



SAFETY DATA SHEET HALO CS2

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

1.1. Product identifier

Product name HALO CS2

Product number 62375

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Surfactant

1.3. Details of the supplier of the safety data sheet

Supplier Univar Solutions UK Ltd
Aquarius House
6 Mid Point Business Park
Bradford
BD3 7AY
+44 1274 267300
+44 1274 267306
SDS.EMEA@univarsolutions.com

1.4. Emergency telephone number

Emergency telephone SGS - +32 (0)3 575 55 55 (24h)

Sds No. 62375

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Not Classified

Health hazards Skin Irrit. 2 - H315 Eye Dam. 1 - H318

Environmental hazards Aquatic Chronic 3 - H412

2.2. Label elements

Hazard pictograms



Signal word Danger

Hazard statements
H315 Causes skin irritation.
H318 Causes serious eye damage.
H412 Harmful to aquatic life with long lasting effects.

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Precautionary statements

P273 Avoid release to the environment.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P302+P352 IF ON SKIN: Wash with plenty of water.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P501 Dispose of contents/ container in accordance with national regulations.

Contains

COCO DIETHEANOLAMIDE, ALCOHOLS, C12-14, ETHOXYLATED, SULFATES, SODIUM SALTS, 1-PROPANAMINIUM, 3-AMINO-N-(CARBOXYMETHYL)-N,N-DIMETHYL,N-C8-18 (EVEN NUMBERED) ACYL DERVIS, HYDROXIDES INNER SALTS, AMINES, C12-14 (EVEN NUMBERED)-ALKYLDIMETHYL, N-OXIDES, BENZENESULPHONIC ACID MONO C10 - 13 ALKYL DERVIS SODIUM SALTS

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

COCO DIETHEANOLAMIDE	10-30%
CAS number: —	EC number: 931-329-6
	REACH registration number: 01-2119490100-53-XXXX

Classification

Skin Irrit. 2 - H315
 Eye Dam. 1 - H318
 Aquatic Chronic 2 - H411

ALCOHOLS, C12-14, ETHOXYLATED, SULFATES, SODIUM SALTS	10-30%
CAS number: 68891-38-3	EC number: 500-234-8
	REACH registration number: 01-2119488639-16-XXXX

Classification

Skin Irrit. 2 - H315
 Eye Dam. 1 - H318
 Aquatic Chronic 3 - H412

1-PROPANAMINIUM, 3-AMINO-N-(CARBOXYMETHYL)-N,N-DIMETHYL,N-C8-18 (EVEN NUMBERED) ACYL DERVIS, HYDROXIDES INNER SALTS	1-5%
CAS number: 97862-59-4	EC number: 931-296-8
	REACH registration number: 01-2119488533-30-XXXX

Classification

Eye Dam. 1 - H318
 Aquatic Chronic 3 - H412

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β-ALANINE, N-(2-CARBOXYETHYL)-, N-COCO ALKYL DERIVS., DISODIUM SALTS			1-5%
CAS number: 90170-43-7	EC number: 290-476-8	REACH registration number: 01-2119976233-35-XXXX	
Classification Eye Irrit. 2 - H319			

AMINES, C12-14 (EVEN NUMBERED)-ALKYLDIMETHYL, N-OXIDES			1-5%
CAS number: 308062-28-4	EC number: 931-292-6	REACH registration number: 01-2119490061-47-XXXX	
M factor (Acute) = 1			
Classification Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Dam. 1 - H318 Aquatic Acute 1 - H400 Aquatic Chronic 2 - H411			

BENZENESULPHONIC ACID MONO C10 - 13 ALKYL DERSIV SODIUM SALTS			1-5%
CAS number: 68411-30-3	EC number: 270-115-0	REACH registration number: 01-2119489428-22-XXXX	
Classification Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Dam. 1 - H318 Aquatic Chronic 3 - H412			

The full text for all hazard statements is displayed in Section 16.

Composition comments The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention if any discomfort continues.
Ingestion	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Rinse mouth thoroughly with water. Give plenty of water to drink. Get medical attention if any discomfort continues.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention promptly if symptoms occur after washing.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention immediately. Continue to rinse.

4.2. Most important symptoms and effects, both acute and delayed

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Ingestion May cause discomfort if swallowed.

Skin contact Skin irritation.

Eye contact Causes serious eye damage.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products Oxides of carbon. Sulphurous gases (SO_x).

5.3. Advice for firefighters

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation.

6.2. Environmental precautions

Environmental precautions Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with non-combustible, absorbent material. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid spilling. Provide adequate ventilation. Avoid contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

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1-PROPANAMINIUM, 3-AMINO-N-(CARBOXYMETHYL)-N,N-DIMETHYL,N-C8-18 (EVEN NUMBERED) ACYL DERIVIS, HYDROXIDES INNER SALTS

Short-term exposure limit (15-minute): 1 ppm 2.9 mg/m³

Ingredient comments No exposure limits known for ingredient(s).

