

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878

Version 6.11
Revision Date 20.05.2026
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GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

1.1 Product identifiers

Product name : Zirconium(IV) chloride anhydrous, for synthesis

Product Number : 8.08913
Catalogue No. : 808913
Brand : Millipore
REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration or the annual tonnage does not require a registration.
CAS-No. : 10026-11-6

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 Pty Ltd
Ground Floor, Building 1, 885 Mountain Highway
BAYSWATER VIC 3153
AUSTRALIA

Telephone : +61 1800 800 097
E-mail address : customersupport.anz@merckgroup.com

1.4 Emergency telephone number

Emergency Phone # : Free call (24/7): 1800 862 115
Int'l (24/7): +61 2 9037 2994
(CHEMTREC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Corrosive to metals, Category 1 H290: May be corrosive to metals.

Skin corrosion, Sub-category 1B H314: Causes severe skin burns and eye



damage.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements : H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

Supplemental Hazard Statements : EUH014 Reacts violently with water.
EUH071 Corrosive to the respiratory tract.

Precautionary statements : **Prevention:**
P234 Keep only in original packaging.
P260 Do not breathe dust.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

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.

Reduced Labelling (<= 125 ml)

Hazard pictograms :



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



P303 + P361 + P353	protection. 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 information (EU)	
EUH014	Reacts violently with water.
EUH071	Corrosive to the respiratory tract.

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.

SECTION 3: Composition/information on ingredients

3.1 Substances

EC-No. : 233-058-2

Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)	M-Factor, SCL, ATE
zirconium(IV) chloride	10026-11-6 233-058-2	>= 90 - <= 100	

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : First aiders need to protect themselves.
Show this 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 : Use extinguishing measures that are appropriate to
local circumstances and the surrounding environment.
- Unsuitable extinguishing media : Water
Foam

5.2 Special hazards arising from the substance or mixture

- Specific hazards during fire fighting : Not combustible.
- Caution! in contact with water product releases:
Hydrogen chloride gas
Fire may cause evolution of:
Hydrogen chloride gas
May not get in touch with: Water
Ambient fire may liberate hazardous vapours.
- Hazardous combustion products : Hydrogen chloride gas
Zirconium oxides

5.3 Advice for firefighters

- Special protective equipment for fire-fighters : Stay in danger area only with self-contained breathing
apparatus. Prevent skin contact by keeping a safe
distance or by wearing suitable protective clothing.
- Further information : Suppress (knock down) gases/vapours/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

Personal precautions : 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

Environmental precautions : Do not let product enter drains.

6.3 Methods and material for containment and cleaning up

Methods for 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 considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Keep workplace dry. Do not allow product to come into contact with water.

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

Requirements for storage areas and containers : No metal containers.

Further information on storage conditions : Tightly closed. Dry.

Advice on common storage : Never allow product to get in contact with water during storage.

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

Further information on storage stability : Recommended storage temperature see product label.



Recommended storage temperature : 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

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006

Substance name	End Use	Exposure routes	Potential health effects	Value
	Worker DNEL, longterm	inhalation	Local effects	8 mg/m ³
Remarks: Expressed as, Hydrogen chloride				

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006

Substance name	Environmental Compartment	Value
	Fresh water	0,074 mg/l
Remarks: Expressed as, Zirconium		
	Marine water	0,0074 mg/l
Remarks: Expressed as, Zirconium		
	Fresh water sediment	66,1 mg/kg
Remarks: Expressed as, Zirconium		
	Marine sediment	6,61 mg/kg
Remarks: Expressed as, Zirconium		
	Soil	6,23 mg/kg
Remarks: Expressed as, Zirconium		

8.2 Exposure controls

Individual protection measures, such as personal protective equipment (PPE)

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

Hand protection

Material : Nitrile rubber
Break through time : 480 min
Glove thickness : 0,11 mm
Protective index : Full contact
Manufacturer : KCL 741 Dermatrill® L

Material : Nitrile rubber
Break through time : 480 min
Glove thickness : 0,11 mm
Protective index : Splash contact



Manufacturer : KCL 741 Dermatril® L

Remarks : 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).

