IUCLID

Data Set

Existing Chemical	:	ID: 3088-31-1
CAS No.	:	3088-31-1
EINECS Name	:	sodium 2-(2-dodecyloxyethoxy)ethyl sulphate
EC No.	:	221-416-0
Molecular Formula	:	C16H34O6S.Na

Producer related part

Company	:	Epona Associates, LLC
Creation date	:	26.01.2006

Substance related part

Company	:	Epona Associates, LLC
Creation date	:	26.01.2006
Status	:	
Memo	:	Stepan
Printing date	:	05.11.2009
Revision date	:	
Date of last update	:	05.11.2009
Number of pages	:	28
Chapter (profile)	:	Chapter: 1, 2, 3, 4, 5, 6, 7, 8, 10
Reliability (profile)	:	Reliability: without reliability, 1, 2, 3, 4
Flags (profile)	:	Flags: without flag, confidential, non confidential, WGK (DE), TA-Luft (DE), Material Safety Dataset, Risk Assessment, Directive 67/548/EEC, SIDS

1.0.1 APPLICANT AND COMPANY INFORMATION

Type	:	
Name	:	Stepan Company
Contact person	:	Lela Jovanovich
Date	:	
Street	:	
Town	:	Northfield, Illinois
Country	:	
Phone	:	
Telefax	:	
Telex	:	
Cedex	:	
Email	:	
Homepage	:	

26.01.2006

1.0.2 LOCATION OF PRODUCTION SITE, IMPORTER OR FORMULATOR

1.0.3 IDENTITY OF RECIPIENTS

1.0.4 DETAILS ON CATEGORY/TEMPLATE

1.1.0 SUBSTANCE IDENTIFICATION

IUPAC Name	:	Ethanol, 2-[2-(dodecyloxy)ethoxy]-, hydrogen sulfate, sodium salt
Smiles Code	:	S(=O)(=O)(O[Na])OCCOCCOCCCCCCCCCCCC
Molecular formula	:	C16 H33 O6 S1 Na1
Molecular weight	:	376.49
Petrol class	:	