COCO DIETHEANOLAMIDE

DNEL	Industry - Dermal; Long term systemic effects: 4.16
	Industry - Dermal; Long term local effects: 0.09
	Industry - Inhalation; Long term systemic effects: 73.4 mg/m ³
	Consumer - Inhalation; Long term systemic effects: 21.7 mg/m ³
	Consumer - Dermal; Long term local effects: 0.056
	Consumer - Oral; Long term systemic effects: 6.25
PNEC	- Fresh water; 0.007 mg/l
	- marine water; 0.0007 mg/l
	- Intermittent release; 0.024 mg/l
	- Sediment; 0.0424 mg/kg
	- Soil; 0.0189 mg/kg
	- STP; 830 mg/l

ALCOHOLS, C12-14, ETHOXYLATED, SULFATES, SODIUM SALTS (CAS: 68891-38-3)

DNEL	Workers - Dermal; Long term systemic effects: 2750 mg/kg/day
	Workers - Inhalation; Long term systemic effects: 175 mg/m ³
	General population, Consumer - Dermal; Long term systemic effects: 1650 mg/kg/day
	General population, Consumer - Inhalation; Long term systemic effects: 52 mg/m ³
	General population, Consumer - Oral; Long term systemic effects: 15 mg/kg/day
	Workers - Inhalation; Long term systemic effects: 175 mg/m ³
PNEC	- Fresh water; 0.24 mg/l
	- marine water; 0.024 mg/l
	- STP; 10000 mg/l
	- Sediment (Freshwater); 5.45 mg/kg
	- Sediment (Marinewater); 0.545 mg/kg
	- Soil; 0.946 mg/kg

1-PROPANAMINIUM, 3-AMINO-N-(CARBOXYMETHYL)-N,N-DIMETHYL,N-C8-18 (EVEN NUMBERED) ACYL DERIVIS, HYDROXIDES INNER SALTS (CAS: 97862-59-4)

Ingredient comments	SUP = Supplier's recommendation.
DNEL	Workers - Dermal; Long term systemic effects: 12.5 mg/kg/day
	Workers - Inhalation; Long term systemic effects: 44 mg/m ³
	General population - Dermal; Long term systemic effects: 7.5 mg/kg/day
	General population - Oral; Long term systemic effects: 7.5 mg/m ³
	General population - Inhalation; Long term systemic effects: 13.04 mg/m ³
PNEC	- Fresh water; 0.013 mg/l
	- marine water; 0.001 mg/l
	- Sediment (Freshwater); 11.1 mg/kg/day
	- Sediment (Marinewater); 1.11 mg/kg/day
	- Soil; 0.85 mg/kg
	- STP; 3000 mg/l

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AMINES, C12-14 (EVEN NUMBERED)-ALKYLDIMETHYL, N-OXIDES (CAS: 308062-28-4)

DNEL	Workers - Inhalation; Long term systemic effects: 15.5 mg/m³ Workers - Dermal; Long term systemic effects: 11 mg/kg/day General population - Inhalation; Long term systemic effects: 3.8 mg/m³ General population - Dermal; Long term systemic effects: 5.5 mg/kg General population - Oral; Long term systemic effects: 0.44 mg/kg
PNEC	- Fresh water; 0.0335 mg/l - marine water; 0.00335 mg/l - STP; 24 mg/l Secondary poisoning.; 11 mg/kg - Sediment (Freshwater); 5.24 mg/kg - Sediment (Marinewater); 0.524 mg/kg - Soil; 1.02 mg/kg

β-ALANINE, N-(2-CARBOXYETHYL)-, N-COCO ALKYL DERIVS., DISODIUM SALTS (CAS: 90170-43-7)

DNEL	Workers - Inhalation; Long term systemic effects: 980 mg/m³ Workers - Dermal; Long term systemic effects: 2.67 mg/kg
PNEC	- Fresh water; 0.1 mg/l - marine water; 0.1 mg/l - Intermittent release; 0.1 mg/l - STP; 0.3 mg/l

BENZENESULPHONIC ACID MONO C10 - 13 ALKYL DERIVS SODIUM SALTS (CAS: 68411-30-3)

DNEL	Industry - Inhalation; Long term systemic effects: 7.6 mg/m³ Industry - Dermal; Long term systemic effects: 119 mg/kg/day Consumer - Inhalation; Long term systemic effects: 1.3 mg/m³ Consumer - Dermal; Long term systemic effects: 42.5 mg/kg/day Consumer - Oral; Long term systemic effects: 0.425 mg/kg/day
PNEC	- Fresh water; 0.268 mg/l - marine water; 0.0268 mg/l - Intermittent release; 0.0167 mg/l - STP; 3.43 mg/l - Sediment (Freshwater); 8.1 mg/kg - Sediment (Marinewater); 6.8 mg/kg - Soil; 35 mg/kg

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN166.

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Hand protection	The most suitable glove should be chosen in consultation with the glove supplier/manufacture, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with European Standard EN374.
Other skin and body protection	Wear appropriate clothing to prevent any possibility of skin contact.
Hygiene measures	Wash hands after handling. Wash at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes contaminated. When using do not eat, drink or smoke. Eye wash facilities and emergency shower must be available when handling this product.
Respiratory protection	If ventilation is inadequate, suitable respiratory protection must be worn. EN 136/140/141/145/143/149

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Viscous liquid.
Colour	Colourless.
Odour threshold	No information available.
pH	pH (concentrated solution): 10
Melting point	No information available.
Pour Point	No information available.
Freezing Point	No information available.
Initial boiling point and range	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	No information available.
Other flammability	No information available.
Vapour pressure	No information available.
Vapour density	No information available.
Relative density	No information available.
Bulk density	No information available.
Solubility(ies)	No information available.
Partition coefficient	No information available.
Auto-ignition temperature	No information available.
Decomposition Temperature	No information available.
Viscosity	No information available.
Explosive properties	No information available.

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Explosive under the influence of a flame No information available.

Oxidising properties No information available.

9.2. Other information

Refractive index No information available.

Particle size No information available.

Molecular weight No information available.

Volatility No information available.

