

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 8.7
Revision Date 18.12.2024
Print Date 19.12.2024**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Trichloroacetic acid

Product Number : T4885
Brand : Sigma-Aldrich
Index-No. : 607-004-00-7
REACH No. : 01-2119485186-30-XXXX
CAS-No. : 76-03-9**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheetCompany : 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**

Skin corrosion, (Sub-category 1A) H314: Causes severe skin burns and eye damage.

Serious eye damage, (Category 1) H318: Causes serious eye damage.

Short-term (acute) aquatic hazard, (Category 1) H400: Very toxic to aquatic life.

Long-term (chronic) aquatic hazard, (Category 1)

H410: Very toxic to aquatic life with long lasting effects.

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 Statements

H314

Causes severe skin burns and eye damage.

H410

Very toxic to aquatic life with long lasting effects.

Precautionary Statements

P260

Do not breathe dust.

P273

Avoid release to the environment.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P310

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

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 Statements

H314

Causes severe skin burns and eye damage.

Precautionary Statements

P260

Do not breathe dust.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

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IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

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.

Ecological information:

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.

Toxicological information:

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.

Vesicant.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : TCA

Formula : $C_2HCl_3O_2$

Molecular weight : 163.39 g/mol

CAS-No. : 76-03-9

EC-No. : 200-927-2

Index-No. : 607-004-00-7

Component		Classification	Concentration
Trichloroacetic acid			
CAS-No.	76-03-9	Skin Corr. 1A; Eye Dam. 1; Aquatic Acute 1; Aquatic Chronic 1; H314, H318, H400, H410 Concentration limits: >= 1 %: STOT SE 3, H335;	<= 100 %
EC-No.	200-927-2		
Index-No.	607-004-00-7		

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.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

Hydrogen chloride gas

Combustible.

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. 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.

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

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Store under nitrogen.

Tightly closed. Dry.

Storage stability Recommended storage temperature
2 - 8 °C

Storage class

Storage class (TRGS 510): 8B: Non-combustible, corrosive 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.

Predicted No Effect Concentration (PNEC)

Compartment	Value
Fresh water	0.00017 mg/l
Sea water	0.000017 mg/l
Aquatic intermittent release	0.0027 mg/l
Fresh water sediment	0.00014 mg/kg
Sea sediment	0.000014 mg/kg
Soil	0.0046 mg/kg
Sewage treatment plant	100 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 EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: Viton®

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: KCL 890 Vitoject®

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 EN 16523-1 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: 30 min
Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection

Acid-resistant protective clothing

Respiratory protection

Recommended Filter type: Filter type B

The entrepreneur 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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Physical state	Crystalline powder, Chunks
b) Color	off-white
c) Odor	stinging
d) Melting point/freezing point	Melting point/ range: 54 - 58 °C - lit.
e) Initial boiling point and boiling range	196 °C - lit.
f) Flammability (solid, gas)	No data available
g) Upper/lower flammability or explosive limits	No data available
h) Flash point	> 113 °C - closed cup
i) Autoignition temperature	does not ignite
j) Decomposition temperature	No data available
k) pH	1 at 81.7 g/l at 25 °C
l) Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m) Water solubility	81.7 g/l at 20 °C - completely soluble
n) Partition coefficient: n-octanol/water	log Pow: 1.33 - Bioaccumulation is not expected.
o) Vapor pressure	1 hPa at 51 °C
p) Density	1.62 g/cm ³ at 25 °C - lit.
Relative density	No data available
q) Relative vapor density	No data available
r) Particle	No data available

characteristics

- s) Explosive properties Not classified as explosive.
- t) Oxidizing properties none

9.2 Other safety information

Surface tension 27.8 mN/m at 80.2 °C

Relative vapor density 5.64 - (Air = 1.0)

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

Risk of explosion with:
silver salt
Exothermic reaction with:
alkalines
alkali hydroxides
Amines
Violent reactions possible with:
Strong oxidizing agents
sulfoxides
dimethyl sulfoxide
with
Copper

10.4 Conditions to avoid

Exposure to moisture. Heat.
Strong heating.