26.01.2006

1.1.1 GENERAL SUBSTANCE INFORMATION

1.1.2 SPECTRA

1.2 SYNONYMS AND TRADENAMES

2-(2-Dodecyloxyethoxy)ethyl sodium sulfate

26.01.2006

Diethylene glycol monododecyl ether sulfate, sodium salt

26.01.2006

Diethylene glycol monolauryl ether sodium sulfate

26.01.2006

Diethylene glycol monolauryl ether sulfate, sodium salt

26.01.2006

Ethanol, 2-[2-(dodecyloxy)ethoxy]-, hydrogen sulfate, sodium salt

26.01.2006

Lauristyl diglycol ether, sulfate sodium salt

26.01.2006

Lauryl diethylene glycol ether, sulfonate sodium

26.01.2006

Sodium diethylene glycol dodecyl ether sulfate

26.01.2006

Sodium dioxyethylenedodecyl ether sulfate

26.01.2006

Sodium lauryl alcohol diglycol ether sulfate

26.01.2006

Sodium lauryl di(oxyethyl) sulfate

26.01.2006

Sodium lauryloxyethoxyethyl sulfate

26.01.2006

Sodiumlaurylglycolether sulfate

26.01.2006

Sulfuric acid mono[2-[2-(dodecyloxy)ethoxy]ethyl] ether sodium salt

26.01.2006

1.3 IMPURITIES

1.4 ADDITIVES

1.5 TOTAL QUANTITY

1.6.1 LABELLING

1.6.2 CLASSIFICATION

1.6.3 PACKAGING

1.7 USE PATTERN

1.7.1 DETAILED USE PATTERN

1.7.2 METHODS OF MANUFACTURE

1.8 REGULATORY MEASURES

1.8.1 OCCUPATIONAL EXPOSURE LIMIT VALUES

1.8.2 ACCEPTABLE RESIDUES LEVELS

1.8.3 WATER POLLUTION

1.8.4 MAJOR ACCIDENT HAZARDS

1.8.5 AIR POLLUTION

1.8.6 LISTINGS E.G. CHEMICAL INVENTORIES

1.9.1 DEGRADATION/TRANSFORMATION PRODUCTS

1.9.2 COMPONENTS

1.10 SOURCE OF EXPOSURE

1.11 ADDITIONAL REMARKS

1.12 LAST LITERATURE SEARCH

1.13 REVIEWS

2.1 MELTING POINT

Value	:	= 10.4 °C
Sublimation	:	
Method	:	other: differential scanning calorimetry
Year	:	2009
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	Differential Scanning Calorimeter (DSC) was used to determine the melting point and freezing point of STEOL® CS-270. Thermal analysis was conducted using the Perkin Elmer Diamond DSC. A calibration was performed using Indium and Gallium. The samples were prepared in volatile aluminum pans (part number 0219-0062). Melt point was determined by the "peak" endothermic heat flow and the freeze point was determined by the "onset" exothermic heat flow. Stepan Method 009-A with the following adjustments was used: Freeze Point Determination: 1. Hold at 25 °C for 1 minute. 2. Cool from 25 °C to -50 °C at 4 °C/min. Melt Point Determination: 1. Hold at -50 °C for 5 minutes. 2. Heat from -50 °C to 25 °C at 5 °C/min.
Result	:	While heating from -50 °C, STEOL CS-270® had two endothermic reactions (melt points) at -11.6 °C and 10.4 °C. The peak temperature of the second endothermic reaction (10.4 °C) was used as the recorded melt point as this was the point when all of the crystals had melted. STEOL CS-270® may also be viewed as having a melting range from -11.6 °C to 10.4 °C. While cooling to -50 °C, STEOL CS-270® had two exothermic reactions (crystallizations) at 7.5 °C and -33.6 °C. The onset of the first exothermic reaction (7.5 °C) was used as the recorded freeze point as this was the point when crystallization first occurred. Likewise, STEOL CS-270® may be viewed as having a freezing range from 7.5 °C to -33.6 °C.
Test substance	:	STEOL CS-270® Lot # 7323139
Conclusion	:	The melting point and freezing point of STEOL® CS-270 were determined by DSC to be 10.4 °C and 7.5 °C, respectively.
Reliability	:	(2) valid with restrictions Acceptable scientific method.
Flag	:	Critical study for SIDS endpoint

06.10.2009 (18)

2.2 BOILING POINT

Value	:	659 °C at
Decomposition	:	
Method	:	other: calculated
Year	:	2009
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	MPBPWIN v1.43; Adapted Stein and Brown Method
Reliability	:	(2) valid with restrictions

Flag	:	Critical study for SIDS endpoint
06.10.2009		(5) (19)

2.3 DENSITY

2.3.1 GRANULOMETRY

2.4 VAPOUR PRESSURE

Value	:	ca. 0 hPa at 25 °C
Decomposition	:	
Method	:	other (calculated)
Year	:	2009
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	MPBPWIN v1.43; Modified Grain Method
Result	:	Selected VP: 2.06E-12 mm Hg = 2.75 E-010 Pa = 2.8 E-012 hPa
Reliability	:	(2) valid with restrictions Data were obtained by modeling
Flag	:	Critical study for SIDS endpoint
06.10.2009		(5)

2.5 PARTITION COEFFICIENT

Partition coefficient	:	octanol-water
Log pow	:	1.14 at 25 °C
pH value	:	
Method	:	other (calculated)
Year	:	2009
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	WSKOW v1.67
Reliability	:	(2) valid with restrictions Data were obtained by modeling
Flag	:	Critical study for SIDS endpoint
06.10.2009		(5)

2.6.1 SOLUBILITY IN DIFFERENT MEDIA

Solubility in	:	Water
Value	:	9757 mg/l at 25 °C
pH value	:	
concentration	:	at °C
Temperature effects	:	
Examine different pol.	:	
pKa	:	at 25 °C
Description	:	
Stable	:	
Deg. product	:	
Method	:	other: calculated
Year	:	2009

GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	WSKOW v1.41 Equation Used to Make Water Sol estimate: Log S (mol/L) = 0.693-0.96 log Kow-0.0092(Tm-25)-0.00314 MW + Correction Melting Pt (Tm) = 10.40 deg C (Use Tm = 25 for all liquids) Correction(s): Value ---------- ----- No Applicable Correction Factors
Result	:	Log Water Solubility (in moles/L) : -1.586 Water Solubility at 25 deg C (mg/L): 9757
Reliability	:	(2) valid with restrictions Data were obtained by modeling
Flag	:	Critical study for SIDS endpoint

06.10.2009 (5) (19)