Saturation concentration No information available.

Critical temperature No information available.

Volatile organic compound No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity There are no known reactivity hazards associated with this product.

10.2. Chemical stability

Stability Store between 5 to 40°C (41 to 104°F) Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Not known.

10.4. Conditions to avoid

Conditions to avoid Avoid excessive heat for prolonged periods of time.

10.5. Incompatible materials

Materials to avoid Not determined.

10.6. Hazardous decomposition products

Hazardous decomposition products Oxides of the following substances: Carbon. Sulphur.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg) 24,673.8

Skin corrosion/irritation

Skin corrosion/irritation No information available.

Animal data Causes skin irritation.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye damage.

Respiratory sensitisation

Respiratory sensitisation No information available.

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Skin sensitisation

Skin sensitisation No information available.

Germ cell mutagenicity

Genotoxicity - in vitro No information available.

Carcinogenicity

Carcinogenicity No information available.

Reproductive toxicity

Reproductive toxicity - fertility No information available.

Specific target organ toxicity - single exposure

STOT - single exposure No information available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure No information available.

Aspiration hazard

Aspiration hazard No information available.

Inhalation Gas or vapour in high concentrations may irritate the respiratory system.

Ingestion May cause stomach pain or vomiting.

Skin contact Irritating to skin.

Eye contact Causes serious eye damage.

Toxicological information on ingredients.

COCO DIETHEANOLAMIDE

Acute toxicity - oral

Notes (oral LD₅₀) LD₅₀ > 2000 mg/kg, Oral, Rat

Acute toxicity - dermal

Notes (dermal LD₅₀) LD₅₀ > 2000 mg/kg, Dermal, Rabbit

Skin corrosion/irritation

Animal data Moderately irritating. Rabbit

Serious eye damage/irritation

Serious eye damage/irritation Severely irritating to skin. Rabbit

Skin sensitisation

Skin sensitisation Not sensitising. Guinea pig

Germ cell mutagenicity

Genotoxicity - in vitro Bacterial reverse mutation test: Negative.

ALCOHOLS, C12-14, ETHOXYLATED, SULFATES, SODIUM SALTS

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 4,100.0

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Species	Rat
ATE oral (mg/kg)	4,100.0
<u>Acute toxicity - dermal</u>	
Notes (dermal LD ₅₀)	LD ₅₀ >2000 mg/kg, Dermal, Rat
<u>Skin corrosion/irritation</u>	
Skin corrosion/irritation	Causes skin irritation.
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	Causes serious eye damage.
<u>Respiratory sensitisation</u>	
Respiratory sensitisation	Not sensitising.
<u>Skin sensitisation</u>	
Skin sensitisation	Not sensitising. Guinea pig
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Based on available data the classification criteria are not met. Ames test OECD 471
<u>Carcinogenicity</u>	
Carcinogenicity	Based on available data the classification criteria are not met.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	- NOAEL >300 mg/kg, Oral, Rat OECD 416
Reproductive toxicity - development	- NOAEL: >1000 mg/kg, Oral, Rat OECD 414
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	NOAEL >225 mg/kg, Oral, Rat OECD 408
.	
Inhalation	Gas or vapour in high concentrations may irritate the respiratory system.
Ingestion	May cause burns in mucous membranes, throat, oesophagus and stomach.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye damage.

1-PROPANAMINIUM, 3-AMINO-N-(CARBOXYMETHYL)-N,N-DIMETHYL,N-C8-18 (EVEN NUMBERED) ACYL
DERIVS, HYDROXIDES INNER SALTS

<u>Acute toxicity - oral</u>	
Acute toxicity oral (LD ₅₀ mg/kg)	2,335.0
Species	Rat
<u>Skin corrosion/irritation</u>	
Animal data	Slightly irritating. Rabbit OECD 404
<u>Serious eye damage/irritation</u>	

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Serious eye damage/irritation Causes serious eye damage. Rabbit OECD 405

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

Skin sensitisation No information available.

Germ cell mutagenicity

Genotoxicity - in vitro Gene mutation: Negative. OECD 476

Carcinogenicity

Carcinogenicity No information available.

Reproductive toxicity

Reproductive toxicity - fertility No evidence of reproductive toxicity in animal studies.

Reproductive toxicity - development Maternal toxicity: - NOAEL: 100 mg/kg, , Developmental toxicity: - NOAEL: 300 mg/kg, , Teratogenicity: - NOAEL: 1000 mg/kg, , OECD 414

Specific target organ toxicity - single exposure

STOT - single exposure Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard

Aspiration hazard No information available.

Inhalation May cause respiratory system irritation.

Ingestion Gastrointestinal symptoms, including upset stomach.

Skin contact Slightly irritating.

Eye contact Causes serious eye damage. Severe irritation, burning and tearing.

β -ALANINE, N-(2-CARBOXYETHYL)-, N-COCO ALKYL DERIVS., DISODIUM SALTS

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 5,000.0

Species Rat

Notes (oral LD₅₀) LD₅₀ > 2000 mg/kg, Oral, Rat Read-across data.

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 6,000.0

Species Rat

Notes (dermal LD₅₀) Based on available data the classification criteria are not met.

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ATE dermal (mg/kg) 6,000.0

Acute toxicity - inhalation

Notes (inhalation LC₅₀) No specific test data are available. Based on available data the classification criteria are not met.

Skin corrosion/irritation

Skin corrosion/irritation Not irritating. Rabbit

Human skin model test Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye irritation. Rabbit

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

Skin sensitisation Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro Gene mutation: Negative. Bacterial reverse mutation test: Negative. Chromosome aberration: Negative.

