2&M "% . . 4E 5. -
I 2%#/'("1#7'2S#2" S'UA(4 QB-V&M "% . . 4E 5. -/
(Q-Q GGERDDE99RDE #T'S#3 #8 ; 1 P S' . 0770>7'1 21#7&M %3F-)1"4B 4 9#) 5-/
(Q-Q GGERDDE99RDE #S#21" ; &22'2S'1 2' . "98U "%2&M %3F-)1"4B 4 9#) 5-/
(Q-Q GGERDDE99RDE 1 P S' . 071 #3 %U &S#2" S' "V1 P S' % #2'98U "%2&M %3F-)1"4B 4 9#) 5-/
(Q-Q G99RDE (+ / ' %'9%0 "%2 VM #3 %U &S#2" S' "V1 P S' % #2'98U "%2&M %3F-)1"4B 4 9#) 5-/

4# 2' Q%Q1" ("1 "%2
99EUA71 P S' . 07 Q%
- . 801 2'7 U Q- 7V
4# 2' Q%Q1" ("1 "%2 KCE
4 & 77 6(0>7'1 21#7
4# 2' Q%Q1" ("1 "%2 KCE
4 & 77 6(0>7'1 21#7
+@() %'64 #3 %U &
U#10S7 S4 #3 %U &V
+@() %'64 #3 %U &
@7#2 "%84 #3 %U &V

(L#S#80& "%27
1771 1 07#7
Y#Me SL
Y#Mb#S7#
- #227' 83 2%
I 2%#/'("1#7'2S#2" S'
UA(4 QB-V
4121/1
* ? q 'U1 21/1 V
4121/1 %2' 887
4121/1 %2' Y- =6
4 @ QA T%70>7'1 21#7
4121/1 %2S#2" S'
< CD+5E1". 41S#% "%#"- /-
< CD+5E1". 41S#% "%#"- /-
< CD+5E1". 41S#% "%#"- /-
< CD+5E1". 41S#% "%#"- /-
< W "% . . 4E 5. -/

A %; S / 01" ; 17>##2'1&7798U' 2'1 11. S' 121#M% "" ; #1 P S' '1S'95% ')" ; #4 . 2'S. 88U' /- S / 017'=#80& "%27
12/ " ; # (+ ("1. 2'1 2S7'1 & ; #2) S3 1 "%2 S#(0%#1 ">"" ; #4 . 2'S. 88U' /- S / 017'=#80& "%27:

62"#S21 "%21 &S#0& "%27
62"#S21 "%21 &S#7
< Q07'S 8S'2S#2" ; S' "U08 (V&D+5E1" . 41S#% "%#"- . -%#&J. E3" ; -/
4 . 2S' "2S#2" ; S' "U08 (4 V&M "% . . 4E 5. -/
b) ; 1 2' "2S#2" ; S' "8CD+5E1" . 41S#% "%#"- . -%#&J. E3" ; -/
c . S#1 "2S#2" ; S' "88U' "% . . 4E 5. -/
Y#M d#1 & 2/ 12S#2" ; S' "14 #3 %U &LYd6 4 V&D+5E1" . 41S#% "%#"- . -%#&J. E3" ; -/
- . %8 ; 2S#7 "2S#2" ; S' "U 64 (V&M "% . . 4E 5. -/

9ERRE9C9C 7I"
NH9L 51 % + 14 D... %J%<?
A. 4 % "1 D8'91#8U /...>?%WS 4 .15%*1- ...<?>=c=Uc9??:<8UJ

#S%() "+, S-./01

9K:'H", #S%2). \$3 ! "%2

]]>#&S# 0%#3 #27 < S[\ %Q[PGV%VGAW[C K1 %K[QC8V% V%V%2 %8 [M%MK10[CMW%8[\ %8[PGV
C[K[VC%K[[V%8[S[([V%8[QV2 % V%8 V%8 [N%8[Q]

?1 P S' . 07' 1 "#S%&
(2) S3 1 "%2("7#3 "U : (QV

Table with 2 columns: ?#1 &, and values 7, 7, 7.

A #107. 3 #S%S#7 . 27%8#) S / # "S3 "2S#2" ; # - . @1. / #) . S' ; %3 ! "#S%&
Y1 "%21 & "%#- S #1 "%2 <
Q77. 1% "%2 U : (QV



+1 "# .) ; S%2'88 < 9ERRE9C9C
+1 "# .) %70# < <0@8@7<7/
+1 "# .) ; S%607 "%70# < W "%4 . ") +%1\$ -1" ; 5/
5#S7%2 < <
; 1 S# / ' > * < S Q2 G%K. 1) S1" #963. 1. 1S+U
62/ %U "#7'2). S3 1 "%2" ; 1" ; 171. 1 28# / ') S 3' ; S%078' "%70# / "S#7%2:
Y . "%# " "S#1 / #5
A . " ; # > #7" .) . 0SL2. M8/ 8#1" ; #2) S3 1 "%2' 1. 2'1 2S#1' ; #S#2 %8 1109 "#? ; M#S#2% #S" ; #1 > . S#U#1 3 #/
70 ; 88S2. S12" .) %70>7%8S#7N 7703 #71 2" 8>%8 "M. 17. #S#S) S" ; #1 110S 1" ; S 1.3 ; 8#2#77 .)" ; #
2) S3 1 "%2' 1. 2'1 2S#1' ; #S#2:
X%1 & # "#S3 2% "%2 .) 70% > %8 ;) 1 2" 3 1 "#S1&S% ; #7 . 8# S#7 . 27% %8% .)" . #07#S' Q83 1 "#S1&S' 3 1 " ; S#7#2"
02L2 M2' 1 P S' 71 2 / '7 . 08 ">#07#1M% "1 0 "%2? Q8 . 08. 1#S1 2' ; 1 P S' 71 S# / #71S%#1' ; #S#2N# 11 22 . "
801 S 2 "## ; 1 "" ; #7#1 S# " . #2 & ; 1 P S' 7" ; 1 " #1#% .