2.6.2 SURFACE TENSION

2.7 FLASH POINT

2.8 AUTO FLAMMABILITY

2.9 FLAMMABILITY

2.10 EXPLOSIVE PROPERTIES

2.11 OXIDIZING PROPERTIES

2.12 DISSOCIATION CONSTANT

2.13 VISCOSITY

2.14 ADDITIONAL REMARKS

3.1.1 PHOTODEGRADATION

INDIRECT PHOTOLYSIS

Sensitizer	:	OH
Conc. of sensitizer	:	1500000 molecule/cm³
Rate constant	:	.000000000045 cm³/(molecule*sec)
Degradation	:	50 % after .2 day(s)
Deg. product	:	
Method	:	other (calculated)
Year	:	2009
GLP	:	no
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	AOP Program (v1.92): ========== SMILES : S(=O)(=O)(O[Na])OCCOCCOCCCCCCCCCCCC CHEM : Ethanol, 2-[2-(dodecyloxy)ethoxy]-, hydrogen sulfate, sodium salt MOL FOR: C16 H33 O6 S1 Na1 MOL WT : 376.49
Result	:	---------- SUMMARY (AOP v1.92): HYDROXYL RADICALS ---------- Hydrogen Abstraction = 45.4767 E-12 cm3/molecule-sec Reaction with N, S and -OH = 0.0000 E-12 cm3/molecule-sec Addition to Triple Bonds = 0.0000 E-12 cm3/molecule-sec Addition to Olefinic Bonds = 0.0000 E-12 cm3/molecule-sec Addition to Aromatic Rings = 0.0000 E-12 cm3/molecule-sec Addition to Fused Rings = 0.0000 E-12 cm3/molecule-sec OVERALL OH Rate Constant = 45.4767 E-12 cm3/molecule-sec HALF-LIFE = 0.235 Days (12-hr day; 1.5E6 OH/cm3) HALF-LIFE = 2.822 Hrs ---------- SUMMARY (AOP v1.92): OZONE REACTION ---------- ****** NO OZONE REACTION ESTIMATION ****** (ONLY Olefins and Acetylenes are Estimated) Experimental Database: NO Structure Matches
Reliability	:	(2) valid with restrictions Data were obtained by modeling
Flag	:	Critical study for SIDS endpoint

06.10.2009 (5)

3.1.2 STABILITY IN WATER

Type	:	abiotic
t1/2 pH4	:	at °C
t1/2 pH7	:	at °C
t1/2 pH9	:	at °C
Deg. product	:	
Method	:	other
Year	:	
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	Reaction kinetics were followed by sampling. In some cases acid-base titration was used to measure the increase in

acidity as the reaction proceeds, in some cases titration with lead nitrate was used to determine the bisulphate formed in the reaction, and in other cases the traditional Epton 2-phase titration was used to determine the concentration of surfactant remaining.

Remark : SLES would undergo 10% decomposition at 100C between 30 and 40 days (see results for Linear E1 AES and Linear E3 AES in Table 1). This is to be expected as an increased rate of hydrolysis is proportional to increases in temperature. Therefore, as temperature decreases, the rate of hydrolysis greatly slows. Under normal use and typical environmental conditions (approximately 25C at non-catalyzed conditions), we would expect this chemical to be resistant to hydrolysis.

Result : Table I Uncatalysed hydrolysis rate constants for PAS and AES
All at 100°C unless otherwise stated

Surfactant	k1 (sec-1 x 10-8)	t (10% decomp.)
Linear E1 AES	4.1	30 days
Linear E3 AES	3.1	40 days

Table II. Acid catalysed hydrolysis rate constants for PAS and AES

Surfactant	K2 (M-1sec-1) x 10-6 100 oC
Linear E1 AES	9
Linear E3 AES	9

Conclusion : Stable
Reliability : (2) valid with restrictions
Flag : Critical study for SIDS endpoint
23.05.2006 (15)

3.1.3 STABILITY IN SOIL

3.2.1 MONITORING DATA

3.2.2 FIELD STUDIES

3.3.1 TRANSPORT BETWEEN ENVIRONMENTAL COMPARTMENTS

Type : fugacity model level III
Media :
Air : % (Fugacity Model Level I)
Water : % (Fugacity Model Level I)
Soil : % (Fugacity Model Level I)
Biota : % (Fugacity Model Level II/III)
Soil : % (Fugacity Model Level II/III)
Method : other: calculated
Year : 2009

Result : Level III Fugacity Model (Full-Output):
==========
Chem Name : Ethanol, 2-[2-(dodecyloxy)ethoxy]-, hydrogen sulfate, sodium salt
Molecular Wt: 376.49
Henry's LC : 4.45e-011 atm-m3/mole (Henrywin program)

Vapor Press : 2.06e-012 mm Hg (Mpbpwin program)
Log Kow : 1.14 (Kowwin program)
Soil Koc : 2.11e+003 (KOCWIN MCI method)

	Mass Amount (percent)	Half-Life (hr)	Emissions (kg/hr)
Air	0.168	5.64	1000
Water	15.9	900	1000
Soil	82	1.8e+003	1000
Sediment	1.9	8.1e+003	0

	Fugacity (atm)	Reaction (kg/hr)	Advection (kg/hr)	Reaction (percent)	Advection (percent)
Air	9.12e-018	754	61.4	25.1	2.05
Water	3.42e-016	446	580	14.9	19.3
Soil	3.85e-016	1.15e+003	0	38.4	0
Sediment	3.97e-016	5.93	1.39	0.198	0.0462