Carcinogenicity

Carcinogenicity No information available.

Reproductive toxicity

Reproductive toxicity - fertility Fertility - NOAEL > 43 mg/kg, Oral, Rat

Specific target organ toxicity - single exposure

STOT - single exposure No information available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure NOAEL 43 mg/kg, Oral, Rat Read-across data.

Aspiration hazard

Aspiration hazard No information available.

Inhalation Gas or vapour in high concentrations may irritate the respiratory system.

Ingestion May cause discomfort if swallowed.

Skin contact Liquid may irritate skin.

Eye contact Causes serious eye irritation.

AMINES, C12-14 (EVEN NUMBERED)-ALKYLDIMETHYL, N-OXIDES

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 1,064.0

Species Rat

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Notes (oral LD₅₀)	Harmful if swallowed. LD ₅₀ 1064 mg/kg, Oral, Rat
ATE oral (mg/kg)	1,064.0
<u>Acute toxicity - dermal</u>	
Notes (dermal LD₅₀)	LD ₅₀ > 2000 mg/kg, Dermal, Rat
<u>Skin corrosion/irritation</u>	
Skin corrosion/irritation	Causes skin irritation. Rabbit
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	Causes serious eye damage. Rabbit
<u>Respiratory sensitisation</u>	
Respiratory sensitisation	No information available.
<u>Skin sensitisation</u>	
Skin sensitisation	Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Bacterial reverse mutation test: Negative.
Genotoxicity - in vivo	Chromosome aberration: Negative.
<u>Carcinogenicity</u>	
Carcinogenicity	No evidence of carcinogenicity in animal studies.
<u>Reproductive toxicity</u>	
Summary	- NOAEL: 25 mg/kg, Oral, Rat - : NOEL: 100 mg/kg, Oral, Rat
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	No information available.
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	Sub - Chronic NOAEL 88 mg/kg, Oral, Rat
<u>Aspiration hazard</u>	
Aspiration hazard	No information available.
<u>Inhalation</u>	
Inhalation	Gas or vapour in high concentrations may irritate the respiratory system.
<u>Ingestion</u>	
Ingestion	Harmful if swallowed. May cause discomfort if swallowed.
<u>Skin contact</u>	
Skin contact	Causes skin irritation.
<u>Eye contact</u>	
Eye contact	Causes serious eye damage.

BENZENESULPHONIC ACID MONO C10 - 13 ALKYL DERIVS SODIUM SALTS

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg)	1,080.0
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Species	Rat
ATE oral (mg/kg)	1,080.0
<u>Acute toxicity - dermal</u>	
Notes (dermal LD₅₀)	LD ₅₀ >2000 mg/kg, Oral, Rat
<u>Skin corrosion/irritation</u>	
Animal data	Causes skin irritation. OECD 404 Rabbit
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	Causes serious eye damage. Rabbit OECD 405
<u>Respiratory sensitisation</u>	
Respiratory sensitisation	No information available.
<u>Skin sensitisation</u>	
Skin sensitisation	Not sensitising. Guinea pig maximization test (GPMT) OECD 406
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Chromosome aberration: Negative. This substance has no evidence of mutagenic properties.
<u>Carcinogenicity</u>	
Carcinogenicity	Scientifically unjustified.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	Two-generation study - NOAEL 350 mg/kg, Oral, Rat F2a
Reproductive toxicity - development	Teratogenicity: - NOAEL: 300 mg/kg, Oral, Rat
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	No information available.
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	NOAEL 125 mg/kg, Oral, Rat
Target organs	Spleen Heart & cardiovascular system Liver
<u>Aspiration hazard</u>	
Aspiration hazard	Not relevant.
<u>Inhalation</u>	
Inhalation	Dust may irritate the respiratory system.
<u>Ingestion</u>	
Ingestion	Harmful if swallowed.
<u>Skin contact</u>	
Skin contact	Irritating to skin.
<u>Eye contact</u>	
Eye contact	Causes serious eye damage.

SECTION 12: Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects.

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Ecological information on ingredients.

1-PROPANAMINIUM, 3-AMINO-N-(CARBOXYMETHYL)-N,N-DIMETHYL,N-C8-18 (EVEN NUMBERED) ACYL DERIVS, HYDROXIDES INNER SALTS

Ecotoxicity Harmful to aquatic life with long lasting effects.

β -ALANINE, N-(2-CARBOXYETHYL)-, N-COCO ALKYL DERIVS., DISODIUM SALTS

Ecotoxicity The product is not expected to be hazardous to the environment. However, large or frequent spills may have hazardous effects on the environment.

AMINES, C12-14 (EVEN NUMBERED)-ALKYLDIMETHYL, N-OXIDES

Ecotoxicity Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

BENZENESULPHONIC ACID MONO C10 - 13 ALKYL DERIVS SODIUM SALTS

Ecotoxicity Harmful to aquatic life with long lasting effects.

12.1. Toxicity

Toxicity Harmful to aquatic life.

Ecological information on ingredients.

