SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 9.1
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Pyridine for analysis EMSURE® ACS,Reag. Ph Eur

Product Number : 1.09728
Catalogue No. : 109728
Brand : Millipore
Index-No. : 613-002-00-7
REACH No. : 01-2119493105-40-XXXX
CAS-No. : 110-86-1

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

Identified uses : Reagent for 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

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
Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2), H319

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

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word	Danger
Hazard statement(s)	
H225	Highly flammable liquid and vapor.
H302 + H312 + H332	Harmful if swallowed, in contact with skin or if inhaled.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
Precautionary statement(s)	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
P301 + P312	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
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)	none
Precautionary statement(s)	none
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.

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	C5H5N
Molecular weight	:	79.1 g/mol
CAS-No.	:	110-86-1
EC-No.	:	203-809-9
Index-No.	:	613-002-00-7

Component		Classification	Concentration
Pyridine			
CAS-No. EC-No. Index-No.	110-86-1 203-809-9 613-002-00-7	Flam. Liq. 2; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; H225, H302, H332, H312, H315, H319	<= 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. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

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

In case of eye contact
After eye contact: rinse out with plenty of water. 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
Small (incipient) fires must be extinguished with alcohol resistant foam, dry chemical powder or carbon dioxide. Large amounts of water are ineffective. Cool containers with large amounts of water.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Nitrogen oxides (NOx)
Combustible.
Fire may cause evolution of:
nitrogen oxides, nitrous gases
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapours possible in the event of fire.
Forms explosive mixtures with air at ambient temperatures.

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
Remove container from danger zone and cool with water. 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: Do not breathe vapors, aerosols. 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 with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

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. Avoid generation of vapours/aerosols.

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
Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

Storage class
Storage class (TRGS 510): 3: Flammable liquids

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

Component	CAS-No.	Value	Control parameters	Basis
Pyridine	110-86-1	TWA	5 ppm 15 mg/m3	Europe. Commission Directive 91/322/EEC on establishing indicative limit values
	Remarks	Indicative		
		TWA	5 ppm 16 mg/m3	UK. EH40 WEL - Workplace Exposure Limits
		STEL	10 ppm 33 mg/m3	UK. EH40 WEL - Workplace Exposure Limits

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). Safety glasses

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).
Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 240 min
Material tested:Butoject® (KCL 898)

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

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) Appearance — Form: liquid
Color: colorless

b)	Odor	pungent
c)	Odor Threshold	0.0001 ppm
d)	pH	ca.8.81 at 20 °C
e)	Melting point/freezing point	Melting point: -42 °C
f)	Initial boiling point and boiling range	ca.115 °C at 1,013 hPa
g)	Flash point	20 °C - closed cup - ISO 1523
h)	Evaporation rate	12.7
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 12.4 %(V) Lower explosion limit: 1.8 %(V)
k)	Vapor pressure	ca.26.7 hPa at 25 °C
l)	Vapor density	2.73
m)	Density	0.98 g/cm3 at 20 °C
	Relative density	No data available
n)	Water solubility	ca.1,000 g/l at 20 °C soluble
o)	Partition coefficient: n-octanol/water	log Pow: ca.0.64 at 20 °C - (Lit.), Bioaccumulation is not expected.
p)	Autoignition temperature	900 °C at 1,013 hPa
q)	Decomposition temperature	ca.490 °C -
r)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: ca.0.88 mPa.s at 25 °C
s)	Explosive properties	No data available
t)	Oxidizing properties	none

9.2 Other safety information

Solubility in other solvents	Diethyl ether at 20 °C - miscible Ethanol at 20 °C - miscible
Surface tension	36.56 mN/m at 25 °C
Dissociation constant	5.25 at 25 °C
Relative vapor density	2.73

SECTION 10: Stability and reactivity

10.1 Reactivity
Vapors may form explosive mixture with air.

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

10.3 Possibility of hazardous reactions
Risk of explosion with:
perchloric acid
nitrogen oxides
halogen-halogen compounds
Risk of ignition or formation of inflammable gases or vapours with:
chlorosulfonic acid
chromium(VI) oxide
Acid anhydrides
fuming sulfuric acid
Oxidizing agents
perchromates
Nitric acid
nitrogen dioxide
Exothermic reaction with:
Fluorine
sulfuric acid
silver perchlorate

10.4 Conditions to avoid
Warming.

10.5 Incompatible materials
rubber, various plastics, various metals

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,500 mg/kg
Remarks: (ECHA)
Symptoms: Vomiting, Nausea
LC50 Inhalation - Rat - male - 4 h - 17.1 mg/l
(US-EPA)
Symptoms: mucosal irritations, Cough, Shortness of breath
LD50 Dermal - Rabbit - > 1,000 - 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h
(Draize Test)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes. - 24 h

Remarks: (ECHA)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: negative
(OECD Test Guideline 429)

Germ cell mutagenicity
Test Type: Ames test
Test system: 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: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 475
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 102 Weeks - NOAEL (No observed adverse effect level) - 7 mg/kg

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Dizziness, tachycardia, nervousness, insomnia, Skin disorders, loss of appetite
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

After uptake:

Headache

In high doses:

narcosis
cardiovascular disorders

Circulatory collapse

Chronic uptake results in damage of:

Liver
Kidney

Good warning effect due to low odour threshold.