9ERRE9C9C 7I"
NH9L 51 % + 14 D... %J%<?
A. 4 % "1 D8'91#8U /...>?%WS 4 .15%*1- ...<?>=c=Uc9??:<8UJ


```
#5%() %.-./S-0.12
99:'A. T%. & 8%! &2). $3 ! "%2
L2%#/(L1"#7
Q10"%" T%2%
4. 21807%2R 03 31'S < D' %/ %/ -%4% 866"C$ -/ 7% /%J]"S +J 184S 4/ 5/- %4% } % & "161 / %1V %5"
&/ 6% "S . +( 9%6V -)"17. 0
4. S 2%" T%2%
4. 21807%2R 03 31'S < W "%6V1)880
888% %2R. 8 7%2
4. 21807%2R 03 31'S < W "%6V1)880
L#27%8#5
4. 21807%2R 03 31'S < W "%6V1)880
41S1% 8#2%2%
4. 21807%2R 03 31'S < W "%6V1)880
018#2%2%
4. 21807%2R 03 31'S < W "%6V1)880
A#9 " 8#2%2%
4. 21807%2R 03 31'S < W "%6V1)880
=#. S / 01"8# " T%2%
4. 21807%2R 03 31'S < W "%6V1)880
4121/1
Q10"%" T%2%
4. 21807%2R 03 31'S < D' %/ %/ -%4% 866"C$ -/ 7% /%J]"S +J 184S 4/ 5/- %4% } % & "161 / %1V %5"
&/ 6% "S . +( 9%6V -)"17. 0
4. S 2%" T%2%
4. 21807%2R 03 31'S < W "%6V1)880
888% %2R. 8 7%2
4. 21807%2R 03 31'S < W "%6V1)880
L#27%8#5
4. 21807%2R 03 31'S < W "%6V1)880
41S1% 8#2%2%
4. 21807%2R 03 31'S < W "%6V1)880
018#2%2%
4. 21807%2R 03 31'S < W "%6V1)880
A#9 " 8#2%2%
4. 21807%2R 03 31'S < W "%6V1)880
=#. S / 01"8# " T%2%
4. 21807%2R 03 31'S < W "%6V1)880
```

```
9E:'@. & 8%! &2). $3 ! "%2
@. ". T%2% < W "%6^C6+(6)H 16%"H!"-%86J" 1861X15 -0
L2%#/(L1"#7
QY01"%"#1. " T%2%
4. 21807%2R 03 31'S < W "%6V1)880
-#57%#21#R #8S /1>888
4. 21807%2R 03 31'S < W "%6V1)880
4121/1
QY01"%"#1. " T%2%
```

```
#5%() %.-./S-0.12
9E:'@. & 8%! &2). $3 ! "%2
4. 21807%2R 03 31'S < W "%6V1)880
-#57%#21#R #8S /1>888
4. 21807%2R 03 31'S < W "%6V1)880
H" #S/ /S#S#)#1'7 < W "%6^C6+(6)H 16%"H!"-%86J" 1861X15 -0
```

```
9G'+% ; . 7! &1. 27%#S' "%27
] !7# / % . 7! & < D / %/ 6/ 51" 6%4%1-7%4" $ %/ %6V / %6% 3E J% %6 / 5 V 6% -- 3S 076+(6)H 16"
b. 1677) - %6%1-7%4S . 1"8" . / -%4" $ %/ %6% 4+- / -%4%1% / %6 %4 C/ 8% .
4S 1 / - / %6% 1'18S %4H / 6" %/ 4E / 6" %4S 6" 0%4-4" / %4% 54S - %6 %6 6 5 1 # 8 8S
4S . 1" %1%8 / 6- / %1-7%4-4" - 19% 6" 51" 50% -4" - 19%4% - %4S . 1" %6 $ 7 6-
16 %6#8#4S . 1" %4" $ %/ %6% / -%6 E 4%3%11 % / %6 b. 3E / 6" %4% 6V8 6E / 6" 15
4S 7/ 1 7 6%6 %6 1-7%4-4" - 19% +) 3" 7 6%6 %6#8# +) 61388 11%6 . 1" 9#%# b. 3E / 6" 0
" 1-7%4 11+6+4% " $ %/ %6 1 # $ . 0%6 6/ 51" 6%4%6 6. H884" $ %6#8# 9% 6- / 5 /
C / 6% 1 # 3S +% %6 " 8 1 - 3S 076 -) %6 1' 51%6 %6 %6 6" 16/ 8% . -%6 %4-4" - %6%6%
-1H %18%6E 4 #%6 6" 16/ 5 %6%6 / 5 %6 1#5% 1" 6% E / %4S . 1" %6 - / - 0%6V" %6 4 / 5 15
*H44 % . %6 17 51%6 %6 6" H%6 %6 6" 11 %6 [ %6 %6 1' 5C 1# %6 51%6 %6 %6 C / 5 0
+% . 7! &7 . 0 &8' > #8 11. S / 1 2 1# M% " ! ; 88 > 8# 5#8%21 821 "%21 8 2 / ' & 11 && M7 1 2 / " #80 & "%27:
=#) #S " ( #1 "%2 J < ? QZ + \ QZ ^ ' QZ + ' ( AH = Q^ @ 2 / ' ( #1 "%2 B @ - H ( I = @4 HZA = H ( R @ ( HZ Q' - = HA @ ABZ
) . S / / %6 21 & 1 2 / 888 " 8) . $3 ! "%2 1 2 / " ; S " #1 "%2 . ) #3 ; & " ##7:
```

```
9D:'A$ 27; . $"2). $3 ! "%2
```

=#80 & . \$"2)	I 2' 203 >#5	- \$; #S7 % . %28 21 3 #	4 & 77#7	- A "
+HA 4 & 77%8H "%2	W" 5 +, 8 7. 0	.	.	.
8A QW^ = 4 & 77	W" 5 +, 8 7. 0	.	.	.

```
B3 f%881! L6+%4S . 4
9I : '=#80 & " . $"2). $3 ! "%2
L2%#/(L1"#7
?4 ("4 & 77%8H "%2 < W "%6 +, S 7. 0
I : (:X# / #3 8S#80 & "%27 < A ( 4 QBU V8 = @ #3 ; 'R 1 $ %8 #T #3 ; "%2 88M "%6 7 E J6 / .
1 2%# / ( " #7 "8S2" $ "UA ( 4 Q E - 88M "%6 7 E J6 / 0
(Q = Q C E R G O D R 9 9 R B E # T " #3 # & ; ! P 5 / . 0 7 7 0 > 7 " 1 2 1 # 8 8 M % 4 S . ; 1" %6 / 5 %8 . 6 0
(Q = Q C E R G O D #3 #S #21" ; & 22%88 1 2 / 2 . "88M "%2 88M %4S . ; 1" %6 / 5 %8 . 6 0
(Q = Q C E R G O D R 9 9 R B E ; ! P 5 / 0 7 1 . #3 %8 & 88M %4S . ; 1" %6 / 5 %8 . 6 0
(Q = Q C B 9 R B E ( + ( / ' %6 %0 "%2 V M . #3 %8 & 8S #2" . S " W 1 P S "%6 #2 " 88M "%2 88M
4S . ; 1" %6 / 5 %8 . 6 0
```

```
4. 8# 2' Q% Q1" ( #1 "%2 < W "%6 7.
99E J V 7 ! P S . 0 7 Q%
. . 80 1 2 7 U Q 7 V
4. 8# 2' Q% Q1" ( #1 "%2 KCE < W "%6 7.
4 & 77 6 ( 0 > 7 1 2 1 #7
4. 8# 2' Q% Q1" ( #1 "%2 KCE < W "%6 7.
4 & 77 6 ( 0 > 7 1 2 1 #7
+ @ 1 % 64 . #3 %8 & < W "%6 7.
U # 10 S7 . $4 . #3 %8 & V
```

```
#S%0 %-./ /S-0,12
9[ : '#80&". $'! "%2
+@A\ %'64. #3 %&
U@7#2%&4. #3 %& &V
< W' %'7.

! " # $ % & ' ( ) * + , - . / : ; < = > ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [ \ ] ^ _ ` { | } ~
1771.1.07#77 < W'6/%& / %'E4*6/6'-%5 %'7. 0
Z#Md. SL < W'6/%& / %'E4*6/6'-%5 %'7. 0
Z#Ma#57#* < W'6/%& / %'E4*6/6'-%5 %'7. 0
-#227: &S 2% < W'6/%& / %'E4*6/6'-%5 %'7. 0
I 2?#/( '1'7'2S#2". S' < W'6/%'7 E J/. 0
U\4QB>V
4121/11
] ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [ \ ] ^ _ ` { | } ~
] ? @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [ \ ] ^ _ ` { | } ~
4121/ %2 &7 < W'6/%& / %'E4*6/6'-%5 %'7. 0
4 @ QA T %70>7"1 21#7 < W'6/%& / %'E4*6/6'-%5 %'7. 0
4121/!'2S#2". S' < W'6/%'7 E J/. 0
A. %: S / 01", 17>#2'1&77%&'2"11. S'121#M% "" #. ! P S' /1S'5%: ')", #4. 2"S. &#1' - S / 01'7=#80& "%27
12"/, # (+('1.21'27! &". #2). S3 ! "%2 S'Y0%#/'>"", #4. 2"S. &#1' - S / 01'7=#80& "%27.
&7#21 "%21 &#80& "%27
&7#21 "%21 &#80& "%27 < Q07'S &#2S#2". S'10& ( V&#7'7 E J/. 0
4. &#1'2"2S#2". S'10& (4 V&#7'7 E J/. 0
a! : 1'2"2S#2". S' &#7'7 E J/. 0
b. S#1'2"2S#2". S' &#7'7 E J/. 0
Z#M c#1 &2/ '2S#2". S' " j4. #3 %& &'U c6 4 V&#7'7 E J/. 0
- , %&: &#7'7 E J/. 0
S'1 U 614 ( V&#7'7 E J/. 0
```

```
9K'H", #S%2). $3 ! "%2
\1>#&S#Y0 #2'7 < W D#A BUZDU2' &#K 2PZU%&@ W&#N] VD%2'AKGU%U] N. %FFUZDG%_UW
D_U%&UZ RRUVU2'U2%MGDKPZDM V&#% K'&GU%KUKU% 'N' U20
?1 P S. 07. !"#S%&
&2). S3 ! "%2('7#3'U :(.QV

? #1 &
X & 3 3 1 > %&
: "7%& & 1 P S 7

A. #107": 3 #S% S#7; .27%&' S / # #S3 '2S#2", # - - @1. / #). S". %3 ! "#S%&
Z1 "%21 &X%# - S ' #1 "%2 <
Q77. 1% "%2' U :(.QV

? #1 & X&3 3 1 > %&
&27' > %& R # 1 "%S%
(: #1%&

+1 "#. ) : S%#28 < 9&REC99:
+1 "#. ) %70# < 8@@ 880
+1 "#. ) : S#S%07' %70# < W' %5 V', - %'1$ 1"7 60
5 #S%2 < 8
- S#1 S#1 '>' < R G2 G%K/ + S'1" S#G1/ ! j $ 'T
#2/ %' #7' %2). S3 ! "%2", !", 171, 128#/'S 3': S#S%07& %70#/'S#S%2:
9&REC99: 81"
```