Persistence Time: 1.22e+003 hr
Reaction Time: 1.55e+003 hr
Advection Time: 5.67e+003 hr
Percent Reacted: 78.6
Percent Advected: 21.4

Half-Lives (hr), (based upon Biowin (Ultimate) and Aopwin):
Air: 5.645
Water: 900
Soil: 1800
Sediment: 8100
Biowin estimate: 2.697 (weeks-months)

Advection Times (hr):
Air: 100
Water: 1000
Sediment: 5e+004

Reliability : (2) valid with restrictions
Data were obtained by modeling
Flag : Critical study for SIDS endpoint
06.10.2009 (5)

3.3.2 DISTRIBUTION

3.4 MODE OF DEGRADATION IN ACTUAL USE

3.5 BIODEGRADATION

Type : aerobic
Inoculum : other: microorganisms present in seawater
Concentration : 2.3 mg/l related to Test substance
related to
Contact time : 28 day(s)
Degradation : 65 (±) % after 28 day(s)
Result : readily biodegradable
Kinetic of testsubst. : 0 day(s) 0 %
7 day(s) 50 %
14 day(s) 53 %
21 day(s) 57 %

28 day(s) 65 %
Control substance : Benzoic acid, sodium salt
Kinetic : 28 day(s) 92 %
%
Deg. product :
Method : OECD Guide-line 306
Year : 2006
GLP : yes
Test substance : as prescribed by 1.1 - 1.4

Reliability : (1) valid without restriction
Guideline study
Flag : Critical study for SIDS endpoint
15.06.2006 (1)

Type : aerobic
Inoculum :
Contact time : 26 day(s)
Degradation : 81 (±) % after 26 day(s)
Result : readily biodegradable
Deg. product :
Method : other: Sturms evolved CO2 procedure
Year :
GLP : no data
Test substance : other TS

Test substance : NaC12AE2.1S
Reliability : (2) valid with restrictions
16.02.2006 (13)

Type : aerobic
Inoculum :
Contact time : 20 day(s)
Degradation : 100 (±) % after 20 day(s)
Result : readily biodegradable
Deg. product :
Method : other: BOD
Year :
GLP : no data
Test substance : other TS

Result : Total depletion of oxygen at 20 days. After 5 days the BOD was 58%.
Test substance : NaC12AE2.1S
Reliability : (2) valid with restrictions
16.02.2006 (13)

3.6 BOD5, COD OR BOD5/COD RATIO

3.7 BIOACCUMULATION

3.8 ADDITIONAL REMARKS

4.1 ACUTE/PROLONGED TOXICITY TO FISH

Type	:	static
Species	:	Pimephales promelas (Fish, fresh water)
Exposure period	:	96 hour(s)
Unit	:	mg/l
LC50	:	= 13
Method	:	other
Year	:	
GLP	:	no data
Test substance	:	other TS
Method	:	Static 22 deg C pH 7.3 Hardness: 50-52 mg/L CaCO3
Remark	:	Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16).
Result	:	96 hr LC50 = 13 mg/L (95% Confidence limits: 10-18)
Test substance	:	C12-14AES (ammonium salt)
Reliability	:	(2) valid with restrictions

05.11.2009 (13)

Type	:	static
Species	:	Salmo gairdneri (Fish, estuary, fresh water)
Exposure period	:	96 hour(s)
Unit	:	mg/l
LC50	:	= 28
Method	:	other
Year	:	
GLP	:	no data
Test substance	:	other TS
Method	:	Static 15 deg C pH 8.2-8.6 Hardness 260 mg/L
Remark	:	Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16).
Result	:	96 hr LC50 = 28 mg/L (95% confidence limits: 23-35)
Test substance	:	C12-13AE2S (Dobanol 23-2S/28)
Reliability	:	(2) valid with restrictions

05.11.2009 (17)

Type	:	static
Species	:	Lepomis macrochirus (Fish, fresh water)
Exposure period	:	96 hour(s)
Unit	:	mg/l
LC50	:	= 24
Method	:	other
Year	:	
GLP	:	no data
Test substance	:	other TS
Method	:	Static 22 deg C pH7.2

Hardness 42-44 mg/L CaCO3

Remark : Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16).

Result : 96 hr LC50 = 24 mg/L (95% Confidence limits: 18-32)

Test substance : C12-14AES

Reliability : (2) valid with restrictions

05.11.2009 (13)

Type : static
Species : Cyprinodon variegatus (Fish, estuary, marine)
Exposure period : 96 hour(s)
Unit : mg/l
LC50 : = 2.3
Method : other
Year :
GLP : no data
Test substance : other TS

Method : Static
22 deg C
pH 8.0
Salinity: 32 parts per thousand

Remark : Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16).