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	semi-static test EC50 - Danio rerio (zebra fish) - 560 - 1,000 mg/l - 96 h (OECD Test Guideline 203) Remarks: (in analogy to similar products)
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 320 mg/l - 48 h (OECD Test Guideline 202) Remarks: (in analogy to similar products)
Toxicity to algae	static test EC50 - Pseudokirchneriella subcapitata - 320 mg/l - 72 h (OECD Test Guideline 201) Remarks: (in analogy to similar products)
	IC5 - Scenedesmus quadricauda (Green algae) - 120 mg/l - 7 d Remarks: (maximum permissible toxic concentration) (Lit.)
	EC50 - SELENASTRUM - 100.00 - 180.00 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 97 % - Readily biodegradable. (OECD Test Guideline 301B)

12.3 Bioaccumulative potential

No data available

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 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: 1282 IMDG: 1282 IATA: 1282

14.2 UN proper shipping name

ADR/RID: PYRIDINE
IMDG: PYRIDINE
IATA: Pyridine

14.3 Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

14.4 Packaging group

ADR/RID: II IMDG: II IATA: II

14.5 Environmental hazards

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

14.6 Special precautions for user

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.

National legislation
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. : FLAMMABLE LIQUIDS

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.

H225	Highly flammable liquid and vapor.
H302	Harmful if swallowed.
H302 + H312 + H332	Harmful if swallowed, in contact with skin or if inhaled.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.

Relevant changes since previous version

2. Hazards identification

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
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 **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
PROC15: Use as laboratory reagent
ERC2, ERC6a, ERC6b: Formulation of preparations, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids

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**
Process categories	:	**PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC15**

Environmental Release Categories : **ERC2, ERC4, ERC6a, ERC6b:**

2.2 Contributing scenario controlling worker exposure for: PROC1

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)	: Medium volatile liquid
Process Temperature	: < 29 °C

Frequency and duration of use

Frequency of use	: 8 hours/day
Frequency of use	: 5 days/week

Other operational conditions affecting workers exposure

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

2.2 Contributing scenario controlling worker exposure for: PROC2, PROC3, PROC8b, 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)	: Medium volatile liquid
Process Temperature	: < 29 °C

Frequency and duration of use

Frequency of use	: 8 hours/day
Frequency of use	: 5 days/week

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor with LEV and enhanced general ventilation

Reduction factor for local exhaust ventilation (LEV) has been used for the calculation of dermal exposure estimates.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls., Tightly fitting safety goggles

Additional good practice advice beyond the REACH Chemical Safety Assessment

Wear suitable coveralls to prevent exposure to the skin.

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC5, PROC8a, PROC9

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)	: Medium volatile liquid
Process Temperature	: < 29 °C

Frequency and duration of use

Frequency of use	: 8 hours/day
Frequency of use	: 5 days/week

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor with LEV and enhanced general ventilation

Reduction factor for local exhaust ventilation (LEV) has been used for the calculation of dermal exposure estimates.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls., Tightly fitting safety goggles
Wear respiratory protection. (Effectiveness (of a measure): 90 %)

Additional good practice advice beyond the REACH Chemical Safety Assessment
Wear suitable coveralls to prevent exposure to the skin.

2.2 Contributing scenario controlling worker exposure for: PROC10

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)	:	Medium volatile liquid
Process Temperature	:	< 29 °C

Frequency and duration of use

Frequency of use	:	< 15 minutes/day
Frequency of use	:	5 days/week

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor with LEV and enhanced general ventilation
Reduction factor for local exhaust ventilation (LEV) has been used for the calculation of dermal exposure estimates.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls., Tightly fitting safety goggles
Wear respiratory protection. (Effectiveness (of a measure): 90 %)

Additional good practice advice beyond the REACH Chemical Safety Assessment
Wear suitable coveralls to prevent exposure to the skin.