NH%Y 8/ X/ / 18 (%&#S %'JBSA %'LH5 7%#2S>T00C:APA %�/ / E'0 *E
B/ 9/ %'7/ (6'9+ #M O&#A#A#V/ 3 j16%*1. %�:88: > %S>T00C:APA#0S1J

```
#S%0 %-./ /S-0,12
9K'H", #S%2). $3 ! "%2
Z "%# "'S#1 / #S
A. "" # >#7". ) 0SL2. M& / 8#N", #2). S3 ! "%2'1. 2'1'2# /'. #S#2% %1110S' "#:?. M#S#12#% #S". #! > S#M1 3 #/
70: ; &#S12. S1 2". ) %'70>7%&S%7N 7703 #712" &#>%&#M, !'7. #S#S). S". #!1110S'1". S1.3 ; &#2#77". )", #
2). S3 ! "%2'1. 2'1'2# /'. #S#2:
X%& & # #S3 %' "%2. )70% >%&: y12"31 "#S1&S%". #7. &#S#7. .27%&S%: )", #07#S: Q&S3 ! "#S%&'3 ! "": S#7#2"
02L2. M2: ! P S / 712/ '7. .0& '>#07#/'M% '110"%2: Q&S. .08. '1#S1'2'. ! P S / 71 S# / #71S%#/' : #S#2#N# 1122. "
801 S 2"##", !"" , #7#1 S#". #. 2&. ! P S / 7. ! "#7'6":
```

```
9&REC99: 11"
```

NH%Y 8/ X/ / 18 (%&#S %'JBSA %'LH5 7%#2S>T00C:APA %�/ / E'0 *E
B/ 9/ %'7/ (6'9+ #M O&#A#A#V/ 3 j16%*1. %�:88: > %S>T00C:APA#0S1J



