SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 8.12
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name	:	Sodium dodecyl sulfate EMPROVE® ESSENTIAL Ph Eur
Product Number	:	8.17034
Catalogue No.	:	817034
Brand	:	Millipore
REACH No.	:	01-2119489461-32-XXXX
CAS-No.	:	151-21-3

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

Identified uses	:	Pharmaceutical production and analysis

1.3 Details of the supplier of the safety data sheet

Company	:	Merck Life Science UK Limited New Road The Old Brickyard GILLINGHAM Dorset SP8 4XT UNITED KINGDOM
Telephone	:	+44 (0)1747 833-000
Fax	:	+44 (0)1747 833-313
E-mail address	:	TechnicalService@merckgroup.com

1.4 Emergency telephone

Emergency Phone #	:	+44 (0)870 8200418 (CHEMTREC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567

Flammable solids (Category 2), H228
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Serious eye damage (Category 1), H318
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Long-term (chronic) aquatic hazard (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

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2.2 Label elements

Labelling according Regulation (EC) No 1272/2008 as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567

Pictogram

Signal Word	Danger
Hazard statement(s)	
H228	Flammable solid.
H302 + H332	Harmful if swallowed or if inhaled.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.
Precautionary statement(s)	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	none

Reduced Labeling (<= 125 ml)

Pictogram

Signal Word	Danger
Hazard statement(s)	
H318	Causes serious eye damage.
H412	Harmful to aquatic life with long lasting effects.
Precautionary statement(s)	
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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SECTION 3: Composition/information on ingredients

3.1 Substances

Formula : C12H25O4S.Na
Molecular weight : 288.38 g/mol
CAS-No. : 151-21-3
EC-No. : 205-788-1

Component	Classification	Concentration
Sodium dodecyl sulphate		
CAS-No. 151-21-3 EC-No. 205-788-1	Flam. Sol. 2; Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; STOT SE 3; Aquatic Chronic 3; H228, H302, H332, H315, H318, H335, H412 Concentration limits: 10 - < 20 %: Eye Irrit. 2, H319; >= 20 %: Eye Dam. 1, H318;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

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Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Sulfur oxides
Sodium oxides
Combustible.
Fire may cause evolution of:
Sulfur oxides
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

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Tightly closed. Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

Storage class
Storage class (TRGS 510): 4.1B: Flammable solid hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL)

Application Area	Routes of exposure	Health effect	Value
Worker DNEL, longterm	dermal	Systemic effects	
Worker DNEL, longterm	inhalation	Systemic effects	285 mg/m3
Consumer DNEL, longterm	dermal	Systemic effects	
Consumer DNEL, longterm	inhalation	Systemic effects	85 mg/m3
Consumer DNEL, longterm	oral	Systemic effects	

Predicted No Effect Concentration (PNEC)

Compartment	Value
Fresh water	0.137 mg/l
Sea water	0.0137 mg/l
Aquatic intermittent release	0.055 mg/l
Sewage treatment plant	1084 mg/l
Fresh water sediment	4.82 mg/kg
Sea sediment	0.482 mg/kg
Soil	0.882 mg/kg

8.2 Exposure controls

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

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Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.
Recommended Filter type: Filter type P2

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure
Do not let product enter drains. Risk of explosion.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Physical state	powder
b)	Color	white
c)	Odor	odorless
d)	Melting point/freezing point	Melting point/range: 204 - 207 °C
e)	Initial boiling point and boiling range	No data available
f)	Flammability (solid, gas)	The substance or mixture is a flammable solid with the category 2. - Flammability (solids)
g)	Upper/lower flammability or explosive limits	No data available
h)	Flash point	170 °C - Regulation (EC) No. 440/2008, Annex, A.9
i)	Autoignition temperature	310.5 °C
j)	Decomposition temperature	No data available
k)	pH	9.1 at 10 g/l
l)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available

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m)	Water solubility	130 g/l at 20 °C - OECD Test Guideline 105
n)	Partition coefficient: n-octanol/water	No data available
o)	Vapor pressure	<= 0.00 hPa at 20 °C - OECD Test Guideline 104
p)	Density	0.370 g/cm3
	Relative density	No data available
q)	Relative vapor density	No data available
r)	Particle characteristics	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Bulk density	< 400 kg/m3
Surface tension	25.2 mN/m at 1g/l at 23 °C - OECD Test Guideline 115
Dissociation constant	1.31 at 20 °C - OECD Test Guideline 112

SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Violent reactions possible with:
Strong oxidizing agents

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

In the event of fire: see section 5

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - female - 977 mg/kg
(OECD Test Guideline 401)
Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.
Acute toxicity estimate Oral - 977 mg/kg
(Calculation method)
Acute toxicity estimate Inhalation - 4 h - 1.51 mg/l - dust/mist

(Expert judgment)
LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)
Remarks: The value is given in analogy to the following substances: sodium octyl sulphate (1:1)

Skin corrosion/irritation
Skin - Rabbit
Result: Irritating to skin. - 24 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irreversible effects on the eye
(OECD Test Guideline 405)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: dominant lethal test
Species: Mouse

Application Route: Oral
Method: OECD Test Guideline 478
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation. - Respiratory Tract

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Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

sneezing, The sodium salt of dodecyl sulfate has been reported to cause pulmonary sensitization resulting in hyperactive airway dysfunction and pulmonary allergy accompanied by fatigue, malaise, and aching. Significant symptoms of exposure can persist for more than two years and can be activated by a variety of nonspecific environmental stimuli such as automobile exhaust, perfumes, and passive smoking.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption of toxic quantities:

Tiredness
vasodilation

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 29 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	flow-through test EC50 - Ceriodaphnia dubia (water flea) - 5.55 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - > 120 mg/l - 72 h (DIN 38412)
Toxicity to bacteria	static test EC50 - activated sludge - 135 mg/l - 3 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Pimephales promelas (fathead minnow) - >= 1.36 mg/l - 42 d Remarks: (ECHA)

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Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	flow-through test NOEC - Ceriodaphnia dubia (water flea) - 0.88 mg/l - 7 d (US-EPA)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 95 % - Readily biodegradable. (OECD Test Guideline 301B)

12.3 Bioaccumulative potential

Bioaccumulation	Cyprinus carpio (Carp) - 72 h (Sodium dodecyl sulphate) Bioconcentration factor (BCF): 3.9 - 5.3

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions. Notice Directive on waste 2008/98/EC.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 1325 IMDG: 1325 IATA: 1325

14.2 UN proper shipping name

ADR/RID:	FLAMMABLE SOLID, ORGANIC, N.O.S. (dodecyl sulphate sodium salt)
IMDG:	FLAMMABLE SOLID, ORGANIC, N.O.S. (dodecyl sulphate sodium salt)
IATA:	Flammable solid, organic, n.o.s. (dodecyl sulphate sodium salt)

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14.3 Transport hazard class(es)

ADR/RID: 4.1	IMDG: 4.1	IATA: 4.1

14.4 Packaging group

ADR/RID: III	IMDG: III	IATA: III

14.5 Environmental hazards

ADR/RID: no	IMDG Marine pollutant: no	IATA: no

14.6 Special precautions for user

Further information : No data available

SECTION 15: Regulatory information

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H228	Flammable solid.
H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

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Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Annex: Exposure scenario

Identified uses:

Use: Industrial use

SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
SU 3, SU9, SU 10: Industrial uses: Uses of substances as such or in preparations at industrial sites, Manufacture of fine chemicals, Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)
PC19: Intermediate **PC21:** Laboratory chemicals **PC39:** Cosmetics, personal care products
PROC1: Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) **PROC8a:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing) **PROC10:** Roller application or brushing **PROC14:** Production of preparations or articles by tabletting, compression, extrusion, pelletization **PROC15:** Use as laboratory reagent
ERC2, ERC4, ERC6a, ERC6b: Formulation of preparations, Industrial use of processing aids in processes and products, not becoming part of articles, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids

Use: Professional use

SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
PC21: Laboratory chemicals **PC39:** Cosmetics, personal care products
PROC15: Use as laboratory reagent
ERC2, ERC6a, ERC6b, ERC8a, ERC8d: Formulation of preparations, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids, Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Use: Consumer use

SU 21: Consumer uses: Private households (= general public = consumers)
SU 21: Consumer uses: Private households (= general public = consumers)
PC39: Cosmetics, personal care products
ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

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1. Short title of Exposure Scenario: Industrial use

Main User Groups	:	**SU 3**
Sectors of end-use	:	**SU 3, SU9, SU 10**
Chemical product category	:	**PC19, PC21, PC39**
Process categories	:	**PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15**
Environmental Release Categories	:	**ERC2, ERC4, ERC6a, ERC6b:**

