SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 8.5
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Propionic acid for synthesis

Product Number : 8.00605
Catalogue No. : 800605
Brand : Millipore
Index-No. : 607-089-00-0
REACH No. : 01-2119486971-24-XXXX
CAS-No. : 79-09-4

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

Identified uses : Chemical for synthesis

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 3), H226
Skin corrosion (Sub-category 1B), H314
Serious eye damage (Category 1), H318
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

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

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Pictogram	
Signal word	Danger
Hazard statement(s)	
H226	Flammable liquid and vapor.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.
Precautionary statement(s)	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with 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.
Supplemental Hazard Statements	none

Reduced Labeling (<= 125 ml)

Pictogram	
Signal word	Danger
Hazard statement(s)	
H314	Causes severe skin burns and eye damage.
Precautionary statement(s)	
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with 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.
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	:	C3H6O2
Molecular weight	:	74.08 g/mol
CAS-No.	:	79-09-4
EC-No.	:	201-176-3

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Index-No. : 607-089-00-0

Component		Classification	Concentration
propionic acid			
CAS-No. EC-No. Index-No.	79-09-4 201-176-3 607-089-00-0	Flam. Liq. 3; Skin Corr. 1B; Eye Dam. 1; STOT SE 3; H226, H314, H318, H335 Concentration limits: >= 25 %: Skin Corr. 1B, H314; 10 - < 25 %: Skin Irrit. 2, H315; 10 - < 25 %: Eye Irrit. 2, H319; >= 10 %: STOT SE 3, H335;	<= 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
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

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

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: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

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

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

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5.2 Special hazards arising from the substance or mixture

Nature of decomposition products not known.
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
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

Remove container from danger zone and cool with water. 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 and neutralising material (e.g. Chemizorb® H^+, Merck Art. No. 101595). 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 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.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
propionic acid	79-09-4	STEL	15 ppm 46 mg/m3	UK. EH40 WEL - Workplace Exposure Limits
		TWA	10 ppm 31 mg/m3	UK. EH40 WEL - Workplace Exposure Limits
		TWA	10 ppm 31 mg/m3	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
	Remarks	Indicative		
		STEL	20 ppm 62 mg/m3	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
		Indicative		

Predicted No Effect Concentration (PNEC)

Compartment	Value
Fresh water	0.5 mg/l
Sea water	0.05 mg/l
Aquatic intermittent release	5 mg/l
Fresh water sediment	1.86 mg/kg
Sea sediment	0.186 mg/kg
Soil	0.1258 mg/kg
Sewage treatment plant	5 mg/l

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
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Butoject® (KCL 898)

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

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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: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 120 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

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	No data available
c)	Odor Threshold	No data available
d)	pH	2.5 at 100 g/l at 20 °C
e)	Melting point/freezing point	-24 - -23 °C
f)	Initial boiling point and boiling range	141 - 142 °C
g)	Flash point	54 °C - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 12.1 %(V) Lower explosion limit: 2.9 %(V)
k)	Vapor pressure	3.2 hPa at 20 °C
l)	Vapor density	2.56 - (Air = 1.0)
m)	Relative density	No data available
n)	Water solubility	soluble
o)	Partition coefficient: n-octanol/water	log Pow: 0.25

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p)	Autoignition temperature	440 °C at 1,013 hPa
q)	Decomposition temperature	No data available
r)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 10 mPa.s at 25 °C
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	27.21 mN/m at 15 °C
Dissociation constant	4.88
Relative vapor density	2.56 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
Vapor/air-mixtures are explosive at intense warming.

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

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heating.

10.5 Incompatible materials
Strong oxidizing agents

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 - male and female - 3,455.1 mg/kg
(OECD Test Guideline 401)
LC50 Inhalation - Rat - male and female - 4 h - > 20 mg/l
(OECD Test Guideline 403)
LD50 Dermal - Rat - female - 3,235 mg/kg
(OECD Test Guideline 402)
LD50 Parenteral - Rat - 3,500 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: Causes burns.