#1492 7# 413 7#1 8375 38
The world leader
in sensing science

! " \$ % & ' () * + , - / 0 1 2 3 4

! " \$ % & ' () * + , - / 0 1 2 3 4

: 1 % / 02#1'3/ 2. 4 " 3 * % \$ 3#02" #8 3

```

- % / 02#1'4 $          ! " $ % & ' ( ) * + , - / 0 1 2 3 4
(* 3. 3*4              2#451 (/001" #8375 38 + 677#75'149'345'2#3451 1 : 2#451 1'0 : 149 4 (/ (
                          7 %67 39 1 (/ / ( 7#% 7 9"" 9+ 75 9( ( # (149 4 (/ (7 %67 39
                          %6 ( / / ( 7#% 7 9"" 9+ 75 9(4' 76%( # (149 7 95769849 (7#(
4& 94 75 97 7#1 49 4 (/ (7 %67 39 1#9 % (/ / ( 7#% 7 9"" 9+ 75 9(
4* 7894 # (1 84 5491 15%6451%#4, 1375:1 84 549
                          2 1 1 2 1 2 :1/0
0 '8%                  2 7# 413 7#1 8375 38 ! "30"2#0% 2 7# 413 7#1 8375 38
                          3#871 3'78 5498 3#871 3'78 5498
                          1 4 / 1 4 /
4& 5# 1 1 / / 0        4& 5# 1 1 / / 0
537 1 %7.             537 1 %7.
/ 0 # #                / 0 # #
00                       00
5 / $                   00 / 100 / 100 / 1 / 0 0 1 /
!( +(1                  0
6""&"#8 31" #8        / 0/
- %6# " #8             / 0/
$8 . 38& 'S 6" 4 $    ! 6! 1 +78382'
732" 851154 5#8532"  5 ! 5 ! " # % & ' 0858 S) $ % # $ 838#02#8 3
                          (7+ 1 ( #83/ $ / 105 # # % 85
                          2. 3# 2#80 8% % $ 29&
                          " #8 38
- % / 02#1' $          3*3
1 " " % 8 1& $ 3#02" #8 3
4 $ 98532" 1 $ % 8
- , " 8 2"" 6# #8      3" 3 1 384",
5 . . %                9%#41 98 '91 % 11 49#7.,
( #3"" 1 %             ) 2
" " % 6# #84 $ 3#8     ) 1 1 ) ) 1 1 ) 6 11 ) 1 ) ! 1 ! ) 2 ) 2 ) 2 1
) 61 1 2) 2 ) 1 1 ) 2 ) ! 1 ) 2 ) 2 ) 1 ) ! 2 ) 2
) 6 ) 1 ) 1 ) 1 ) 6 ) 2 )
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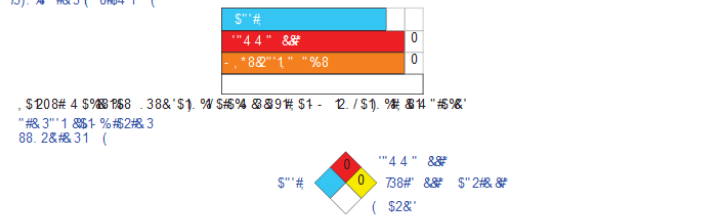
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Part of Thermo Fisher Scientific

Material Safety Data Sheet

1. Product and company identification

Product name	: Surfact-Amps 35	
Supplier	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723	Manufacturer : Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 800.874.3723
Product No.	: 0028316 0028316B 1881060	
MSDS #	: 2437	
Validation date	: 5/18/2010.	
Print date	: 5/18/2010.	
Responsible name	: MSDS (Regulatory Affairs)	
In case of emergency	: CHEMTREC: Use of 800.424.9300 OUTSIDE US: 202.483.7616	: Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

2. Hazards identification

Physical state	: Liquid.
OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview	: WARNING! CAUSES EYE IRRITATION. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE SKIN IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. Harmful if swallowed. Severely irritating to eyes. Slightly irritating to the skin. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get in eyes. Avoid contact with skin and clothing. Contains material that can cause target organ damage. Wash thoroughly after handling.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects	: No known significant effects or critical hazards.
Inhalation	: No known significant effects or critical hazards.
Ingestion	: Harmful if swallowed.
Skin	: Slightly irritating to the skin.
Eyes	: Severely irritating to eyes. Risk of serious damage to eyes.
Potential chronic health effects	: Contains material that can cause target organ damage.
Chronic effects	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.

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2. Hazards identification

Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.
Target organs	: Contains material which causes damage to the following organs: the nervous system, skin, eyes. Contains material which may cause damage to the following organs: kidneys, lungs, liver, bladder, gastrointestinal tract, central nervous system (CNS).
Over-exposure signs/symptoms	
Inhalation	: No specific data.
Ingestion	: No specific data.
Skin	: Adverse symptoms may include the following: irritation redness
Eyes	: Adverse symptoms may include the following: pain or irritation watering redness
Medical conditions aggravated by over-exposure	: Pre-existing digestive disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

The preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification	: Xi, R41
Human health hazards	: Risk of serious damage to eyes.
See toxicological information (section 11)	

3. Composition/information on ingredients

United States	
Name	CAS number %
Brij 35	9002-92-0 7 - 10
Europe	
Substance/preparation	: Preparation
Ingredient name	CAS number % EC number Classification
Brij 35	9002-92-0 7 - 10 500-002-6 Xi, R22 [1] Xi, R41, R38

There are no ingredients or additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in section 8.

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4. First aid measures

- Inhalation** : Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention. Chemical burns must be treated promptly by a physician.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

- Flammability of the product** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
 - Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous combustion products** : Decomposition products may include the following materials: carbon oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

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6. Accidental release measures

- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 20 to 25 C (68 to 77 F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

- Europe**
- No exposure limit value known.
- Consult local authorities for acceptable exposure limits.
- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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8. Exposure controls/personal protection

- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

- Physical state** : Liquid.
- Color** : Clear Colorless.
- Solubility** : Soluble in the following materials: cold water and hot water.

10. Stability and reactivity

- Chemical stability** : The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
- Conditions to avoid** : No specific data.
- Incompatible materials** : No specific data.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Will not occur.

11. Toxicological information

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Dodecan-1-ol, ethoxylated	LD50	Rat	125 mg/kg	-
	Intraperitoneal			
	LD50 Intravenous	Rat	27 mg/kg	-
	LD50 Oral	Rat	1000 mg/kg	-
	LD50 Oral	Rat	8600 mg/kg	-
	LD50	Rat	953 mg/kg	-
	Subcutaneous			

- Conclusion/Summary** : Not available.
- Chronic toxicity**
- Conclusion/Summary** : Not available.
- Carcinogenicity**
- Conclusion/Summary** : Not available.

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11. Toxicological information

- Classification**
- | Product/ingredient name | ACGIH | IARC | EPA | NIOSH | NTP | OSHA |
|---------------------------|-------|------|-----|-------|-----|-------|
| Dodecan-1-ol, ethoxylated | - | - | - | None. | - | None. |
- Mutagenicity**
Conclusion/Summary : Not available.
- Teratogenicity**
Conclusion/Summary : Not available.
- Reproductive toxicity**
Conclusion/Summary : Not available.
- Europe**
- Chronic effects** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

12. Ecological information

- Environmental effects** : No known significant effects or critical hazards.
- United States**
- Aquatic ecotoxicity**
Conclusion/Summary : Not available.
- Other adverse effects** : No known significant effects or critical hazards.

13. Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste. Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*
DOT Classification	Not regulated.	-	-	-
IATA-DGR Class	Not regulated.	-	-	-

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14 . Transport information

PG* : Packing group

15 . Regulatory information

United States

- HCS Classification** : Irritating material
Target organ effects
- U.S. Federal regulations** : United States inventory (TSCA 8b): All components are listed or exempted.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Dodecan-1-ol, ethoxylated
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
Dodecan-1-ol, ethoxylated: Immediate (acute) health hazard, Delayed (chronic) health hazard
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

- WHMS (Canada)** : Not controlled under WHMS (Canada).
- Canadian lists** : CEPA Toxic substances: None of the components are listed.
Canadian ARET: None of the components are listed.
Canadian NPRI: None of the components are listed.
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

Canada inventory : Canada inventory: All components are listed or exempted.

EU regulations

Hazard symbol or symbols :



Irritant

- Risk phrases** : R41- Risk of serious damage to eyes.
- Safety phrases** : S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S39- Wear eye/face protection.

International regulations

- International lists** : Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Korea inventory (KECI): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Japan inventory (ENCS): All components are listed or exempted.

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16 . Other information

Label requirements : CAUSES EYE IRRITATION. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE SKIN IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

Hazardous Material Information System (U.S.A.) :

Health	2
Flammability	0
Physical hazards	0

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