Result : 96 hr LC50 = 2.3 mg/L (95% confidence limits: 1.3-3.7)

Test substance : C12-14AES

Reliability : (2) valid with restrictions

05.11.2009 (13)

Type : static
Species : Lepomis macrochirus (Fish, fresh water)
Exposure period : 24 hour(s)
Unit : mg/l
LC50 : = 87
Method : other
Year :
GLP : no data
Test substance : other TS

Method : Static
21 deg C
pH 7.1
Hardness 35 mg/L CaCO3

Remark : Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16).

Test substance : C12AE2.1S

Reliability : (2) valid with restrictions

05.11.2009 (13)

Type : static
Species : Pimephales promelas (Fish, fresh water)
Exposure period : 48 hour(s)
Unit : mg/l
LC50 : = 1.5
Method : other
Year :
GLP : no data
Test substance : other TS

Method	:	Static 21 deg C pH 7.0-7.2 Hardness 100 mg/L CaCO3
Remark	:	Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16).
Result	:	24 hr LC50 = 1.5 mg/L 48 hr LC50 - 1.5 mg/L
Test substance	:	C12AE2S
Reliability	:	(2) valid with restrictions

05.11.2009 (12)

4.2 ACUTE TOXICITY TO AQUATIC INVERTEBRATES

Type	:	
Species	:	other: Ceriodaphnia dubia
Exposure period	:	48 hour(s)
Unit	:	mg/l
EC50	:	3.12
Limit Test	:	no
Analytical monitoring	:	no
Method	:	other
Year	:	1999
GLP	:	no data
Test substance	:	other TS
Remark	:	Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16).
Result	:	Water Parameters: Temperature: 23 C (mean value) Conductivity: 500 umhos/cm (mean value) Effect Concentration #1: 3.12 mg/l (mean); 2.43 mg/l (minimum); 4.01 mg/l (maximum)
Test substance	:	CAS Registry Number (CAS) : 9004-82-4 Chemical Name (NAM) : .alpha.-Sulfo-.omega.-(dodecyloxy)poly(oxy-1,2-ethanediyl), Sodium salt
Reliability	:	(2) valid with restrictions Peer reviewed published data
Flag	:	Critical study for SIDS endpoint

05.11.2009 (2) (20)

Type	:	static
Species	:	Daphnia magna (Crustacea)
Exposure period	:	24 hour(s)
Unit	:	mg/l
EC50	:	= 21
Method	:	other
Year	:	1972
GLP	:	no data
Test substance	:	other TS
Remark	:	Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16).
Test substance	:	C12-14AE2.2S (natural-alcohol derived)
Reliability	:	(2) valid with restrictions

05.11.2009 (11)

Type	:	static
Species	:	Daphnia magna (Crustacea)
Exposure period	:	30 hour(s)
Unit	:	
Method	:	other
Year	:	1976
GLP	:	no data
Test substance	:	other TS
Remark	:	In a test with Daphnia, the toxicity of C12aveAES (lauryl ether sulfate) decreased steadily with time as a result of biodgradation. After 30 hours in static conditions, the solution was virtually non-toxic. No toxicity values were reported. Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16).
Test substance	:	C12aveAES (lauryl ether sulfate)
Reliability	:	(2) valid with restrictions

05.11.2009 (10)

Type	:	static
Species	:	Daphnia magna (Crustacea)
Exposure period	:	96 hour(s)
Unit	:	mg/l
EC50	:	= 5.7
Method	:	other
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16).
Result	:	96 hr LC50 = 5.7 mg/L under nominal concentrations of the active ingredient
Test substance	:	ammonium C12-14AES
Reliability	:	(2) valid with restrictions

05.11.2009 (13)

4.3 TOXICITY TO AQUATIC PLANTS E.G. ALGAE

Species	:	Selenastrum capricornutum (Algae)
Endpoint	:	other
Exposure period	:	5 day(s)
Unit	:	mg/l
Method	:	other
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16).
Result	:	The 5-day algistatic concentration for C12-14AES in S. capricornutum was 101 mg/L (95% confidence limits: 42-312 mg/L), while the 5-day algicidal concentration was > 1000 mg/L.
Test substance	:	C12-14AES

Reliability	:	(2) valid with restrictions
05.11.2009		(13)
Species	:	other algae: Laminaria saccharina
Endpoint	:	other
Exposure period	:	
Unit	:	mg/l
Method	:	other
Year	:	
GLP	:	no data
Test substance	:	other TS
Remark	:	Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16). The author hypothesized that the detergent mixture attacked the proteinaceous flagella on the zoospores; this would account for the loss of mobility.
Result	:	In a toxicity test with the alga, Laminaria saccharina, concentrations between 5 x 10E-5 mg/L and 5 x 10E4 mg/L of a detergent containing C12(ave)AES (sodium lauryl ether sulfate), sodium dodecyl benzene sulfonate, and lauric diethanolamide were used. In 50 mg/L, zoospores of L. saccharina were inhibited from swimming in 7 minutes, and in 500 mg/L, swimming ceased in 15 seconds. A concentration of 0.1 mg/L prevented the zoospores from settling (an action which normally precedes development in sporophytes).
Test substance	:	C12(ave)AES (sodium lauryl ether sulfate)
Reliability	:	(2) valid with restrictions
05.11.2009		(14)