COCO DIETHEANOLAMIDE

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 2.4 mg/l,

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 3.2 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: 18.6 mg/l, Freshwater algae

Chronic aquatic toxicity

Chronic toxicity - fish early life stage NOEC, 28 days: 0.32 mg/l,

Chronic toxicity - aquatic invertebrates NOEC, 21 days: 0.07 mg/l, Daphnia magna

ALCOHOLS, C12-14, ETHOXYLATED, SULFATES, SODIUM SALTS

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: >7.1 mg/l, Fish
OECD 203

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 7.4 mg/l, Daphnia magna
OECD 202
NOEC, 48 hours: 0.27 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: 27.7 mg/l, Algae
OECD 201

1-PROPANAMINIUM, 3-AMINO-N-(CARBOXYMETHYL)-N,N-DIMETHYL,N-C8-18 (EVEN NUMBERED) ACYL DERIVS, HYDROXIDES INNER SALTS

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Toxicity	Not considered toxic to fish.
<u>Acute aquatic toxicity</u>	
LE(C)₅₀	0.1 < L(E)C ₅₀ ≤ 1
Acute toxicity - fish	LC ₅₀ , 96 hours: 1.11 mg/l, Pimephales promelas (Fat-head Minnow) OECD 203
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: 1.9 mg/l, Daphnia magna OECD 202
<u>Chronic aquatic toxicity</u>	
Chronic toxicity - fish early life stage	NOEC, 37 days: 0.135 mg/l, Oncorhynchus mykiss (Rainbow trout) OECD 210
Chronic toxicity - aquatic invertebrates	NOEC, 21 days: 0.3 mg/l, Daphnia magna OECD 211

β-ALANINE, N-(2-CARBOXYETHYL)-, N-COCO ALKYL DERIVS., DISODIUM SALTS

<u>Acute aquatic toxicity</u>	
Acute toxicity - fish	LC ₅₀ , 96 hours: 4.2 mg/l, Oncorhynchus mykiss (Rainbow trout)
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: 29 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: 9.4 mg/l, Algae EC10, NOEC, 72 hours: 5.5 mg/l, Algae
Acute toxicity - microorganisms	EC ₅₀ , 3 hours: 300 mg/l, Activated sludge
<u>Chronic aquatic toxicity</u>	
Chronic toxicity - aquatic invertebrates	NOEC, 21 days: 10 mg/l, Daphnia magna

AMINES, C12-14 (EVEN NUMBERED)-ALKYLDIMETHYL, N-OXIDES

Toxicity	Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.
<u>Acute aquatic toxicity</u>	
LE(C)₅₀	0.1 < L(E)C ₅₀ ≤ 1
M factor (Acute)	1
Acute toxicity - fish	LC ₅₀ , 96 hours: 2.67 mg/l, Fish OECD 203
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: 3.1 mg/l, Daphnia magna OECD 202
Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: 0.146 mg/l, Algae OECD 201 Chronic, NOEC, 28 day: 0.067 mg/l, Algae OECD 201
<u>Chronic aquatic toxicity</u>	
Chronic toxicity - fish early life stage	NOEC, 302 days: 0.42 mg/l, Fish

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Chronic toxicity - aquatic invertebrates NOEC, 21 days: 0.7 mg/l, Daphnia magna
OECD 211

BENZENESULPHONIC ACID MONO C10 - 13 ALKYL DERIVS SODIUM SALTS

Toxicity Harmful to aquatic life with long lasting effects.

Acute aquatic toxicity

Acute toxicity - fish LC50, 96 hours: 1.67 mg/l, Lepomis macrochirus (Bluegill)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 2.9 mg/l, Daphnia magna

Acute toxicity - aquatic plants ErC50, 96 hours: 29 mg/l, Pseudokirchneriella subcapitata

Chronic aquatic toxicity

Chronic toxicity - fish early life stage NOEC, 28 - 196 days: 0.23 - 3.2 mg/l, Fish

Short term toxicity - embryo and sac fry stages NOEC, : 0.23 mg/l, Oncorhynchus mykiss (Rainbow trout)

Chronic toxicity - aquatic invertebrates NOEC, 2 - 32 days: 0.59 - 4.5 mg/l, Daphnia magna
EC₅₀, 21 days: 1.67 mg/l, Daphnia magna

12.2. Persistence and degradability

Persistence and degradability There are no data on the degradability of this product.

Ecological information on ingredients.**COCO DIETHEANOLAMIDE**

Biodegradation - Degradation (%) 92.5: 28 days

ALCOHOLS, C12-14, ETHOXYLATED, SULFATES, SODIUM SALTS

Persistence and degradability The product is readily biodegradable.

Biodegradation - Degradation (%) 100: 28 days

1-PROPANAMINIUM, 3-AMINO-N-(CARBOXYMETHYL)-N,N-DIMETHYL,N-C8-18 (EVEN NUMBERED) ACYL DERIVS, HYDROXIDES INNER SALTS

Persistence and degradability The product is readily biodegradable.

Biodegradation - Degradation 91.6%: 28 days
OECD 301B

β-ALANINE, N-(2-CARBOXYETHYL)-, N-COCO ALKYL DERIVS., DISODIUM SALTS

Persistence and degradability The substance is readily biodegradable.

Biodegradation OECD 301B
- Degradation 96%: 28 days

HALO CS2**AMINES, C12-14 (EVEN NUMBERED)-ALKYLDIMETHYL, N-OXIDES**

Persistence and degradability The substance is readily biodegradable.

Biodegradation - Degradation >60 %: 28 days
OECD 301B
- Degradation 73%: 57 days
OECD 314C

BENZENESULPHONIC ACID MONO C10 - 13 ALKYL DERIVS SODIUM SALTS

Persistence and degradability The substance is readily biodegradable.

Biodegradation - Degradation (%) > 98%: 29 days
OECD 301D

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Partition coefficient No information available.