Date of printing : 5/18/2010.

Date of issue : 5/18/2010.

Date of previous issue : 7/27/2009.

Version : 1.01

Indicates information that has changed from previously issued version.

Full text of R-phrases : R22- Harmful if swallowed.
referred to in sections 2 and 3 - Europe R41- Risk of serious damage to eyes.
R38- Irritating to skin.

Full text of classifications : Xn - Harmful
referred to in sections 2 and 3 - Europe Xi - Irritant

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

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(.'#1%&$/#1%$#
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P02(=0'5#.,7Q#%(((ACCG)G#20#(4N(((0)))0))B))))(((((0))@E@E@A)P4S
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4.S.2%"T%&
 4.21807%2R.0331\$ <G,/(4d404c-"K
 65%&'%2R.5.7%2

4.21807%2R.0331\$ <G,/(4d404c-"K
 L#2798#5

4.21807%2R.0331\$ <G,/(4d404c-"K
 41\$1%8.#2%&'&

4.21807%2R.0331\$ <G,/(4d404c-"K
 4&77%8#%2

-\$ / 01'P88\$#/'%2"213#	Q1+ @	Q2=4	@ Q	Y#(?	YA-	H(? Q
PRL_1RT=6 Z(8	%	%	%	G, #*K	%	G, #*K

018#2%&
 4.21807%2R.0331\$ <G,/(4d404c-"K
 A#9" .8#2%&'&

GBREC99: L3(150#5'(''+42<(((PR#_S)D))))(((((T_5&2NL(((9BYE@DCC))))))11K'Z',6,7
 P02'(-07'5#,-7Q#5&(((ACCGS'20#(T_4N))))(F)B))))((9BYE@D)F04

#5%&()'+,+. /012&
 99:'A.T%.&8%!&2).\$3!'%"2
 4.21807%2R.0331\$ <G,/(4d404c-"K
 =#.\$ / 01'P88\$#/'%2
 4.21807%2R.0331\$ <G,/(4d404c-"K

9E:'@. &8%!&2).\$3!'%"2
 @. "T%&
 <G,(UH,1#(+0#054#/'3'5+(,252054-<[42HK

L2%#/'(1"7
 Q10"#"T%&
 4.21807%2R.0331\$ <G,/(4d404c-"K
 -#57%#21#R#8\$ / L>%&

4.21807%2R.0331\$ <G,/(4d404c-"K
 4121/1

Q10"#"T%&
 4.21807%2R.0331\$ <G,/(4d404c-"K
 -#57%#21#R#8\$ / L>%&

4.21807%2R.0331\$ <G,/(4d404c-"K
 H",#S / S#5#)#1'7 <G,(UH,1#(+0#054#/'3'5+(,252054-<[42HK

9G'+%&,.7!&1.27%#S'%"27
 -17#/'%&.71&

< < (?# "24/0 # (3' 4+' (+< .-Nc" (4d.0f'N.27 0#0 0"Ni <2 d'28. ++e-"K(1 0#054#/
 M4#004, 3' 4+' (82 N.5/2 +N" "4+< .-N# / (c" (N08. +N. 3d0 / (< (3 .+1" "2c /
 82 5'+N#(4+ .04c" (3B. #/ (2 4/7 "#(84#/#0<08. +"(3+ 25- +4#N#.#2 5C-4c-
 82 N.5#(0044(5"#+N' 4+"N08. +4(5.#28'5. 26<00. +4(.3<0(82 N.5'V+ .0 #+
 4#N4#QcQ82 N.5#(+< .-N4/(4-0T" +5.78Q1 0<(/< (2M 02 7 "#(4. 3' #1Q2 #7 "#4-
 82 / 5/0 #4#(4#1 4+"N08. +4(-?0-4/0 #4#N4#Q2' 70#44. 54(4. /<.2Q2' M 02 7 "#4K
 ; 4#(845J4?0#?)+< .-Nc" (2'5C-"N4(4#50# 24/0 # (, 24#N9+< .-N. #Qc" (5. #+01'2'N
 ! <#(2'5C-0#?0# / (34+0-"K (<0(7 4' 2#(4#N0+5.#40# 27 . +/(c" (N08. +N. 30#(4
 +43 (1 4Q0H42 (+< .-Nc" (4U#(#! <#(4#N#? ("7 8/0 N5.#40# 2#(4<4d" # / (c""#
 5-4# "N. 22#+"N. /N(27 8/Q5.#40# 2#(2# 2#(7 4Q2' /40# +7 "#(82 N.5/2 +N" "4K
 6d. 0N08" 2#4(. 3+80" N7 4' 2#(4#N2 #. 334#N5.#45 (l 0<+ 0#(4' 2 4Q#N20#+
 4#N+1" 2#K

+%. .71&. .08'>#%2111. \$ / 121#M%!' ; &#>#S#8%21 &2! "%21 &2 / ' &11 &M71 2/ 'S#80 &'%27:
 =#)#S'.' (#1"%2'J<?QY+] 0Y^ 'QY+((AH=C# @ 2 / (' #1"%2' B#@ - H (I =@4HYA=H) (R @ (HYQ)' =HA@ABHY
). \$ / / %621 & 12 / &88'0). \$3 ! "%21 2 / ; S "#1"%2'.)#3 ; & #'#7.

9D:'A\$! 27; . \$''2). \$3!'%"2

=#80&' \$	I Y'203 >#5	-\$; #S' % . 28	4 & 77#7	- ^ a
2). \$3 ! "%2		21 3 #		
+HA'4 & 77%8# %2	G / Z? . 4"NK	%	%	%
6AQW^ =4 & 77	G / Z? . 4"NK	%	%	%

Pb gqP45U#?(?2. 8

GBREC99: L3(150#5'(''+42<(((PR#_S)D))))(((((T_5&2NL(((9BYE@DCC))))))11K'Z',6,7
 P02'(-07'5#,-7Q#5&(((ACCGS'20#(T_4N))))(F)B))))((9BYE@D)F04

#S%&()*+*,./012&

9\:'=#80&"\$. \$'! "%2

L2%#/'L1#Z

74 ('4 & 7798U "%2 < 42"/I(,24#("3'5/+
I:(.X#/#3 &S#80&"%27 < A(4 QIBUVB = @#3 ; 'R1 S%&#T#3 : "%2qG /N/'Z'8#N
1 2%#/'1 "#7 %S#2" S'UA,4 QIB-V#6-(5,7,8,# #442 (0#N,2' S'7 8/NK
(Q=Q GGERCCD#3 #88#21": &22%8'1 2/'2. "%8H "%2qG, (82 N 5/H "2 (3. #NK
(Q=Q GGERCCD#99RCBE #T'S#3 #8; 1 P S . 0770>7'1 21#7qG, (82 N 5/H "2 (3. #NK
(Q=Q GGERCCD#99RCBE 1 P S / 071, #3 %M &4G, (82 N 5/H "2 (3. #NK
(Q=Q G99RCBE (+ (' / %S%0 "%2 VM, #3 %M &2S#2". S'WV1 P S %"#2'%M "%2qG,
82 N 5/H "2 (3. #NK

4 8# 2' Q%Q1" ("1 "%2 < G, / (0#N
99EUV71 P S / 07 Q% < G, / (0#N
- . 801 2'7 U Q. 7V < G, / (0#N
4 8# 2' Q%Q1" ("1 "%2 KCE < G, / (0#N
4 & 77 6 (0>7'1 21#7 < G, / (0#N
4 8# 2' Q%Q1" ("1 "%2 KCE < G, / (0#N
4 & 77 6 (0>7'1 21#7 < G, / (0#N
+ @() %'64, #3 %M & < G, / (0#N
U#10S7, \$4, #3 %M &V < G, / (0#N
+ @() %'64, #3 %M & < G, / (0#N
@7#2 "%84, #3 %M &V < G, / (0#N

L1" #S#80&"%27 < G, #(', 3/<(5,7,8,# #442 (0#N NK
1 771 1, 07#7 < G, #(', 3/<(5,7,8,# #442 (0#N NK
Y#Me \$L < G, #(', 3/<(5,7,8,# #442 (0#N NK
Y#Mb#57# < G, #(', 3/<(5,7,8,# #442 (0#N NK
- #227' 83 2% < G, #(', 3/<(5,7,8,# #442 (0#N NK
1 2%#/'1 "#7 %S#2" S' < G-(5,7,8,# #442 (0#N, 2' S'7 8/NK
UA,4 QIB-V < G, #(', 3/<(5,7,8,# #442 (0#N, 2' S'7 8/NK
4121/1 < G, #(', 3/<(5,7,8,# #442 (0#N, 2' S'7 8/NK
? 8'U121/1V < G, #(', 3/<(5,7,8,# #442 (0#N, 2' S'7 8/NK
4121/ %2' %2' < G, #(', 3/<(5,7,8,# #442 (0#N, 2' S'7 8/NK
4121/ %2' Y=-6 < G, #(', 3/<(5,7,8,# #442 (0#N, 2' S'7 8/NK
4 @ QA, T%70>7'1 21#7 < G, #(', 3/<(5,7,8,# #442 (0#N, 2' S'7 8/NK
4121/!' %S#2". S' < G-(5,7,8,# #442 (0#N, 2' S'7 8/NK

A, %S; / 01", 17>##2'18,7798U' %2'11. S/121#M% "' #, 1 P S' '1S%4S% ')", #4. 2'S. 8H/ '- S / 017'=#80&"%27
12/ "' # (+ ("1. 2'1 %27'1 & ", #2). S3 1 "%2 S#(0%#1' > "' #, #4. 2'S. 8H/ '- S / 017'=#80&"%27:

62"#S21 "%21 &S#80&"%27 < Q07'S %S' %S#2": S'U08 (V#6-(5,7,8,# #442 (0#N, 2' S'7 8/NK
4, %2' %S#2": S'U08 (4 V#6-(5,7,8,# #442 (0#N, 2' S'7 8/NK
b1: 1 2' %S#2": S' #6-(5,7,8,# #442 (0#N, 2' S'7 8/NK
c. S#1' %S#2": S' #6-(5,7,8,# #442 (0#N, 2' S'7 8/NK
Y#M d#1 & 2/ '2 S#2": S' 14, #3 %M &LYd6 4 V#6-(5,7,8,# #442 (0#N, 2' S'7 8/NK
-, %8; %S#7 %S#2": S' U 64 (V#6-(5,7,8,# #442 (0#N, 2' S'7 8/NK

CBREC99: L3 (150 #5; T' "+ 42<(((PRB; S) D((((((T. 5,8 2ML(((9 BYE@LDCD(((! ! K' 2' , #. 7
P0 2' (=07 5#-, 7Q#%(((ACCGS "20#(T. 4N((((((F) B((((((9 BYE@LDCD(((! ! K' 2' , #. 7

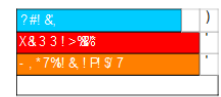
71"

#S%&()*+*,./012&

9K:'H", #S' %2). \$3 ! "%2

]1>#8S# 0%#3 #27 < 9 6 (H6WMZ(Z_Z(6G>(1' IG(TTI 6 IRG@HRG 6IG(96 ZT16L(a6 (H6G
H6VMZ(6TbZ (RTb6G@>696bZK

?1 P S / 07 '1 "%S#& <
(2). S3 1 "%2 (' *7#3 'U : (Q V



A, #107'. 3 #S %S#7, . 27%8#). S / # #S3 %2%8", # - @1. / #). S", %3 ! "#S%&
Y1 "%21 & %S- S' #1 "%2 <
Q77. 1% %2' U { Q V



+1 "#.) ; %S' %28 < G#REC99:
+1 "#.) %70# < A) . &)) K
+1 "#.) ; %S%07' %70# < G, (82 d0 . 4(d4-0#4/0#K
5#S7%2 <)
-S#; 1 S# / '> * < 9 1>1 (0" ? . 4; 2Q18" 50#-0#Y
#2/ %M "#7 %2). S3 1 "%2", 1", 171, 128# /) S 3'; %S%07& "%70# / "S#7%2:
Y. "%8# "S#1 / #5
A. "' #>#7".) ; 0SL2. M8# 8#N("#2). S3 1 "%2' 1. 2'1 %2# / ' #S#2 %6' 1109 "#? ; M#S#S#2#% #S", #1 >. S#U#1 3 # /
70: . 8#S#2. S12" .) %70>7%#S#7N 7703 #7'1 2" &>%8'M, 1'7. #S#S). S", #1 1109 1": S 1. 3 ; 8# #2#77' .)"; #
%2). S3 1 "%2' 1. 2'1 %2# / ' #S#2:
X%81 & / #S3 %2' %2.)70% >%8' ;)12" 31 "#S#&S% ; #7. 8# S#7: . 27% %8' .)". #07#S; Q&S3 ! "#S#&S' 3 ! "": S#7#2"
02L2. M2'. 1 P S / 71 2/ '7. . 0& '>#07# / M% "' 1 0 "%2' Q&. . 08, 1#S1 %2', 1 P S / 71 S# / #71S%# / ' , #S#2N# 11 22. "
801 S 2'##", 1"', #7#1 S#", #. 2&, 1 P S / 7", 1" #T#8'.

CBREC99: L3 (150 #5; T' "+ 42<(((PRB; S) D((((((T. 5,8 2ML(((9 BYE@LDCD(((! ! K' 2' , #. 7
P0 2' (=07 5#-, 7Q#%(((ACCGS "20#(T. 4N((((((F) B((((((9 BYE@LDCD(((! ! K' 2' , #. 7

71"



Part of Thermo Fisher Scientific

Material Safety Data Sheet

1. Product and company identification

Product name	: Surfact-Amps NP-40	
Supplier	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723	Manufacturer : Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 800.874.3723
Product No.	: 0028324	
MSDS #	: 0797	
Validation date	: 5/18/2010.	
Print date	: 5/18/2010.	
Responsible name	: MSDS (Regulatory Affairs)	
In case of emergency	: CHEMTREC: Use of 800.424.9300 OUTSIDE US: 202.483.7616	: Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

2. Hazards identification

Physical state	: Liquid. [Clear to slightly hazy liquid.]
Odor	: Odorless.
OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview	: WARNING! CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION. MAY BE HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. Harmful if swallowed. Severely irritating to eyes. Irritating to respiratory system and skin. May cause sensitization by inhalation and skin contact. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Contains material that may cause target organ damage, based on animal data. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects	
Inhalation	: Irritating to respiratory system. May cause sensitization by inhalation.
Ingestion	: Harmful if swallowed.
Skin	: Irritating to skin. May cause sensitization by skin contact.
Eyes	: Severely irritating to eyes. Risk of serious damage to eyes.
Potential chronic health effects	
Chronic effects	: Contains material that may cause target organ damage, based on animal data.

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Surfact-Amps NP-40

2. Hazards identification

Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.
Target organs	: Contains material which may cause damage to the following organs: endocrine.
Over-exposure signs/symptoms	
Inhalation	: Adverse symptoms may include the following: respiratory tract irritation coughing wheezing and breathing difficulties asthma
Ingestion	: No specific data.
Skin	: Adverse symptoms may include the following: irritation redness
Eyes	: Adverse symptoms may include the following: pain or irritation watering redness
Medical conditions aggravated by over-exposure	: Pre-existing respiratory, skin and digestive disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

The preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification	: Xi, R41
Human health hazards	: Risk of serious damage to eyes.