4.4 TOXICITY TO MICROORGANISMS E.G. BACTERIA

4.5.1 CHRONIC TOXICITY TO FISH

4.5.2 CHRONIC TOXICITY TO AQUATIC INVERTEBRATES

Species	:	Daphnia magna (Crustacea)
Endpoint	:	reproduction rate
Exposure period	:	21 day(s)
Unit	:	mg/l
Analytical monitoring	:	no data
Method	:	
Year	:	1997
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	Semi-static Nominal Endpoint = 21-day reproduction rate
Remark	:	The robust summary for this analog substance will be provided by the REACH Consortium Linear and Branched AES (C10 - C16) and will be added to the IUCLID dossier for the sponsored substance once it becomes available.
Result	:	Value = 0.72 mg/l Do not know whether this value is LOEC, NOEC or EC50.
Test substance	:	C12-14 distribution

EC# Avg. = 2
Reliability : (4) not assignable
Insufficient data to determine reliability
05.11.2009 (16)

Species : Daphnia magna (Crustacea)
Endpoint : reproduction rate
Exposure period : 21 day(s)
Unit : mg/l
Analytical monitoring : yes
Method :
Year :
GLP : no data
Test substance : as prescribed by 1.1 - 1.4

Method : Semi-static
Measured
Remark : The robust summary for this analog substance will be provided by the REACH Consortium Linear and Branched AES (C10 - C16) and will be added to the IUCLID dossier for the sponsored substance once it becomes available.
Result : Value = 0.34 mg/l
Do not know whether this value is LOEC, NOEC or EC50
Test substance : C12-15 distribution
EC# Avg. = 3
Reliability : (4) not assignable
Insufficient data to determine reliability
05.11.2009 (4)

Species : Daphnia magna (Crustacea)
Endpoint : other: no data
Exposure period : 21 day(s)
Unit : mg/l
NOEC : = .7
Analytical monitoring : no data
Method :
Year : 1994
GLP : no data
Test substance : as prescribed by 1.1 - 1.4

Method : Semi-static
Remark : The robust summary for this analog substance will be provided by the REACH Consortium Linear and Branched AES (C10 - C16) and will be added to the IUCLID dossier for the sponsored substance once it becomes available.
Result : No additional details available
Test substance : C12-14 distribution
EC# Avg. > 2
Reliability : (4) not assignable
Insufficient data to determine reliability
05.11.2009 (3)

Species : Daphnia magna (Crustacea)
Endpoint : other: no data
Exposure period : 21 day(s)
Unit : mg/l
Analytical monitoring : no data
Method :
Year : 1994
GLP : no data
Test substance : as prescribed by 1.1 - 1.4

Method	:	Nominal
Remark	:	The robust summary for this analog substance will be provided by the REACH Consortium Linear and Branched AES (C10 - C16) and will be added to the IUCLID dossier for the sponsored substance once it becomes available.
Result	:	Value = 0.18 mg/l Do not know whether this value is LOEC, NOEC or EC50
Test substance	:	C14-15 distribution EC# Avg. = 2.2 - 5
Reliability	:	(4) not assignable Insufficient data to determine reliability

05.11.2009 (3)

Species	:	Daphnia magna (Crustacea)
Endpoint	:	other: no data
Exposure period	:	21 day(s)
Unit	:	mg/l
Analytical monitoring	:	no data
Method	:	
Year	:	1994
GLP	:	no data
Test substance	:	as prescribed by 1.1 - 1.4

Method	:	No additional details available
Remark	:	The robust summary for this analog substance will be provided by the REACH Consortium Linear and Branched AES (C10 - C16) and will be added to the IUCLID dossier for the sponsored substance once it becomes available.
Result	:	Value = 0.27 mg/l Do not know whether this value is LOEC, NOEC or EC50
Test substance	:	C14-16 distribution EC# Avg. = 2.2 - 5
Reliability	:	(4) not assignable Insufficient data to determine reliability

05.11.2009 (3)