Ecological information on ingredients.**COCO DIETHEANOLAMIDE**

Bioaccumulative potential BCF: 65.36,

Partition coefficient log Pow: 3.75

ALCOHOLS, C12-14, ETHOXYLATED, SULFATES, SODIUM SALTS

Bioaccumulative potential The product does not contain any substances expected to be bioaccumulating.
BCF: < 3,

Partition coefficient log Pow: 0.3

1-PROPANAMINIUM, 3-AMINO-N-(CARBOXYMETHYL)-N,N-DIMETHYL,N-C8-18 (EVEN NUMBERED) ACYL DERIVS, HYDROXIDES INNER SALTS

Bioaccumulative potential The product is not bioaccumulating. BCF: 71,

Partition coefficient No information available.

 β -ALANINE, N-(2-CARBOXYETHYL)-, N-COCO ALKYL DERIVS., DISODIUM SALTS

Bioaccumulative potential No data available on bioaccumulation.

AMINES, C12-14 (EVEN NUMBERED)-ALKYLDIMETHYL, N-OXIDES

Bioaccumulative potential Bioaccumulation is unlikely.

Partition coefficient log Pow: 2.7

BENZENESULPHONIC ACID MONO C10 - 13 ALKYL DERIVS SODIUM SALTS

Bioaccumulative potential The product is not bioaccumulating.

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Partition coefficient Log Koc: 3.4

12.4. Mobility in soil

Mobility Not determined.

Ecological information on ingredients.

ALCOHOLS, C12-14, ETHOXYLATED, SULFATES, SODIUM SALTS

Mobility The product is soluble in water.

1-PROPANAMINIUM, 3-AMINO-N-(CARBOXYMETHYL)-N,N-DIMETHYL,N-C8-18 (EVEN NUMBERED) ACYL DERIVS, HYDROXIDES INNER SALTS

Mobility The product is soluble in water.

β -ALANINE, N-(2-CARBOXYETHYL)-, N-COCO ALKYL DERIVS., DISODIUM SALTS

Mobility No information available.

AMINES, C12-14 (EVEN NUMBERED)-ALKYLDIMETHYL, N-OXIDES

Mobility No information available.

BENZENESULPHONIC ACID MONO C10 - 13 ALKYL DERIVS SODIUM SALTS

Mobility No information available.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

Ecological information on ingredients.

1-PROPANAMINIUM, 3-AMINO-N-(CARBOXYMETHYL)-N,N-DIMETHYL,N-C8-18 (EVEN NUMBERED) ACYL DERIVS, HYDROXIDES INNER SALTS

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

β -ALANINE, N-(2-CARBOXYETHYL)-, N-COCO ALKYL DERIVS., DISODIUM SALTS

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

AMINES, C12-14 (EVEN NUMBERED)-ALKYLDIMETHYL, N-OXIDES

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

BENZENESULPHONIC ACID MONO C10 - 13 ALKYL DERIVS SODIUM SALTS

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects Not known.

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Ecological information on ingredients.

1-PROPANAMINIUM, 3-AMINO-N-(CARBOXYMETHYL)-N,N-DIMETHYL,N-C8-18 (EVEN NUMBERED) ACYL DERIVS, HYDROXIDES INNER SALTS

Other adverse effects Not determined.

β -ALANINE, N-(2-CARBOXYETHYL)-, N-COCO ALKYL DERIVS., DISODIUM SALTS

Other adverse effects No information available.

AMINES, C12-14 (EVEN NUMBERED)-ALKYLDIMETHYL, N-OXIDES

Other adverse effects No information available.

BENZENESULPHONIC ACID MONO C10 - 13 ALKYL DERIVS SODIUM SALTS

Other adverse effects No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Waste is classified as hazardous waste. Do not puncture or incinerate, even when empty.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78
and the IBC Code

SECTION 15: Regulatory information

HALO CS2

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

Commission Regulation (EU) No 2015/830 of 28 May 2015.

**Restrictions (Annex XVII
Regulation 1907/2006)**

This product is/contains a substance that is included in REGULATION (EC) No 1907/2006 (REACH) ANNEX XVII - RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES. Entry number: 3

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

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Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
 CAS: Chemical Abstracts Service.
 DNEL: Derived No Effect Level.
 IATA: International Air Transport Association.
 IMDG: International Maritime Dangerous Goods.
 Kow: Octanol-water partition coefficient.
 LC₅₀: Lethal Concentration to 50 % of a test population.
 LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
 PBT: Persistent, Bioaccumulative and Toxic substance.
 PNEC: Predicted No Effect Concentration.
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
 vPvB: Very Persistent and Very Bioaccumulative.
 IARC: International Agency for Research on Cancer.
 MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
 cATpE: Converted Acute Toxicity Point Estimate.
 BCF: Bioconcentration Factor.
 BOD: Biochemical Oxygen Demand.
 EC₅₀: 50% of maximal Effective Concentration.
 LOAEC: Lowest Observed Adverse Effect Concentration.
 LOAEL: Lowest Observed Adverse Effect Level.
 NOAEC: No Observed Adverse Effect Concentration.
 NOAEL: No Observed Adverse Effect Level.
 NOEC: No Observed Effect Concentration.
 LOEC: Lowest Observed Effect Concentration.
 DMEL: Derived Minimal Effect Level.
 EL50: Exposure Limit 50
 hPa: Hectopascal
 LL50: Lethal Loading fifty
 OECD: Organisation for Economic Co-operation and Development
 POW: Octanol-water partition coefficient
 SCBA: self-contained breathing apparatus
 STP: Sewage Treatment Plant
 VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Aquatic Acute = Hazardous to the aquatic environment (acute)
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Key literature references and sources for data

Supplier's information.