Skin and body protection : protective clothing

Respiratory protection : required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter : Filter type P2
type:

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.

Environmental exposure controls

Advice : Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : solid (20 °C, 1.013 hPa)

Form : crystals

Color : light yellow

Odor : odourless

Melting point/ range : 331 °C

Boiling point : No data available

Flammability : The product is not flammable.
Method: Flammability (solids)

Upper explosion limit / : No data available



Upper flammability limit

Lower explosion limit /
Lower flammability limit : No data available

Flash point : Not applicable

Autoignition temperature : No data available

Decomposition
temperature : No data available

pH : No data available

Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

Flow time : No data available

Solubility(ies)
Water solubility : 2 g/l

Partition coefficient: n-
octanol/water : No data available

Vapor pressure : 1 hPa (190 °C)

Relative density : 2,76 (20 °C)
Method: OECD Test Guideline 109

Density : 2,76 g/cm³ (20 °C)
Method: OECD Test Guideline 109

Bulk density : 1.200 kg/m³

Relative vapour density : No data available

9.2 Other information

Explosives : No data available

Oxidizing properties : none

Burning rate : No data available



Metal corrosion rate : No data available

Evaporation rate : No data available

Molecular weight : 233,03 g/mol

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

sensitive to moisture

10.3 Possibility of hazardous reactions

Hazardous reactions : Exothermic reaction with:

Ether
ethanol
Hydrogen fluoride
alkalines
acids

Violent reactions possible with:

Water

The generally known reaction partners of water.

Risk of ignition or formation of inflammable gases or
vapours with:
Alkali metals

10.4 Conditions to avoid

Conditions to avoid : Moisture.

10.5 Incompatible materials

Materials to avoid : Metals

10.6 Hazardous decomposition products

Reacts with water to form: - hydrochloric acid
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Oral: No data available

Inhalation: No data available



Dermal: No data available

Skin corrosion/irritation

Skin - in vitro assay

Result: Corrosive - 4 h

(In Vitro Membrane Barrier Test Method for Skin Corrosion - CORROSITEX)

Serious eye damage/eye irritation

Remarks: No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

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.

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.

Granulomatous lesions have been observed in susceptible individuals following use of preparations containing zirconium. The lesions are probably of allergic epitheloid origin., Headache, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Components:

zirconium(IV) chloride:

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : LC50: 2 mg/l
Exposure time: 3 Weeks
Species: Daphnia magna (Water flea)

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

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

Components:

zirconium(IV) chloride:

Additional ecological information : 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.

SECTION 14: Transport information

14.1 UN number or ID number

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ADR : UN 2503
IMDG : UN 2503
IATA : UN 2503

14.2 UN proper shipping name

ADR : ZIRCONIUM TETRACHLORIDE
IMDG : ZIRCONIUM TETRACHLORIDE
IATA : Zirconium tetrachloride

14.3 Transport hazard class(es)

	Class	Subsidiary risks
ADR	: 8	
IMDG	: 8	
IATA	: 8	

14.4 Packing group

ADR
Packing group : III
Classification Code : C2
Hazard Identification Number : 80
Labels : 8
Tunnel restriction code : (E)

IMDG
Packing group : III
Labels : 8
EmS Code : F-A, S-B

IATA (Cargo)
Packing instruction (cargo aircraft) : 864
Packing instruction (LQ) : Y845
Packing group : III
Labels : Class 8 - Corrosive substances

IATA_P (Passenger)
Packing instruction (passenger aircraft) : 860
Packing instruction (LQ) : Y845
Packing group : III
Labels : Class 8 - Corrosive substances

14.5 Environmental hazards

ADR
Environmentally hazardous : no

IMDG



Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:
Number on list 75
If you intend to use this product as tattoo ink, please contact your vendor.

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EU) No 2024/590 on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. O1 OTHER HAZARDS

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

EUH014 : Reacts violently with water.
EUH071 : Corrosive to the respiratory tract.