4.6.1 TOXICITY TO SEDIMENT DWELLING ORGANISMS

4.6.2 TOXICITY TO TERRESTRIAL PLANTS

4.6.3 TOXICITY TO SOIL DWELLING ORGANISMS

4.6.4 TOX. TO OTHER NON MAMM. TERR. SPECIES

4.7 BIOLOGICAL EFFECTS MONITORING

4.8 BIOTRANSFORMATION AND KINETICS

4.9 ADDITIONAL REMARKS

5.0 TOXICOKINETICS, METABOLISM AND DISTRIBUTION

5.1.1 ACUTE ORAL TOXICITY

Type	:	LD50
Value	:	> 5000 mg/kg bw
Species	:	rat
Strain	:	Sprague-Dawley
Sex	:	male/female
Number of animals	:	10
Vehicle	:	
Doses	:	5 g/kg
Method	:	other
Year	:	1982
GLP	:	yes
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	Five male and 5 female rats were administered by gavage 5 g/kg of the undiluted test substance. Animals were observed for 14 days for signs of toxicity and mortality. All animals were weighed and sacrificed at the end of the 14 day observation period and subjected to a gross necropsy.
Result	:	There were no deaths. There were no clinical signs in male rats. Two female rats exhibited diarrhea and one female rat exhibited central nervous system depression. There were no gross pathological alterations.
Reliability	:	(1) valid without restriction Similar to guideline study
Flag	:	Critical study for SIDS endpoint

15.06.2006 (6)

Type	:	LD50
Value	:	1600 - mg/kg bw
Species	:	rat
Strain	:	
Sex	:	
Number of animals	:	
Vehicle	:	
Doses	:	
Method	:	other
Year	:	1983
GLP	:	no data
Test substance	:	other TS
Remark	:	Intend to add additional, available details when the robust summaries for the analog substances are provided by the REACH Consortium Linear and Branched AES (C10 - C16).
Test substance	:	CAS Registry Number (CAS) : 9004-82-4 Chemical Name (NAM) : .alpha.-Sulfo-.omega.-(dodecyloxy)poly(oxy-1,2-ethanediyl), Sodium salt
Reliability	:	(2) valid with restrictions Peer reviewed published data

05.11.2009 (2) (9)

5.1.2 ACUTE INHALATION TOXICITY

5.1.3 ACUTE DERMAL TOXICITY

5.1.4 ACUTE TOXICITY, OTHER ROUTES

5.2.1 SKIN IRRITATION

Species	:	rabbit
Concentration	:	undiluted
Exposure	:	Semiocclusive
Exposure time	:	24 hour(s)
Number of animals	:	6
Vehicle	:	
PDII	:	4
Result	:	
Classification	:	
Method	:	other
Year	:	1982
GLP	:	yes
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	0.5 mL of the test substance was applied to the intact and abraded skin of 6 rabbits and allowed to remain in contact with the skin for 24 hours. The sites were scored for erythema and edema and checked for tissue damage at the end of the application period and again at 72 hours.
Result	:	The PII was 4.0. Evidence of tissue damage in the form of coriaceousness was found in two animals. Atonia, blanching discoloration and spreading of irritative effects was also noted during the study.
Reliability	:	(1) valid without restriction Similar to guideline study

15.06.2006 (8)

5.2.2 EYE IRRITATION

Species	:	rabbit
Concentration	:	undiluted
Dose	:	.1 ml
Exposure time	:	24 hour(s)
Comment	:	not rinsed
Number of animals	:	6
Vehicle	:	
Result	:	
Classification	:	
Method	:	other
Year	:	1982
GLP	:	yes
Test substance	:	as prescribed by 1.1 - 1.4
Method	:	The test substance was applied to the right eye of each of 6 rabbits. The eyes were examined prior to treatment. Examinations for gross signs of eye irritation were made at

approximately 24, 46 and 72 hours following application. Additional readings were made at 4 and 7 days after treatment. Scoring of irritative effects was performed according to the method of Draize. An irritation score was calculated for each rabbit on a basis of 0-110.

Result : The eyes of all 6 rabbits were found to show evidence of significant corneal, iris and conjunctival changes. Mean irritation scores ranged from 34.8 at 24 hours to 10.2 after 7 days.

Reliability : (1) valid without restriction
Similar to guideline study

26.01.2006 (7)

5.3 SENSITIZATION

5.4 REPEATED DOSE TOXICITY

5.5 GENETIC TOXICITY 'IN VITRO'

5.6 GENETIC TOXICITY 'IN VIVO'

5.7 CARCINOGENICITY

5.8.1 TOXICITY TO FERTILITY

5.8.2 DEVELOPMENTAL TOXICITY/TERATOGENICITY

5.8.3 TOXICITY TO REPRODUCTION, OTHER STUDIES

5.9 SPECIFIC INVESTIGATIONS

5.10 EXPOSURE EXPERIENCE

5.11 ADDITIONAL REMARKS

6.1 ANALYTICAL METHODS

6.2 DETECTION AND IDENTIFICATION

7.1 FUNCTION

7.2 EFFECTS ON ORGANISMS TO BE CONTROLLED

7.3 ORGANISMS TO BE PROTECTED

7.4 USER

7.5 RESISTANCE

8.1 METHODS HANDLING AND STORING

8.2 FIRE GUIDANCE

8.3 EMERGENCY MEASURES

8.4 POSSIB. OF RENDERING SUBST. HARMLESS

8.5 WASTE MANAGEMENT

8.6 SIDE-EFFECTS DETECTION

8.7 SUBSTANCE REGISTERED AS DANGEROUS FOR GROUND WATER

8.8 REACTIVITY TOWARDS CONTAINER MATERIAL

(1) AnalyCen ecotox (2003) Biodgradation (OECD 306) Test Results for the Test Substance Agent 2527-68ES-7.