See toxicological information (section 11)

3. Composition/information on ingredients

United States		CAS number	%
Name		9016-45-9	7 - 10
Nomidet P-40 Substitute			
Europe		EC number	Classification
Substance/preparation	: Preparation		
Ingredient name	CAS number	%	EC number
Nomidet P-40 Substitute	9016-45-9	7 - 10	Xn, R22 Xi, R41, R37/38

There are no ingredients or additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

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3. Composition/information on ingredients

Occupational exposure limits, if available, are listed in section 8.

4. First aid measures

- Inhalation** : Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In the event of any complaints or symptoms, avoid further exposure.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention. Chemical burns must be treated promptly by a physician.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

- Flammability of the product** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
 - Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous combustion products** : Decomposition products may include the following materials: carbon oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

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6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 20 to 25 C (68 to 77 F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

- Europe**
- No exposure limit value known.
- Consult local authorities for acceptable exposure limits.
- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

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8. Exposure controls/personal protection

- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

- Physical state** : Liquid. [Clear to slightly hazy liquid.]
- Color** : Colorless.
- Odor** : Odorless.
- Solubility** : Easily soluble in the following materials: cold water and hot water.

10. Stability and reactivity

- Chemical stability** : The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
- Conditions to avoid** : No specific data.
- Incompatible materials** : No specific data.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Will not occur.

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Surfact-Amps NP-40

11. Toxicological information

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Nonidet P-40 Substitute	LD50 Dermal	Rabbit	2 mL/kg	-
	LD50 Dermal	Rabbit	2830 uL/kg	-
	LD50	Rat	770 mg/kg	-
	Intraperitoneal			
	LD50 Oral	Rat	3500 mg/kg	-
	LD50 Oral	Rat	1310 mg/kg	-
	LD50 Oral	Rat	4190 mg/kg	-
	LD50 Oral	Rat	4000 mg/kg	-
	LD50 Oral	Rat	2590 uL/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Nonidet P-40 Substitute	-	-	-	None.	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Europe

- Chronic effects** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

12. Ecological information

Environmental effects : No known significant effects or critical hazards.

United States

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Other adverse effects

Conclusion/Summary : No known significant effects or critical hazards.

5/18/2010.

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Surfact-Amps NP-40

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste. Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROL/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*
DOT Classification	Not regulated.	-	-	-
IATA-DGR Class	Not regulated.	-	-	-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Irritating material
Sensitizing material
Target organ effects

U.S. Federal regulations : TSCA 8(a) PAIR: Nonidet P-40 Substitute
United States inventory (TSCA 8b): All components are listed or exempted.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Nonidet P-40 Substitute
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
Nonidet P-40 Substitute: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada) : Class D-2B: Material causing other toxic effects (Toxic).

5/18/2010.

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15 . Regulatory information

Canadian lists : CEPA Toxic substances: None of the components are listed.
Canadian ARET: None of the components are listed.
Canadian NPRI: The following components are listed: Octylphenol and its ethoxylates
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

Canada inventory : Canada inventory: All components are listed or exempted.

EU regulations

Hazard symbol or symbols :



Irritant

Risk phrases : R41- Risk of serious damage to eyes.

Safety phrases : S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S39- Wear eye/face protection.

International regulations

International lists : Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Korea inventory (KECI): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Japan inventory (ENCS): All components are listed or exempted.

16 . Other information

Label requirements : CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION. MAY BE HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) :

Health	2
Flammability	0
Physical hazards	0

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :

Health	2	Flammability	0
Instability	0	Special	

Date of printing : 5/18/2010.

5/18/2010.

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Surfact-Amps NP-40

16 . Other information

Date of issue : 5/18/2010.

Date of previous issue : 5/18/2010.

Version : 1.02

 Indicates information that has changed from previously issued version.

Full text of R-phrases : R22- Harmful if swallowed.

referred to in sections 2 and R41- Risk of serious damage to eyes.

3 - Europe R37/38- Irritating to respiratory system and skin.

Full text of classifications : Xn - Harmful

referred to in sections 2 and Xi - Irritant

3 - Europe

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

5/18/2010.

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Part of Thermo Fisher Scientific

Material Safety Data Sheet

1. Product and company identification

Product name	: Surfact-Amps™ 80		
Supplier	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 or 800.874.3723	Manufacturer	: Thermo Fisher Scientific Pierce Biotechnology P.O. Box 117 Rockford, IL 61105 United States 815.968.0747 800.874.3723
Product No.	: 0028328 0028328B		
MSDS #	: 1243		
Validation date	: 5/18/2010.		
Print date	: 5/18/2010.		
Responsible name	: MSDS (Regulatory Affairs)		
In case of emergency	: CHEMTREC: Use of 800.424.9300 Substance/Preparation OUTSIDE US: 202.483.7616		Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

2. Hazards identification

Physical state	: Liquid.
OSHA/HCS status	: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.
Emergency overview	: MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. Slightly irritating to the eyes, skin and respiratory system. Avoid breathing vapor or mist. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects	
Inhalation	: Slightly irritating to the respiratory system.
Ingestion	: No known significant effects or critical hazards.
Skin	: Slightly irritating to the skin.
Eyes	: Slightly irritating to the eyes.
Potential chronic health effects	
Chronic effects	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.

5/18/2010.

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2. Hazards identification

Fertility effects	: No known significant effects or critical hazards.
Over-exposure signs/symptoms	
Inhalation	: Adverse symptoms may include the following: respiratory tract irritation coughing
Ingestion	: No specific data.
Skin	: Adverse symptoms may include the following: irritation redness
Eyes	: Adverse symptoms may include the following: irritation watering redness
Medical conditions aggravated by over-exposure	: None known.

The preparation is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Not classified.

See toxicological information (section 11)

3. Composition/information on ingredients

United States

Name	CAS number	%
Tween 80	9005-65-6	7 - 10

Substance/preparation : Preparation

There are no ingredients or additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

Inhalation	: Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Ingestion	: Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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4. First aid measures

- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

- Flammability of the product** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
 - Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous combustion products** : Decomposition products may include the following materials: carbon oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

5/18/2010.

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Surfact-Amps™ 80

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 20 to 25 C (68 to 77 F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Europe

No exposure limit value known.

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory

: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

5/18/2010.

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8. Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

Physical state : Liquid.
Dispersibility properties : Dispersible in the following materials: cold water and hot water.
Solubility : Soluble in the following materials: cold water and hot water.

10. Stability and reactivity

Chemical stability : The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid : No specific data.
Incompatible materials : No specific data.