3. Exposure estimation and reference to its source

Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC1	ECETOC TRA 3	acute, inhalative, systemic			0.02
PROC1	ECETOC TRA 3	acute, dermal, systemic			0.01
PROC1		acute, combined, systemic			0.03
PROC1	ECETOC TRA 3	longterm,			0.01

		inhalative, systemic			
PROC1	ECETOC TRA 3	longterm, dermal, systemic			0.24
PROC1		longterm, combined, systemic			0.26

*Risk characterisation ratio

PROC2	ECETOC TRA 3	acute, inhalative, systemic			0.26
PROC2	ECETOC TRA 3	acute, dermal, systemic			0.00
PROC2		acute, combined, systemic			0.26
PROC3	ECETOC TRA 3	acute, inhalative, systemic			0.53
PROC3	ECETOC TRA 3	acute, dermal, systemic			0.00
PROC3		acute, combined, systemic			0.53
PROC8b	ECETOC TRA 3	acute, inhalative, systemic			0.66
PROC8b	ECETOC TRA 3	acute, dermal, systemic			0.01
PROC8b		acute, combined, systemic			0.67
PROC15	ECETOC TRA 3	acute, inhalative, systemic			0.53
PROC15	ECETOC TRA 3	acute, dermal, systemic			0.00
PROC15		acute, combined, systemic			0.53
PROC2	ECETOC TRA 3	longterm, inhalative, systemic			0.20
PROC2	ECETOC TRA 3	longterm, dermal, systemic			0.05
PROC2		longterm, combined, systemic			0.25
PROC3	ECETOC TRA 3	longterm, inhalative, systemic			0.40
PROC3	ECETOC TRA 3	longterm, dermal,			0.02

		systemic			
PROC3		longterm, combined, systemic			0.42
PROC8b	ECETOC TRA 3	longterm, inhalative, systemic			0.49
PROC8b	ECETOC TRA 3	longterm, dermal, systemic			0.24
PROC8b		longterm, combined, systemic			0.74
PROC15	ECETOC TRA 3	longterm, inhalative, systemic			0.40
PROC15	ECETOC TRA 3	longterm, dermal, systemic			0.01
PROC15		longterm, combined, systemic			0.41

*Risk characterisation ratio

PROC4	ECETOC TRA 3	acute, inhalative, systemic			0.11
PROC4	ECETOC TRA 3	acute, dermal, systemic			0.01
PROC4		acute, combined, systemic			0.11
PROC5	ECETOC TRA 3	acute, inhalative, systemic			0.26
PROC5	ECETOC TRA 3	acute, dermal, systemic			0.02
PROC5		acute, combined, systemic			0.28
PROC8a	ECETOC TRA 3	acute, inhalative, systemic			0.26
PROC8a	ECETOC TRA 3	acute, dermal, systemic			0.02
PROC8a		acute, combined, systemic			0.28
PROC9	ECETOC TRA 3	acute, inhalative, systemic			0.26
PROC9	ECETOC TRA 3	acute, dermal, systemic			0.01
PROC9		acute, combined, systemic			0.27

PROC4	ECETOC TRA 3	longterm, inhalative, systemic			0.08
PROC4	ECETOC TRA 3	longterm, dermal, systemic			0.24
PROC4		longterm, combined, systemic			0.32
PROC5	ECETOC TRA 3	longterm, inhalative, systemic			0.20
PROC5	ECETOC TRA 3	longterm, dermal, systemic			0.49
PROC5		longterm, combined, systemic			0.69
PROC8a	ECETOC TRA 3	longterm, inhalative, systemic			0.20
PROC8a	ECETOC TRA 3	longterm, dermal, systemic			0.49
PROC8a		longterm, combined, systemic			0.69
PROC9	ECETOC TRA 3	longterm, inhalative, systemic			0.20
PROC9	ECETOC TRA 3	longterm, dermal, systemic			0.24
PROC9		longterm, combined, systemic			0.44

*Risk characterisation ratio

PROC10	ECETOC TRA 3	acute, inhalative, systemic			0.26
PROC10	ECETOC TRA 3	acute, dermal, systemic			0.33
PROC10		acute, combined, systemic			0.59
PROC10	ECETOC TRA 3	longterm, inhalative, systemic			0.02
PROC10	ECETOC TRA 3	longterm, dermal, systemic			0.98
PROC10		longterm, combined, systemic			0.99

*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).

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1. Short title of Exposure Scenario: Professional use

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

2.2 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)	: Medium volatile liquid
Process Temperature	: < 29 °C

Frequency and duration of use

Frequency of use	: 8 hours/day
Frequency of use	: 5 days/week

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor with LEV and good general ventilation
Reduction factor for local exhaust ventilation (LEV) has been used for the calculation of dermal exposure estimates.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls., Tightly fitting safety goggles
Wear respiratory protection. (Effectiveness (of a measure): 90 %)

Additional good practice advice beyond the REACH Chemical Safety Assessment

Wear suitable coveralls to prevent exposure to the skin.

3. Exposure estimation and reference to its source

Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC15	ECETOC TRA 3	acute, inhalative, systemic			0.25
PROC15	ECETOC TRA 3	acute, dermal, systemic			0.00
PROC15		acute, combined, systemic			0.25
PROC15	ECETOC TRA 3	longterm, inhalative, systemic			0.18
PROC15	ECETOC TRA 3	longterm, dermal, systemic			0.05
PROC15		longterm, combined, systemic			0.23

*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).