10.5 Incompatible materials

No data available

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 - 3,320 mg/kg

Remarks: (IUCLID)

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation

Remarks: Causes severe burns.

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation

Remarks: Causes serious eye damage.

Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Germ cell mutagenicity

In vivo tests did not show mutagenic effects

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: Positive results were obtained in some in vitro tests.

Test Type: Chromosome aberration test in vitro

Test system: Human lymphocytes

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: positive

Test Type: In vivo micronucleus test

Species: Mouse

Cell type: Bone marrow

Application Route: Intraperitoneal

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

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.

RTECS: AJ7875000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

No data available

12.2 Persistence and degradability

Biodegradability Result: 59 % - Not readily biodegradable.
Remarks: (External MSDS)

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 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. Notice Directive on waste 2008/98/EC.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 1839

IMDG: 1839

IATA: 1839

ADR/RID: TRICHLOROACETIC ACID
IMDG: TRICHLOROACETIC ACID, SOLID
IATA: Trichloroacetic acid

ADR/RID: 8 IMDG: 8 IATA: 8

ADR/RID: II IMDG: II IATA: II

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

Tunnel restriction code : (E)

Further information : No data available

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

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	E1	ENVIRONMENTAL HAZARDS
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Take note of Dir 94/33/EC on the protection of young people at work.

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

H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.

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 information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. 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. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC4, ERC6a, ERC6b

Daily amount per site (Msafe) : 87.3 kg

Environment factors not influenced by risk management

Flow rate : 18,000 m³/d

Dilution Factor (River) : 10

Dilution Factor (Coastal Areas) : 100

Other given operational conditions affecting environmental exposure

Number of emission days per year : 220

Emission or Release Factor: Air : 0 %

Emission or Release Factor: Water : 0 %

Water

Emission or Release Factor: Soil : 0 %

Discharge into the environment must be avoided.

Technical conditions and measures / Organizational measures

Compartment : All compartments

Do not allow uncontrolled discharge of product into the environment.

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

Sludge Treatment : Sewage sludge should be incinerated.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, 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) : Solid, low dustiness

Process Temperature : < 78 °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)

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 chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear eye protection/ face protection., Wear suitable coveralls to prevent exposure to the skin.

2.3 Contributing scenario controlling worker exposure for: PROC5, PROC8a, PROC8b

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, low dustiness

Process Temperature : < 78 °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)

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 chemically resistant gloves (tested to EN374) in combination with specific activity training., Wear eye protection/ face protection., Wear suitable coveralls to prevent exposure to the skin.

2.4 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) : Solid, low dustiness
 Process Temperature : < 78 °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)

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 chemically resistant gloves (tested to EN374) in combination with intensive management supervision controls., Wear eye protection/ face 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	ECETOC TRA		Sea sediment		87.3kg/day	< 1

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	acute, dermal, systemic			< 0.01
PROC1		acute,			< 0.01

		combined, systemic			
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			< 0.01
PROC2	ECETOC TRA 3	acute, dermal, systemic			0.10
PROC2		acute, combined, systemic			0.10
PROC2	ECETOC TRA 3	longterm, inhalative, systemic			< 0.01
PROC2	ECETOC TRA 3	longterm, dermal, systemic			0.10
PROC2		longterm, combined, systemic			0.10
PROC3	ECETOC TRA 3	acute, inhalative, systemic			< 0.01
PROC3	ECETOC TRA 3	acute, dermal, systemic			0.05
PROC3		acute, combined, systemic			0.05
PROC3	ECETOC TRA 3	longterm, inhalative, systemic			< 0.01
PROC3	ECETOC TRA 3	longterm, dermal, systemic			0.05
PROC3		longterm, combined, systemic			0.05
PROC4	ECETOC TRA 3	acute, inhalative, systemic			0.02
PROC4	ECETOC TRA 3	acute, dermal, systemic			0.49
PROC4		acute, combined, systemic			0.51
PROC4	ECETOC TRA 3	longterm, inhalative, systemic			< 0.01