Classification procedures according to Regulation (EC) 1272/2008

Skin Irrit. 2 - H315: Calculation method. Eye Dam. 1 - H318: Calculation method. Aquatic Chronic 3 - H412: Calculation method.

Revision comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date

15/06/2021

HALO CS2

Version number	1.000
SDS number	62375
SDS status	Approved.
Hazard statements in full	H302 Harmful if swallowed. H315 Causes skin irritation. H318 Causes serious eye damage. H319 Causes serious eye irritation. H400 Very toxic to aquatic life. H411 Toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects.
Signature	Jitendra Panchal

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.



Exposure scenario Manufacture of substance

Identification

Product name	Amides, C8-18 (even-numbered) and C18(unsatd.), N,N-bis(hydroxyethyl)
REACH registration number	01-2119490100-53-XXXX
EC number	931-329-6
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Manufacture of substance
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products)

Environment

Environmental release category	ERC1 Manufacture of the substance
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Worker

Process category	PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
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Frequency and duration of use

Emission days: 100 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.00001
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.001
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Manufacture of substance

Dilution Local freshwater dilution factor: 35
Local marine water dilution factor: 100
Receiving surface water flow: 680000 m³/day

Risk management measures

STP type Onsite STP.

STP details Assumed onsite sewage treatment plant flow: 2000 m³/day

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers weekly exposure up to 4hours

Other given operational conditions affecting workers exposure

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Bulk transfers Handle substance within a closed system. Remotely vent displaced vapours.
Drum/batch transfers Use only in well-ventilated areas.
Equipment maintenance Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Use suitable eye protection and gloves.
Drum/batch transfers
Wear a respirator conforming to EN140 with Type A filter or better.
Wear suitable gloves tested to EN374.
Equipment maintenance
Wear a respirator conforming to EN140 with Type A filter or better.
Wear suitable gloves tested to EN374.

3. Exposure estimation (Environment 1)

Assessment method Used EUSES model.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination.

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

4. Guidance to check compliance with the exposure scenario (Health 1)

Manufacture of substance

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.



Exposure scenario

Industrial formulation of washing and cleaning products

Identification

Product name	Amides, C8-18 (even-numbered) and C18(unsatd.), N,N-bis(hydroxyethyl)
REACH registration number	01-2119490100-53-XXXX
EC number	931-329-6
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial formulation of washing and cleaning products
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging

Environment

Environmental release category	ERC2 Formulation into mixture
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
-----------------------	--------

Frequency and duration of use

Emission days: 300 days/year

Industrial formulation of washing and cleaning products

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.002
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18000 m³/day
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Risk management measures

STP type	Municipal STP.
STP details	Assumed onsite sewage treatment plant flow: 2000 m³/day

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers weekly exposure up to 4hours

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Bulk transfers Handle substance within a closed system. Remotely vent displaced vapours. Drum/batch transfers Use only in well-ventilated areas. Pouring from small containers Use only in well-ventilated areas. Small package filling Handle substance within a closed system. Put lids on containers immediately after use. Provide extract ventilation at the points where emissions occur. Drying and storage Provide adequate ventilation. Avoid manual contact with wet work pieces. Equipment maintenance Retain drain downs in sealed storage pending disposal or for subsequent recycle. Use only in well-ventilated areas.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented.
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Risk management measures

Use suitable eye protection and gloves.
Drum/batch transfers
Wear a respirator conforming to EN140 with Type A filter or better.
Wear suitable gloves tested to EN374.
Pouring from small containers
Wear suitable gloves tested to EN374.
Equipment maintenance
Wear a respirator conforming to EN140 with Type A filter or better.
Wear suitable gloves tested to EN374.

3. Exposure estimation (Environment 1)

Assessment method	Used EUSES model.
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Industrial formulation of washing and cleaning products

4. Guidance to check compliance with the exposure scenario (Environment 1)

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination.

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.



Exposure scenario

Industrial formulation of cosmetics

Identification

Product name	Amides, C8-18 (even-numbered) and C18(unsatd.), N,N-bis(hydroxyethyl)
REACH registration number	01-2119490100-53-XXXX
EC number	931-329-6
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Industrial formulation of cosmetics
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging

Environment

Environmental release category	ERC2 Formulation into mixture
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
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Industrial formulation of cosmetics

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0.0001
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.002
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18000 m³/day
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Risk management measures

STP type	Municipal STP.
STP details	Assumed onsite sewage treatment plant flow: 2000 m³/day

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Concentration of substance in product: 5%

Frequency and duration of use

Covers weekly exposure up to 4hours

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Bulk transfers Handle substance within a closed system. Remotely vent displaced vapours. Drum/batch transfers Use only in well-ventilated areas. Pouring from small containers Use only in well-ventilated areas. Small package filling Handle substance within a closed system. Put lids on containers immediately after use. Provide extract ventilation at the points where emissions occur. Drying and storage Provide adequate ventilation. Avoid manual contact with wet work pieces. Equipment maintenance Retain drain downs in sealed storage pending disposal or for subsequent recycle. Use only in well-ventilated areas.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented.
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Risk management measures

Use suitable eye protection and gloves.

Drum/batch transfers

Wear a respirator conforming to EN140 with Type A filter or better.

Wear suitable gloves tested to EN374.

Pouring from small containers

Wear suitable gloves tested to EN374.

Equipment maintenance

Wear a respirator conforming to EN140 with Type A filter or better.