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Possibility of hazardous reactions : Will not occur.

11. Toxicological information

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Polyoxyethylenesorbitan Monooleate	LD50 Intrapitoneal	Rat	6804 mg/kg	-
	LD50 Intrapitoneal	Rat	6804 mg/kg	-
	LD50 Intravenous	Rat	1790 mg/kg	-
	LD50 Intravenous	Rat	1790 mg/kg	-
	LD50 Oral	Rat	34500 uL/kg	-
	TDL0 Oral	Rat	20 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Polyoxyethylenesorbitan Monooleate	Chronic TD50 Oral	Rat	42 g/kg TDL0 Data	2 weeks Continuous

Conclusion/Summary : Not available.

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Polyoxyethylenesorbitan Monooleate	Equivalocal - Subcutaneous - TDL0	Rat	10 g/kg	27 weeks Intermittent
	Equivalocal - Oral - TDL0	Rat	2163 g/kg	2 years Continuous

Conclusion/Summary : Not available.

Mutagenicity

5/18/2010.

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11. Toxicological information

Product/ingredient name	Test	Experiment	Result
Polyoxyethylenesorbitan Monooleate	DNA Inhibition	Mammalian-Human; Somatic	Equivalocal
	DNA Inhibition	Mammalian-Animal; Somatic	Equivalocal

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Polyoxyethylenesorbitan Monooleate	-	-	-	Rat	Oral: 635 g/kg	Multigenerational
	Positive	-	-	Rat - Female	80 uL/kg	4D POST
	-	-	-	Rat	Oral: 1270 g/kg	84D PRE- 21D POST

Conclusion/Summary : Not available.

Europe

Chronic effects : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

12. Ecological information

Environmental effects : No known significant effects or critical hazards.

United States

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Hazardous waste : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

5/18/2010.

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13. Disposal considerations

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROL/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*
DOT Classification	Not regulated.	-	-	-
IATA-DGR Class	Not available.	Not available.	Not available.	-

PG* : Packing group

15. Regulatory information

United States

- HCS Classification : Not regulated.
- U.S. Federal regulations : United States inventory (TSCA 8b): All components are listed or exempted.
 SARA 302/304/311/312 extremely hazardous substances: No products were found.
 SARA 302/304 emergency planning and notification: No products were found.
 SARA 302/304/311/312 hazardous chemicals: Polyoxyethylenesorbitan Monoleate
 SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Polyoxyethylenesorbitan Monoleate: Immediate (acute) health hazard
 Clean Water Act (CWA) 307: No products were found.
 Clean Water Act (CWA) 311: No products were found.
 Clean Air Act (CAA) 112 accidental release prevention: No products were found.
 Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
 Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

- WHMIS (Canada) : Not controlled under WHMIS (Canada).
- Canadian lists : CEPA Toxic substances: None of the components are listed.
 Canadian ARET: None of the components are listed.
 Canadian NPRI: None of the components are listed.
 Alberta Designated Substances: None of the components are listed.
 Ontario Designated Substances: None of the components are listed.
 Quebec Designated Substances: None of the components are listed.

- Canada inventory : Canada inventory: All components are listed or exempted.

EU regulations

- Risk phrases : This product is not classified according to EU legislation.

International regulations

- International lists : Australia inventory (AICS): All components are listed or exempted.
 China inventory (IECSC): All components are listed or exempted.
 Korea inventory (KECI): All components are listed or exempted.
 Philippines inventory (PICCS): All components are listed or exempted.
 Japan inventory (ENCS): All components are listed or exempted.

5/18/2010.

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Surfact-Amps™ 80

16. Other information

- Label requirements : MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
 Hazardous Material :
 Information System (U.S.A.) :

Health	1
Flammability	0
Physical hazards	0

The customer is responsible for determining the PPE code for this material.

- National Fire Protection Association (U.S.A.) :



- Date of printing : 5/18/2010.
 Date of issue : 5/18/2010.
 Date of previous issue : 9/26/2008.
 Version : 1.01

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

5/18/2010.

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Part of Thermo Fisher Scientific

Material Safety Data Sheet

1. Product and company identification

Product name : Triton X-114; Surfact-Amp X-114
Supplier : Thermo Fisher Scientific **Manufacturer** : Thermo Fisher Scientific
 Pierce Biotechnology
 P.O. Box 117
 Rockford, IL 61105
 United States
 815.968.0747 or
 800.874.3723

Product No. : 0028332 0028332B 1885280
MSDS # : 0945
Validation date : 6/4/2010
Print date : 6/4/2010
Responsible name : MSDS (Regulatory Affairs)
In case of emergency : CHEMTREC: Use of : Refer to the instruction booklet for
 800.424.9300 **Substance/Preparation** proper and intended use.
 OUTSIDE US: Otherwise, contact supplier for
 202.483.7616 specific applications.

2. Hazards identification

Physical state : Liquid.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview : WARNING!
 CAUSES EYE IRRITATION. MAY CAUSE RESPIRATORY TRACT AND SKIN IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. Severely irritating to eyes. Slightly irritating to the skin and respiratory system. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not get in eyes. Avoid contact with skin and clothing. Contains material that can cause target organ damage. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects
Inhalation : Slightly irritating to the respiratory system.
Ingestion : No known significant effects or critical hazards.
Skin : Slightly irritating to the skin.
Eyes : Severely irritating to eyes. Risk of serious damage to eyes.
Potential chronic health effects
Chronic effects : Contains material that can cause target organ damage.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.

6/4/2010.

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Triton X-114; Surfact-Amp X-114

2. Hazards identification

Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.
Target organs : Contains material which causes damage to the following organs: upper respiratory tract, skin, eyes.

Over-exposure signs/symptoms
Inhalation : Adverse symptoms may include the following:
 respiratory tract irritation
 coughing
Ingestion : No specific data.
Skin : Adverse symptoms may include the following:
 irritation
 redness
Eyes : Adverse symptoms may include the following:
 pain or irritation
 watering
 redness

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

The preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Xi, R36
Human health hazards : Irritating to eyes.
 See toxicological information (section 11)

3. Composition/information on ingredients

United States
Name : Polyethylene Glycol Octylphenyl Ether
CAS number : 9036-19-5
% : 7 - 10

Europe
Substance/preparation : Preparation
Ingredient name : Polyethylene Glycol Octylphenyl Ether
CAS number : 9036-19-5
% : 7 - 10
EC number : Xi: R41, R37/38
Classification : [1]

There are no ingredients or additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in section 8.

6/4/2010.

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Triton X-114; Surfact-Amp X-114

4. First aid measures

- Inhalation** : Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention. Chemical burns must be treated promptly by a physician.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

- Flammability of the product** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
 - Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous combustion products** : Decomposition products may include the following materials: carbon oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

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Triton X-114; Surfact-Amp X-114

6. Accidental release measures

- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 20 to 25 C (68 to 77 F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

- Europe**
- No exposure limit value known.
- Consult local authorities for acceptable exposure limits.
- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

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8 . Exposure controls/personal protection

Respiratory	: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hands	: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Eyes	: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
Skin	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Environmental exposure controls	: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state	: Liquid.
Color	: Slightly hazy and cloudy, colorless.
Solubility	: Partially soluble in the following materials: cold water and hot water.

10 . Stability and reactivity

Chemical stability	: The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: No specific data.
Incompatible materials	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Possibility of hazardous reactions	: Will not occur.

11 . Toxicological information

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Poly(oxy-1,2-ethanediyl), .alpha.-[[1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	LD50 Oral	Rat	4 mL/kg	-