PROC4	ECETOC TRA 3	longterm, dermal, systemic			0.49
PROC4		longterm, combined, systemic			0.49
PROC9	ECETOC TRA 3	acute, inhalative, systemic			< 0.01
PROC9	ECETOC TRA 3	acute, dermal, systemic			0.49
PROC9		acute, combined, systemic			0.49
PROC9	ECETOC TRA 3	longterm, inhalative, systemic			< 0.01
PROC9	ECETOC TRA 3	longterm, dermal, systemic			0.49
PROC9		longterm, combined, systemic			0.49
PROC15	ECETOC TRA 3	acute, inhalative, systemic			< 0.01
PROC15	ECETOC TRA 3	acute, dermal, systemic			0.02
PROC15		acute, combined, systemic			0.03
PROC15	ECETOC TRA 3	longterm, inhalative, systemic			< 0.01
PROC15	ECETOC TRA 3	longterm, dermal, systemic			0.02
PROC15		longterm, combined, systemic			0.03

*Risk characterisation ratio

PROC5	ECETOC TRA 3	acute, inhalative, systemic			0.02
PROC5	ECETOC TRA 3	acute, dermal, systemic			0.49
PROC5		acute, combined, systemic			0.51
PROC5	ECETOC TRA 3	longterm, inhalative, systemic			< 0.01
PROC5	ECETOC TRA 3	longterm, dermal, systemic			0.49
PROC5		longterm,			0.49

		combined, systemic			
PROC8a	ECETOC TRA 3	acute, inhalative, systemic			0.02
PROC8a	ECETOC TRA 3	acute, dermal, systemic			0.49
PROC8a		acute, combined, systemic			0.51
PROC8a	ECETOC TRA 3	longterm, inhalative, systemic			< 0.01
PROC8a	ECETOC TRA 3	longterm, dermal, systemic			0.49
PROC8a		longterm, combined, systemic			0.49
PROC8b	ECETOC TRA 3	acute, inhalative, systemic			< 0.01
PROC8b	ECETOC TRA 3	acute, dermal, systemic			0.49
PROC8b		acute, combined, systemic			0.49
PROC8b	ECETOC TRA 3	longterm, inhalative, systemic			< 0.01
PROC8b	ECETOC TRA 3	longterm, dermal, systemic			0.49
PROC8b		longterm, combined, systemic			0.49

*Risk characterisation ratio

PROC10	ECETOC TRA 3	acute, inhalative, systemic			0.02
PROC10	ECETOC TRA 3	acute, dermal, systemic			0.39
PROC10		acute, combined, systemic			0.41
PROC10	ECETOC TRA 3	longterm, inhalative, systemic			< 0.01
PROC10	ECETOC TRA 3	longterm, dermal, systemic			0.39
PROC10		longterm, combined, systemic			0.40

*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, ERC6b:

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC6a, ERC6b

Daily amount per site (Msafe) : 87.3 kg

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year : 220

Emission or Release Factor: Air	: 0 %
Emission or Release Factor:	: 0 %

Water

Emission or Release Factor: Soil	: 0 %
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Discharge into the environment must be avoided.

Technical conditions and measures / Organizational measures

Compartment : All compartments

Do not allow uncontrolled discharge of product into the environment.

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

Sludge Treatment	: Sewage sludge should be incinerated.
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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) : Solid, low dustiness
 Process Temperature : < 78 °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)

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 chemically resistant gloves (tested to EN374) in combination with 'basic' employee training., Wear eye protection/ face 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	ECETOC TRA		Sea sediment		87.3kg/day	< 1

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC15	ECETOC TRA 3	acute, inhalative, systemic			< 0.01
PROC15	ECETOC TRA 3	acute, dermal, systemic			0.02
PROC15		acute, combined, systemic			0.03
PROC15	ECETOC TRA 3	longterm, inhalative, systemic			< 0.01
PROC15	ECETOC TRA 3	longterm, dermal, systemic			0.02
PROC15		longterm, combined, systemic			0.03

*Risk characterisation ratio

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