Wear suitable gloves tested to EN374.

Industrial formulation of cosmetics

3. Exposure estimation (Environment 1)

Assessment method Used EUSES model.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination.

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.



Exposure scenario

Professional application of washing and cleaning products

Identification

Product name	Amides, C8-18 (even-numbered) and C18(unsatd.), N,N-bis(hydroxyethyl)
REACH registration number	01-2119490100-53-XXXX
EC number	931-329-6
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Professional application of washing and cleaning products
Main sector	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC2 Formulation into mixture ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC5 Use at industrial site leading to inclusion into/onto article ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8e Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)

Worker

Professional application of washing and cleaning products

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring. PROC19 Manual activities involving hand contact
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state Liquid

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Release fraction to air from process (initial release prior to RMM): 0.0005

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.003

Emission factor - soil Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
 Local marine water dilution factor: 100
 Receiving surface water flow: 18000 m³/day

Risk management measures

STP type Municipal STP.

STP details Assumed onsite sewage treatment plant flow: 2000 m³/day

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid

Concentration details Concentration of substance in product: 25%

Frequency and duration of use

Covers weekly exposure up to 4hours

Other given operational conditions affecting workers exposure

Setting Indoor/outdoor use.

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Professional application of washing and cleaning products

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Bulk transfers Handle substance within a closed system. Remotely vent displaced vapours.
 Drum/batch transfers Use only in well-ventilated areas.
 Pouring from small containers Use only in well-ventilated areas.
 Spraying Carry out in a vented booth or extracted enclosure.
 Dipping, immersion and pouring Provide adequate ventilation. Provide extract ventilation at the points where emissions occur. Avoid manual contact with wet work pieces.
 Rolling, brushing Use long-handled brushes and rollers where possible.
 Small package filling Handle substance within a closed system. Fill containers/cans at dedicated fill points supplied with local extract ventilation. Put lids on containers immediately after use. Clear spills immediately.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Use suitable eye protection and gloves.
 Drum/batch transfers
 Wear a respirator conforming to EN140 with Type A filter or better.
 Wear suitable gloves tested to EN374.
 Pouring from small containers
 Wear suitable gloves tested to EN374.
 Equipment maintenance
 Wear a respirator conforming to EN140 with Type A filter or better.
 Wear suitable gloves tested to EN374.

3. Exposure estimation (Environment 1)

Assessment method Used EUSES model.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination.

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.



Exposure scenario

Consumer use of cosmetic products

Identification

Product name	Amides, C8-18 (even-numbered) and C18(unsatd.), N,N-bis(hydroxyethyl)
REACH registration number	01-2119490100-53-XXXX
EC number	931-329-6
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Consumer use of cosmetic products
Product category	PC39 Cosmetics, personal care.
Main sector	SU21 Consumer uses

Environment

Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
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2. Conditions of use affecting exposure (Workers - Health 1)

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented.
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2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 1
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18000
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Consumer use of cosmetic products

Risk management measures

STP type Municipal STP.

STP details Assumed domestic sewage treatment plant flow: 2000 m³/day

2. Conditions of use affecting exposure (Non-industrial - Health 1)

Control of Non-industrial exposure

In accordance to the Article 14 (5b) of the REACH Regulation (EC) No 1907/2006, exposure estimation and risk characterisation for human health does not need to be performed for end uses in cosmetic products within the scope of Directive 76/768/EEC.

3. Exposure estimation (Environment 1)

Assessment method Used EUSES model.

4. Guidance to check compliance with the exposure scenario (Environment 1)

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination.

3. Exposure estimation (Health 1)

No exposure assessment presented for human health.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.



Exposure scenario

Consumer application of washing and cleaning products

Identification

Product name	Amides, C8-18 (even-numbered) and C18(unsatd.), N,N-bis(hydroxyethyl)
REACH registration number	01-2119490100-53-XXXX
EC number	931-329-6
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Consumer application of washing and cleaning products
Product category	PC2 Adsorbents. PC4 Anti-freeze and de-icing products. PC9a Coatings and paints, thinners, paint removers. PC24 Lubricants, greases and release products. PC32 Polymer preparations and compounds. PC35 Washing and cleaning products PC38 Welding and soldering products, flux products
Article category	AC13 Plastic articles
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC2 Formulation into mixture ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8e Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)

2. Conditions of use affecting exposure (Workers - Health 1)

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented.
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2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Frequency and duration of use

Emission days: 300 days/year

Consumer application of washing and cleaning products

Other given operational conditions affecting environmental exposure

Emission factor - air	Release fraction to air from process (initial release prior to RMM): 0
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.0005
Emission factor - soil	Release fraction to soil from process (initial release prior to RMM): 0

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
	Local marine water dilution factor: 100
	Receiving surface water flow: 18000

Risk management measures

STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m ³ /day

2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Physical state	Liquid
Concentration details	Concentration of substance in product: 25%

Other given operational conditions affecting Non-industrial exposure

Setting	Indoor/outdoor use.
Temperature	Assumes activities are at ambient temperature (unless stated differently).

Other given operational conditions affecting Non-industrial exposure

No specific risk management measure identified beyond those operational conditions stated.

3. Exposure estimation (Environment 1)

Assessment method	Used EUSES model.
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4. Guidance to check compliance with the exposure scenario (Environment 1)

Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination.

3. Exposure estimation (Health 1)

Assessment method	Used ECETOC TRA model.
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4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Guidance is based on assumed operating conditions which may not be applicable to all sites, thus, scaling may be necessary to define appropriate site-specific risk management measures.