	LD50 Oral	Rat	3600 mg/kg	-
	LD50 Oral	Rat	2800 mg/kg	-
	LD50 Oral	Rat	4190 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Carcinogenicity

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11 . Toxicological information

Conclusion/Summary	: Not available.
Mutagenicity	: Not available.
Conclusion/Summary	: Not available.
Teratogenicity	: Not available.
Conclusion/Summary	: Not available.
Reproductive toxicity	: Not available.
Conclusion/Summary	: Not available.

Europe

Chronic effects	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

United States

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROL/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*
DOT Classification	Not regulated.	-	-	-
IATA-DGR Class	Not available.	Not available.	Not available.	-

PG* : Packing group

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15 . Regulatory information

United States

HCS Classification : Irritating material
Target organ effects

U.S. Federal regulations : TSCA 8(a) PAIR: Poly(oxy-1,2-ethanediyl), -alpha- -[(1,1,3,3-tetramethylbutyl)phenyl]-
-omega -hydroxy-
United States inventory (TSCA 8b): All components are listed or exempted.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Poly(oxy-1,2-ethanediyl), -alpha- -
[(1,1,3,3-tetramethylbutyl)phenyl]- -omega -hydroxy-
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
Poly(oxy-1,2-ethanediyl), -alpha- -[(1,1,3,3-tetramethylbutyl)phenyl]- -omega -hydroxy-:
Immediate (acute) health hazard, Delayed (chronic) health hazard
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: ethylene oxide
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: ethylene oxide

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>	<u>No significant risk level</u>	<u>Maximum acceptable dosage level</u>
1,4-Dioxacyclohexane	Yes.	No.	30 g/day (ingestion) 30 g/day (inhalation)	No.
ethylene oxide	Yes.	Yes.	2 g/day (ingestion) 2 g/day (inhalation)	20 g/day (ingestion) 20 g/day (inhalation)

Canada

WHMS (Canada) : Class D-2B: Material causing other toxic effects (Toxic).
Canadian lists : CEPA Toxic substances: None of the components are listed.
Canadian ARET: None of the components are listed.
Canadian NPRI: The following components are listed: Octylphenol and its ethoxylates
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

Canada inventory : Canada inventory: All components are listed or exempted.

EU regulations

Hazard symbol or symbols :



Irritant

Risk phrases : R36- Irritating to eyes.

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15 . Regulatory information

International regulations

International lists : Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Korea inventory (KECI): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Japan inventory (ENCS): All components are listed or exempted.

16 . Other information

Label requirements : CAUSES EYE IRRITATION. MAY CAUSE RESPIRATORY TRACT AND SKIN IRRITATION. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.

Hazardous Material Information System (U.S.A.) :

Health	2
Flammability	0
Physical hazards	0

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



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Version : 1.02

Indicates information that has changed from previously issued version.

Full text of R-phrases : R41- Risk of serious damage to eyes.
referred to in sections 2 and 3 - Europe
R36- Irritating to eyes.
R37/38- Irritating to respiratory system and skin.
Full text of classifications : Xi - Irritant
referred to in sections 2 and 3 - Europe

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

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Part of Thermo Fisher Scientific

Material Safety Data Sheet

1. Product and company identification

Product name : Surfact-Amps 58; Brij 58
Supplier : Thermo Fisher Scientific
 Pierce Biotechnology
 P.O. Box 117
 Rockford, IL 61105
 United States
 815.968.0747 or
 800.874.3723

Manufacturer : Thermo Fisher Scientific
 Pierce Biotechnology
 P.O. Box 117
 Rockford, IL 61105
 United States
 815.968.0747
 800.874.3723

Product No. : 0028336 1885260
MSDS # : 1925
Validation date : 5/18/2010.
Print date : 5/18/2010.
Responsible name : MSDS (Regulatory Affairs)
In case of emergency : CHEMTREC: Use of : Refer to the instruction booklet for
 800.424.9300 Substance/Preparation proper and intended use.
 OUTSIDE US: Otherwise, contact supplier for
 202.483.7616 specific applications.

2. Hazards identification

Physical state : Liquid.
OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency overview : MAY CAUSE RESPIRATORY TRACT AND EYE IRRITATION.
 Slightly irritating to the eyes and respiratory system. Avoid breathing vapor or mist. Avoid contact with eyes. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects
Inhalation : Slightly irritating to the respiratory system.
Ingestion : No known significant effects or critical hazards.
Skin : No known significant effects or critical hazards.
Eyes : Slightly irritating to the eyes.

Potential chronic health effects
Chronic effects : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

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2. Hazards identification

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
 respiratory tract irritation
 coughing

Ingestion : No specific data.
Skin : No specific data.
Eyes : Adverse symptoms may include the following:
 irritation
 watering
 redness

Medical conditions aggravated by over-exposure : None known.

The preparation is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Not classified.

See toxicological information (section 11)

3. Composition/information on ingredients

United States

Name	CAS number	%
Surfact-Amps 58; Brij 58	9004-95-9	7 - 10

Substance/preparation : Preparation

There are no ingredients or additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

Inhalation : Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Ingestion : Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

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4. First aid measures

- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

- Flammability of the product** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
 - Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous combustion products** : Decomposition products may include the following materials: carbon oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 20 to 25 C (68 to 77 F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

- Europe**
No exposure limit value known.
Consult local authorities for acceptable exposure limits.
- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

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8 . Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Liquid.
Color : Clear Colorless.
Relative density : 1.06
Solubility : Partially soluble in the following materials: cold water and hot water.

10 . Stability and reactivity

Chemical stability : The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid : No specific data.
Incompatible materials : No specific data.
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Possibility of hazardous reactions : Will not occur.

11 . Toxicological information

United States

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Poly(oxy-1,2-ethanediyl), .alpha.-hexadecyl-.omega.-hydroxy-	LD50 Oral	Mouse	2602 mg/kg	-
	LD50 Oral	Rat	2500 mg/kg	-

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Poly(oxy-1,2-ethanediyl), .alpha.-hexadecyl-.omega.-hydroxy-	-	-	-	None.	-	None.

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Europe

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11 . Toxicological information

Chronic effects : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

United States

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Hazardous waste : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*
DOT Classification	Not regulated.	-	-	-
IATA-DGR Class	Not regulated.	-	-	-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Not regulated.

U.S. Federal regulations : United States inventory (TSCA 8b): All components are listed or exempted.

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15 . Regulatory information

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.

Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).
Canadian lists : CEPA Toxic substances: None of the components are listed.
Canadian NPRI: None of the components are listed.
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

Canada inventory : Canada inventory: All components are listed or exempted.

EU regulations

Risk phrases : This product is not classified according to EU legislation.

International regulations

International lists : Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Korea inventory (KECI): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Japan inventory (ENCS): All components are listed or exempted.

16 . Other information

Label requirements : MAY CAUSE RESPIRATORY TRACT AND EYE IRRITATION.

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	0
Physical hazards	0

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :

5/18/2010.

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Thermo
SCIENTIFIC

Surfact-Amps 58; Brij 58

16 . Other information



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Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

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