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC2, SpERC AISE 1

Amount used

Annual amount	:	29950 t
Remarks	:	European Union
Daily amount per site (Msafe)	:	290,240 kg

Environment factors not influenced by risk management

Flow rate	:	18,000 m3/d
Dilution Factor (River)	:	10
Dilution Factor (Coastal Areas)	:	100

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	:	2,000 m3/d

2.1 Contributing scenario controlling environmental exposure for: ERC4, SpERC AISE 13

Amount used

Annual amount	:	6000 t
Remarks	:	European Union
Daily amount per site (Msafe)	:	134.63 kg

Environment factors not influenced by risk management

Flow rate	:	18,000 m3/d
Dilution Factor (River)	:	10
Dilution Factor (Coastal Areas)	:	100

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	:	2,000 m3/d

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2.1 Contributing scenario controlling environmental exposure for: ERC6a

Amount used

Annual amount	: 130 t
Remarks	: European Union
Daily amount per site (Msafe)	: 7,296 kg

Environment factors not influenced by risk management

Flow rate	: 18,000 m3/d
Dilution Factor (River)	: 10
Dilution Factor (Coastal Areas)	: 100

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	: Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	: 2,000 m3/d

2.1 Contributing scenario controlling environmental exposure for: ERC6b

Amount used

Annual amount	: 550 t
Remarks	: European Union
Daily amount per site (Msafe)	: 2,926 kg

Environment factors not influenced by risk management

Flow rate	: 18,000 m3/d
Dilution Factor (River)	: 10
Dilution Factor (Coastal Areas)	: 100

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	: Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	: 2,000 m3/d

2.5 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: Solid, high dustiness

Frequency and duration of use

Frequency of use	: 8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor without local exhaust ventilation (LEV)

Organizational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Wear suitable gloves (tested to EN374) and eye protection.

2.6 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15

Product characteristics

Concentration of the Substance in Mixture/Article	: Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: Aqueous solution

Frequency and duration of use

Frequency of use	: 8 hours/day

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Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor without local exhaust ventilation (LEV)

Organizational measures to prevent /limit releases, dispersion and exposure
Covers daily exposures up to 8 hours.

Additional good practice advice beyond the REACH Chemical Safety Assessment
Wear suitable gloves (tested to EN374) and eye protection.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR*
ERC2	ECETOC TRA 2		Sea water		290240kg/day	0.06
ERC4	ECETOC TRA 2		Sea water		134.63kg/day	0.37
ERC6a	ECETOC TRA 2		Sea water		7296kg/day	0.89
ERC6b	ECETOC TRA 2		Sea water		2926kg/day	0.94

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC1	ECETOC TRA 2, Solid	longterm, inhalative, systemic			< 0.01
PROC1	ECETOC TRA 2, Solid	longterm, dermal, systemic			< 0.01
PROC1		longterm, combined, systemic			< 0.01
PROC2	ECETOC TRA 2, Solid	longterm, inhalative, systemic			< 0.01
PROC2	ECETOC TRA 2, Solid	longterm, dermal, systemic			< 0.01
PROC2		longterm, combined, systemic			< 0.01
PROC3	ECETOC TRA 2, Solid	longterm, inhalative, systemic			< 0.01
PROC3	ECETOC TRA 2, Solid	longterm, dermal, systemic			< 0.01
PROC3		longterm, combined,			< 0.01

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		systemic			
PROC4	ECETOC TRA 2, Solid	longterm, inhalative, systemic			0.06
PROC4	ECETOC TRA 2, Solid	longterm, dermal, systemic			< 0.01
PROC4		longterm, combined, systemic			0.06
PROC5	ECETOC TRA 2, Solid	longterm, inhalative, systemic			0.06
PROC5	ECETOC TRA 2, Solid	longterm, dermal, systemic			< 0.01
PROC5		longterm, combined, systemic			0.06
PROC8a	ECETOC TRA 2, Solid	longterm, inhalative, systemic			0.12
PROC8a	ECETOC TRA 2, Solid	longterm, dermal, systemic			< 0.01
PROC8a		longterm, combined, systemic			0.12
PROC8b	ECETOC TRA 2, Solid	longterm, inhalative, systemic			0.06
PROC8b	ECETOC TRA 2, Solid	longterm, dermal, systemic			< 0.01
PROC8b		longterm, combined, systemic			0.06
PROC9	ECETOC TRA 2, Solid	longterm, inhalative, systemic			0.05
PROC9	ECETOC TRA 2, Solid	longterm, dermal, systemic			< 0.01
PROC9		longterm, combined, systemic			0.05
PROC10	ECETOC TRA 2, Solid	longterm, inhalative, systemic			0.02
PROC10	ECETOC TRA 2, Solid	longterm, dermal, systemic			0.01
PROC10		longterm, combined, systemic			0.03