Full text of other abbreviations



Met. Corr. : Corrosive to metals
Skin Corr. : Skin corrosion

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; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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 Harmonised 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 Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; 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 - Organisation 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; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Other 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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REG_EU / EN



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
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
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
PROC15: Use as laboratory reagent
ERC6a: 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
ERC6a: 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, PROC4, PROC8a, PROC8b, PROC15
Environmental Release Categories	: ERC6a:

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC6a

Amount used

Annual amount per site : 80 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 : 100
Emission or Release Factor: Air : 5 %
Emission or Release Factor: Water : 2 %
Emission or Release Factor: Soil : 0,1 %
Substance hydrolyses rapidly.

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
Effectiveness (of a measure) : 78,1 %

2.2 Contributing scenario controlling worker exposure for: PROC1**Product characteristics**

Physical Form (at time of use) : High volatile liquid
Hydrolyses readily., Gaseous hydrogen chloride (HCl).

Frequency and duration of use

Frequency of use : 8 hours/day
Frequency of use : 220 days/year

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor with local exhaust ventilation (LEV)

Organisational 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., Safety glasses with side-shields conforming to EN166

Additional good practice advice beyond the REACH Chemical Safety Assessment

Wear suitable coveralls to prevent exposure to the skin.

2.3 Contributing scenario controlling worker exposure for: PROC2, PROC4**Product characteristics**

Physical Form (at time of use) : High volatile liquid
Hydrolyses readily., Gaseous hydrogen chloride (HCl).

Frequency and duration of use

Frequency of use : 15 minutes/day
Frequency of use : 220 days/year

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor with local exhaust ventilation (LEV)

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 15 minutes.

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

Wear suitable gloves tested to EN374., Safety glasses with side-shields conforming to EN166

Additional good practice advice beyond the REACH Chemical Safety Assessment

Wear suitable coveralls to prevent exposure to the skin.

2.4 Contributing scenario controlling worker exposure for: PROC8a, PROC8b

Product characteristics

Physical Form (at time of use) : High volatile liquid
Hydrolyses readily., Gaseous hydrogen chloride (HCl).

Frequency and duration of use

Frequency of use : 60 minutes/day
Frequency of use : 220 days/year

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor with local exhaust ventilation (LEV)

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 1 hour.

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

Wear suitable gloves tested to EN374., Safety glasses with side-shields conforming to EN166

Additional good practice advice beyond the REACH Chemical Safety Assessment

Wear suitable coveralls to prevent exposure to the skin.

2.5 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) : High volatile liquid
Hydrolyses readily., Gaseous hydrogen chloride (HCl).

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)

Organisational 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., Safety glasses with side-shields conforming to EN166

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



Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR*
ERC6a			All compartments			< 0,89

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC1	MEASE	longterm, inhalative, local			< 1

*Risk characterisation ratio

PROC2	MEASE	longterm, inhalative, local			< 1
PROC4	MEASE	longterm, inhalative, local			< 1

*Risk characterisation ratio

PROC8a	MEASE	longterm, inhalative, local			0,47
PROC8b	MEASE	longterm, inhalative, local			0,28

*Risk characterisation ratio

PROC15	ECETOC TRA	longterm, inhalative, local			0,95
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*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 : **ERC6a:**

2. Exposure scenario

2.1 Contributing scenario controlling environmental exposure for: ERC6a

Amount used

Annual amount per site : 80 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 : 100

Emission or Release Factor: Air : 5 %

Emission or Release Factor: : 2 %

Water

Emission or Release Factor: Soil : 0,1 %

Substance hydrolyses rapidly.

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

Effectiveness (of a measure) : 78,1 %

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) : High volatile liquid

Hydrolyses readily., Gaseous hydrogen chloride (HCl).

Frequency and duration of use

Frequency of use : < 4 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor with LEV and good general ventilation

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 4 hours.

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

Wear suitable gloves tested to EN374., Safety glasses with side-shields conforming to EN166

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

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value	Level of Exposure	RCR*
ERC6a			All compartments			< 0,89

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC15	ECETOC TRA	longterm, inhalative, local			0,80

*Risk characterisation ratio

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

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