(2) BiblioLine(c) 1997-2006, NISC International, Inc. All Rights Reserved. www.nisc.com

(3) BKH (1994) Environmental data review of Alkyl Ether Sulphates (AES). Final report to Nederlandse Vereniging van Zeepfakrikanten (NVZ), as cited in Human & Environmental Risk Assessments (HERA) on Ingredients of European household cleaning products: Alcohol Ethoxysulphates. Draft January 2003.

(4) BUA (1997) Ecotoxicology of selected surfactants for the detergent and cleanser sector. Report 206, as cited in Human & Environmental Risk Assessments (HERA) on Ingredients of European household cleaning products: Alcohol Ethoxysulphates. Draft January 2003.

(5) EpiWin v4.00

(6) Hill Top Research, Inc (1982) Acute Oral Toxicity Screen in Rats of 910-11 for Stepan Chemical Company. Project No. 82-0821-21.

(7) Hill Top Research, Inc (1982) Primary Eye Irritation Study in Rabbits of 910-13 for Stepan Chemical Company. Project No. 82-0823-21.

(8) Hill Top Research, Inc (1982) Skin Irritation Study in Rabbits of 910-12 for Stepan Chemical Company. Project No. 82-0822-21.

(9) Journal of the American College of Toxicology (JACT) (1983) (Mary Ann Liebert, Inc., 1651 Third Ave., New York, NY 10128) Vol 2(5): 1

(10) Lundahl, P. and R. Cabridene (1976) A focus on a method of study of the toxicity of pollutants during biodegradation. J. Francais d'Hydrologie 7(3) #21:143-150 (English translation) as cited in SDA (1991) Environmental and Human Safety of Major Surfactants: Volume 1. Anionic Surfactants Part 2. Alcohol Ethoxy Sulfates

(11) Lundahl, P., R. Cabridene and R. Xuereff (1972) Qualites biologiques de queloques agents de surface anioniques, 6th International Congress on Surface Active Agents as cited in SDA (1991) Environmental and Human Safety of Major Surfactants: Volume 1. Anionic Surfactants Part 2. Alcohol Ethoxy Sulfates

(12) Monsanto Company, unpublished data as cited in SDA (1991) Environmental and Human Safety of Major Surfactants: Volume 1. Anionic Surfactants Part 2. Alcohol Ethoxy Sulfates

(13) Proctor and Gamble Company, unpublished data as cited in SDA (1991) Environmental and Human Safety of Major Surfactants: Volume 1. Anionic Surfactants Part 2. Alcohol Ethoxy Sulfates

(14) Pybus, C. (1973) Effects of anionic detergent on the growth of Laminaria. Marine Pollution Bulletin 4(5):73-77 as cited in SDA (1991) Environmental and Human Safety of Major Surfactants: Volume 1. Anionic Surfactants Part 2. Alcohol Ethoxy Sulfates

(15) Roberts D.W., R Alvarez, D. Bethell and R. Fessy. HYDROLYSIS KINETICS OF PRIMARY ALCOHOL SULPHATES AND PRIMARY ALCOHOL ETHOXY SULPHATES Unilever Research Port Sunlight

(16) Scholz N (1997) Ecotoxicology of surfactants Tenside Surf. Det. 34: 229-232, as cited in Human & Environmental Risk Assessments (HERA) on Ingredients of European household cleaning products: Alcohol Ethoxysulphates. Draft January 2003.

(17) Shell Chemical Company, unpublished data as cited in SDA (1991) Environmental and Human Safety of Major Surfactants: Volume 1. Anionic Surfactants Part 2. Alcohol Ethoxy Sulfates

(18) Stepan (2009) High Production Volume Chemicals (HPVC) Project - Thermal Analysis of STEOL® CS-270 - Melt and Freeze Point Determination. R & D Technical Report Project Number 10608.

(19) Stepan Company (2009) Personal Communication

(20) Warne, M.S.T.; A.D. Schifko (1999) Ecotoxicology and Environmental Safety, 44(2): 196-206

10.1 END POINT SUMMARY

10.2 HAZARD SUMMARY

10.3 RISK ASSESSMENT