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Serious eye damage/eye irritation
Eyes - Rabbit
Result: Risk of serious damage to eyes.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Test Type: reverse mutation assay
Test system: S. typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Species: Hamster

Method: OECD Test Guideline 474
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 - Mouse - female - LOAEL (Lowest observed adverse effect level) - 136.9 mg/kg

May cause an asthmatic-like bronchitis., Nausea, Dizziness, Headache, Blood disorders,
May cause irritation to eyes and respitatory passages to workers briefly exposed to high concentrations
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
Biodegradability aerobic - Exposure time 20 d
Result: 93 % - Readily biodegradable.

12.3 Bioaccumulative potential
No data available

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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: 3463 IMDG: 3463 IATA: 3463

14.2 UN proper shipping name
ADR/RID: PROPIONIC ACID
IMDG: PROPIONIC ACID
IATA: Propionic acid

14.3 Transport hazard class(es)
ADR/RID: 8 (3) IMDG: 8 (3) IATA: 8 (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

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Other regulations
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.

H226	Flammable liquid and vapor.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

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) **PROC15:** Use as laboratory reagent
ERC2, ERC4, ERC6a: 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)

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: Formulation of preparations, Industrial use resulting in manufacture of another substance (use of intermediates)

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, PROC15**
Environmental Release Categories	:	**ERC2, ERC4, ERC6a:**

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2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC2

Daily amount per site (Msafe) : 154.22 t

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year : 350
Emission or Release Factor: Air : 0.1 %
Emission or Release Factor: Water : 0.05 %
Emission or Release Factor: Soil : 0.1 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Municipal sewage treatment plant
Sludge Treatment : Sewage sludge should not be applied to natural soils., Sewage sludge should be incinerated.

2.1 Contributing scenario controlling environmental exposure for: ERC4

Daily amount per site (Msafe) : 27 kg

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year : 350
Emission or Release Factor: Air : 5 %
Emission or Release Factor: Water : 10 %
Emission or Release Factor: Soil : 0.1 %

2.1 Contributing scenario controlling environmental exposure for: ERC6a

Daily amount per site (Msafe) : 154.464 t

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year : 350
Emission or Release Factor: Air : 0.1 %
Emission or Release Factor: Water : 0.05 %
Emission or Release Factor: Soil : 0.1 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Municipal sewage treatment plant
Sludge Treatment : Sewage sludge should not be applied to natural soils., Sewage sludge should be incinerated.

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2.4 Contributing scenario controlling worker exposure for: PROC1, PROC2

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 : < 77 °C

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)
Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates.

Organizational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

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

Wear suitable gloves tested to EN374., Use suitable eye protection., Wear suitable coveralls to prevent exposure to the skin.

2.5 Contributing scenario controlling worker exposure for: PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, 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 : < 77 °C

Frequency and duration of use

Frequency of use : 8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor with local exhaust ventilation (LEV)
Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates.

Organizational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

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

Wear suitable gloves tested to EN374., Use suitable eye protection., Wear suitable coveralls to prevent exposure to the skin.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR*
ERC2	Measured data		Fresh water sediment		154.22t/day	0.52
ERC4	ECETOC TRA 2		Soil		27kg/day	0.05

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ERC6a	Measured data		Fresh water sediment		155.464t/day	0.77

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC1	ECETOC TRA 3	acute, inhalative, systemic			< 0.01
PROC1	ECETOC TRA 3	longterm, inhalative, local			< 0.01
PROC1	ECETOC TRA 3	longterm, inhalative, systemic			< 0.01
PROC1	ECETOC TRA 3	longterm, dermal, systemic			< 0.01
PROC1		longterm, combined, systemic			< 0.01
PROC2	ECETOC TRA 3	acute, inhalative, systemic			< 1.0
PROC2	ECETOC TRA 3	longterm, inhalative, local			0.50
PROC2	ECETOC TRA 3	longterm, inhalative, systemic			0.50
PROC2	ECETOC TRA 3	longterm, dermal, systemic			< 0.01
PROC2		longterm, combined, systemic			0.50

*Risk characterisation ratio

PROC3	ECETOC TRA 3	acute, inhalative, local			0.20
PROC3	ECETOC TRA 3	longterm, inhalative, local			0.10
PROC3	ECETOC TRA 3	longterm, inhalative, systemic			0.10
PROC3	ECETOC TRA 3	longterm, dermal, systemic			< 0.01
PROC3		longterm, combined, systemic			0.10
PROC4	ECETOC TRA 3	acute, inhalative, local			0.40
PROC4	ECETOC TRA 3	longterm, inhalative, local			0.20
PROC4	ECETOC TRA 3	longterm,			0.20