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PROC14	ECETOC TRA 2, Solid	longterm, inhalative, systemic			0.02
PROC14	ECETOC TRA 2, Solid	longterm, dermal, systemic			< 0.01
PROC14		longterm, combined, systemic			0.02
PROC15	ECETOC TRA 2, Solid	longterm, inhalative, systemic			0.01
PROC15	ECETOC TRA 2, Solid	longterm, dermal, systemic			< 0.01
PROC15		longterm, combined, systemic			0.01

*Risk characterisation ratio

PROC1	ECETOC TRA 2, Aqueous solution	longterm, inhalative, systemic			< 0.01
PROC1	ECETOC TRA 2, Aqueous solution	longterm, dermal, systemic			< 0.01
PROC1		longterm, combined, systemic			< 0.01
PROC2	ECETOC TRA 2, Aqueous solution	longterm, inhalative, systemic			0.04
PROC2	ECETOC TRA 2, Aqueous solution	longterm, dermal, systemic			< 0.01
PROC2		longterm, combined, systemic			0.04
PROC3	ECETOC TRA 2, Aqueous solution	longterm, inhalative, systemic			0.13
PROC3	ECETOC TRA 2, Aqueous solution	longterm, dermal, systemic			< 0.01
PROC3		longterm, combined, systemic			0.13
PROC4	ECETOC TRA 2, Aqueous solution	longterm, inhalative, systemic			0.21
PROC4	ECETOC TRA 2, Aqueous solution	longterm, dermal, systemic			< 0.01
PROC4		longterm, combined, systemic			0.21

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PROC5	ECETOC TRA 2, Aqueous solution	longterm, inhalative, systemic			0.21
PROC5	ECETOC TRA 2, Aqueous solution	longterm, dermal, systemic			< 0.01
PROC5		longterm, combined, systemic			0.21
PROC8a	ECETOC TRA 2, Aqueous solution	longterm, inhalative, systemic			0.42
PROC8a	ECETOC TRA 2, Aqueous solution	longterm, dermal, systemic			< 0.01
PROC8a		longterm, combined, systemic			0.42
PROC8b	ECETOC TRA 2, Aqueous solution	longterm, inhalative, systemic			0.21
PROC8b	ECETOC TRA 2, Aqueous solution	longterm, dermal, systemic			< 0.01
PROC8b		longterm, combined, systemic			0.21
PROC9	ECETOC TRA 2, Aqueous solution	longterm, inhalative, systemic			0.21
PROC9	ECETOC TRA 2, Aqueous solution	longterm, dermal, systemic			< 0.01
PROC9		longterm, combined, systemic			0.21
PROC10	ECETOC TRA 2, Aqueous solution	longterm, inhalative, systemic			0.42
PROC10	ECETOC TRA 2, Aqueous solution	longterm, dermal, systemic			< 0.01
PROC10		longterm, combined, systemic			0.42
PROC14	ECETOC TRA 2, Aqueous solution	longterm, inhalative, systemic			0.21
PROC14	ECETOC TRA 2, Aqueous solution	longterm, dermal, systemic			< 0.01
PROC14		longterm, combined, systemic			0.21
PROC15	ECETOC TRA	longterm,			0.21

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	2, Aqueous solution	inhalative, systemic			
PROC15	ECETOC TRA 2, Aqueous solution	longterm, dermal, systemic			< 0.01
PROC15		longterm, combined, systemic			0.21

*Risk characterisation ratio

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool ScIDeEx® at www.merckmillipore.com/scideex.
Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

1. Short title of Exposure Scenario: Professional use

Main User Groups : **SU 22**
Sectors of end-use : **SU 22**
Chemical product category : **PC21, PC39**
Process categories : **PROC15**
Environmental Release Categories : **ERC2, ERC6a, ERC6b, ERC8a, ERC8d:**