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		inhalative, systemic			
PROC4	ECETOC TRA 3	longterm, dermal, systemic			0.01
PROC4		longterm, combined, systemic			0.21
PROC5	ECETOC TRA 3	acute, inhalative, local			< 1.0
PROC5	ECETOC TRA 3	longterm, inhalative, local			0.50
PROC5	ECETOC TRA 3	longterm, inhalative, systemic			0.50
PROC5	ECETOC TRA 3	longterm, dermal, systemic			0.02
PROC5		longterm, combined, systemic			0.52
PROC8a	ECETOC TRA 3	acute, inhalative, local			< 1.0
PROC8a	ECETOC TRA 3	longterm, inhalative, local			0.50
PROC8a	ECETOC TRA 3	longterm, inhalative, systemic			0.50
PROC8a	ECETOC TRA 3	longterm, dermal, systemic			0.02
PROC8a		longterm, combined, systemic			0.52
PROC8b	ECETOC TRA 3	acute, inhalative, local			0.25
PROC8b	ECETOC TRA 3	longterm, inhalative, local			0.12
PROC8b	ECETOC TRA 3	longterm, inhalative, systemic			0.12
PROC8b	ECETOC TRA 3	longterm, dermal, systemic			0.02
PROC8b		longterm, combined, systemic			0.15
PROC9	ECETOC TRA 3	acute, inhalative, local			< 1.0
PROC9	ECETOC TRA 3	longterm, inhalative, local			0.50
PROC9	ECETOC TRA 3	longterm, inhalative, systemic			0.50
PROC9	ECETOC TRA 3	longterm,			0.01

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		dermal, systemic			
PROC9		longterm, combined, systemic			0.51
PROC15	ECETOC TRA 3	acute, inhalative, local			0.20
PROC15	ECETOC TRA 3	longterm, inhalative, local			0.10
PROC15	ECETOC TRA 3	longterm, inhalative, systemic			0.10
PROC15	ECETOC TRA 3	longterm, dermal, systemic			< 0.01
PROC15		longterm, combined, systemic			0.10

*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**
Process categories : **PROC15**
Environmental Release Categories : **ERC2, ERC6a:**

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC2

Daily amount per site (Msafe) : 154.22 t

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure
Number of emission days per year : 350
Emission or Release Factor: Air : 0.1 %
Emission or Release Factor: Water : 0.05 %
Emission or Release Factor: Soil : 0.1 %

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant : Municipal sewage treatment plant
Sludge Treatment : Sewage sludge should not be applied to natural soils., Sewage sludge should be incinerated.

2.1 Contributing scenario controlling environmental exposure for: ERC6a
Daily amount per site (Msafe) : 154.464 t

Environment factors not influenced by risk management
Dilution Factor (River) : 10
Dilution Factor (Coastal Areas) : 100

Other given operational conditions affecting environmental exposure
Number of emission days per year : 350
Emission or Release Factor: Air : 0.1 %
Emission or Release Factor: Water : 0.05 %
Emission or Release Factor: Soil : 0.1 %

Conditions and measures related to municipal sewage treatment plant
Type of Sewage Treatment Plant : Municipal sewage treatment plant
Sludge Treatment : Sewage sludge should not be applied to natural soils., Sewage sludge should be incinerated.

2.3 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 : < 77 °C

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

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor with local exhaust ventilation (LEV)
Reduction factor for local exhaust ventilation (LEV) has not been used for the calculation of dermal exposure estimates.

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

Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374., Use suitable eye protection., Wear suitable coveralls to prevent exposure to the skin.

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3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR*
ERC2	Measured data		Fresh water sediment		154.22t/day	0.52
ERC6a	Measured data		Fresh water sediment		155.464t/day	0.77

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC15	ECETOC TRA 3	acute, inhalative, systemic			0.40
PROC15	ECETOC TRA 3	longterm, inhalative, local			0.20
PROC15	ECETOC TRA 3	longterm, inhalative, systemic			0.20
PROC15	ECETOC TRA 3	longterm, dermal, systemic			< 0.01
PROC15		longterm, combined, systemic			0.20

*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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