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC2, SpERC AISE 1

Amount used
Annual amount : 29950 t
Remarks : European Union
Daily amount per site (Msafe) : 290,240 kg

Environment factors not influenced by risk management
Flow rate : 18,000 m3/d

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Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant : Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent : 2,000 m3/d

2.1 Contributing scenario controlling environmental exposure for: ERC6a

Amount used
Annual amount : 130 t
Remarks : European Union
Daily amount per site (Msafe) : 7,296 kg

Environment factors not influenced by risk management
Flow rate : 18,000 m3/d
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant : Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent : 2,000 m3/d

2.1 Contributing scenario controlling environmental exposure for: ERC6b

Amount used
Annual amount : 550 t
Remarks : European Union
Daily amount per site (Msafe) : 2,926 kg

Environment factors not influenced by risk management
Flow rate : 18,000 m3/d
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant : Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent : 2,000 m3/d

2.1 Contributing scenario controlling environmental exposure for: ERC8a, SpERC AISE 16

Amount used
Annual amount : 22000 t
Remarks : European Union
Daily amount per site (Msafe) : 59 kg

Environment factors not influenced by risk management
Flow rate : 18,000 m3/d
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant : Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent : 2,000 m3/d

2.1 Contributing scenario controlling environmental exposure for: ERC8d

Amount used

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Annual amount : 3000 t
Remarks : European Union
Daily amount per site (Msafe) : 28 kg

Environment factors not influenced by risk management
Flow rate : 18,000 m3/d
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant : Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent : 2,000 m3/d

2.6 Contributing scenario controlling worker exposure for: PROC15

Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : Solid, high dustiness

Frequency and duration of use
Frequency of use : 8 hours/day

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor without local exhaust ventilation (LEV)

Organizational measures to prevent /limit releases, dispersion and exposure
Covers daily exposures up to 8 hours.

Additional good practice advice beyond the REACH Chemical Safety Assessment
Wear suitable gloves (tested to EN374) and eye protection.

2.7 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15

Product characteristics
Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : Aqueous solution

Frequency and duration of use
Frequency of use : 8 hours/day

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor without local exhaust ventilation (LEV)

Organizational measures to prevent /limit releases, dispersion and exposure
Covers daily exposures up to 8 hours.

Additional good practice advice beyond the REACH Chemical Safety Assessment
Wear suitable gloves (tested to EN374) and eye protection.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR*

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ERC2	ECETOC TRA 2		Sea water		290240kg/day	0.06
ERC6a	ECETOC TRA 2		Sea water		7296kg/day	0.89
ERC6b	ECETOC TRA 2		Sea water		2926kg/day	0.94
ERC8a	ECETOC TRA 2		Sea water		59kg/day	0.08
ERC8d	ECETOC TRA 2		Sea water		28kg/day	0.06

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC15	ECETOC TRA 2, Solid	longterm, inhalative, systemic			0.01
PROC15	ECETOC TRA 2, Solid	longterm, dermal, systemic			< 0.01
PROC15		longterm, combined, systemic			0.01

*Risk characterisation ratio

PROC15	ECETOC TRA 2, Aqueous solution	longterm, inhalative, systemic		0.21	0.21
PROC15	ECETOC TRA 2, Aqueous solution	longterm, dermal, systemic		< 0.01	< 0.01
PROC15		longterm, combined, systemic		0.21	0.21

*Risk characterisation ratio

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool ScIDeEx® at www.merckmillipore.com/scideex.
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1. Short title of Exposure Scenario: Consumer use

Main User Groups : **SU 21**
Sectors of end-use : **SU 21**
Chemical product category : **PC39**
Environmental Release Categories : **ERC8a, ERC8d:**

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC8a, SpERC AISE 16

Amount used
Annual amount : 22000 t
Remarks : European Union
Daily amount per site (Msafe) : 59 kg

Environment factors not influenced by risk management
Flow rate : 18,000 m3/d
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant : Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent : 2,000 m3/d

2.1 Contributing scenario controlling environmental exposure for: ERC8d

Amount used
Annual amount : 3000 t
Remarks : European Union
Daily amount per site (Msafe) : 28 kg

Environment factors not influenced by risk management
Flow rate : 18,000 m3/d
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant : Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent : 2,000 m3/d

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR*
ERC8a	ECETOC TRA 2		Sea water		59kg/day	0.08
ERC8d	ECETOC TRA 2		Sea water		28kg/day	0.06

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4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

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