

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.18  
Revision Date 09.10.2024  
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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : Acetonitrile gradient grade for liquid chromatography LiChrosolv® Reag. Ph Eur

Product Number : 1.00030  
Catalogue No. : 100030  
Brand : Millipore  
Index-No. : 608-001-00-3  
REACH No. : 01-2119471307-38-XXXX  
CAS-No. : 75-05-8

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

Identified uses : Reagent for analysis, Analytical and preparative chromatography

### 1.3 Details of the supplier of the safety data sheet

Company : Merck Life Science UK Limited  
New Road  
The Old Brickyard  
GILLINGHAM  
Dorset  
SP8 4XT  
UNITED KINGDOM

Telephone : +44 (0)1747 833-000  
Fax : +44 (0)1747 833-313  
E-mail address : TechnicalService@merckgroup.com

### 1.4 Emergency telephone

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

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

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

Flammable liquids, (Category 2) H225: Highly flammable liquid and vapor.

Acute toxicity, (Category 4) H302: Harmful if swallowed.

Acute toxicity, (Category 4) H332: Harmful if inhaled.

Acute toxicity, (Category 4)

H312: Harmful in contact with skin.

Eye irritation, (Category 2)

H319: Causes serious eye irritation.

## 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

H225

Highly flammable liquid and vapor.

H302 + H312 + H332

Harmful if swallowed, in contact with skin or if inhaled.

H319

Causes serious eye irritation.

Precautionary Statements

P210

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P280

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

P301 + P312

IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.

P303 + P361 + P353

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

P304 + P340 + P312

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard Statements

none

### Reduced Labeling (<= 125 ml)

Pictogram



Signal Word

Danger

Hazard Statements

none

Precautionary Statements

none

Supplemental Hazard Statements

none

## 2.3 Other hazards

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

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.

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### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

Formula : C<sub>2</sub>H<sub>3</sub>N  
Molecular weight : 41.05 g/mol  
CAS-No. : 75-05-8  
EC-No. : 200-835-2  
Index-No. : 608-001-00-3

Component	Classification	Concentration
<b>Acetonitrile</b>		
CAS-No. 75-05-8 EC-No. 200-835-2 Index-No. 608-001-00-3	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2; H225, H302, H332, H312, H319	<= 100 %

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

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### SECTION 4: First aid measures

#### 4.1 Description of first-aid measures

##### General advice

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

##### If inhaled

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

##### In case of skin contact

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

##### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

##### If swallowed

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

#### 4.2 Most important symptoms and effects, both acute and delayed

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

#### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing media

Water Foam Carbon dioxide (CO<sub>2</sub>) 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

Nitrogen oxides (NO<sub>x</sub>)

Combustible.

Fire may cause evolution of:

nitrogen oxides, Hydrogen cyanide (hydrocyanic acid)

Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

Forms explosive mixtures with air at ambient temperatures.

## **5.3 Advice for firefighters**

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

## **5.4 Further information**

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6: Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

### **6.2 Environmental precautions**

Do not let product enter drains. Risk of explosion.

### **6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemisorb® ).

Dispose of properly. Clean up affected area.

### **6.4 Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### **Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

### **7.2 Conditions for safe storage, including any incompatibilities**

#### **Storage conditions**

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

Recommended storage temperature see product label.

**Storage class**

Storage class (TRGS 510): 3: Flammable liquids

**7.3 Specific end use(s)**

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

**SECTION 8: Exposure controls/personal protection**

**8.1 Control parameters**

**Ingredients with workplace control parameters**

Component	CAS-No.	Control parameters	Value	Basis
Acetonitrile	75-05-8	TWA	40 ppm 70 mg/m <sup>3</sup>	Europe. Indicative occupational exposure limit values
	Remarks	Indicative Identifies the possibility of significant uptake through the skin		
		TWA	40 ppm 68 mg/m <sup>3</sup>	UK. EH40 WEL - Workplace Exposure Limits
		STEL	60 ppm 102 mg/m <sup>3</sup>	UK. EH40 WEL - Workplace Exposure Limits

**Derived No Effect Level (DNEL)**

Application Area	Routes of exposure	Health effect	Value
Worker DNEL, acute	inhalation	Systemic effects	68 mg/m <sup>3</sup>
Worker DNEL, acute	inhalation	Local effects	68 mg/m <sup>3</sup>
Worker DNEL, longterm	dermal	Systemic effects	
Worker DNEL, longterm	inhalation	Systemic effects	68 mg/m <sup>3</sup>
Worker DNEL, longterm	inhalation	Local effects	68 mg/m <sup>3</sup>

**Predicted No Effect Concentration (PNEC)**

Compartment	Value
Fresh water	10 mg/l
Sea water	1 mg/l
Aquatic intermittent release	10 mg/l
Sewage treatment plant	32 mg/l
Soil	3.02 mg/kg
Fresh water sediment	45 mg/kg
Sea sediment	4.5 mg/kg

## 8.2 Exposure controls

### Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

#### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://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 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](http://www.kcl.de)).

Splash contact

Material: Chloroprene

Minimum layer thickness: 0.65 mm

Break through time: 10 min

Material tested: KCL 720 Camapren®

#### Body Protection

Flame retardant antistatic protective clothing.

#### Respiratory protection

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

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. Risk of explosion.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |  |   |
|--|---|
| a) Physical state                          | liquid                                      |
| b) Color                                   | colorless                                   |
| c) Odor                                    | ether-like                                  |
| d) Melting point/freezing point            | Melting point/ range: -45.7 °C at 1,013 hPa |
| e) Initial boiling point and boiling range | 81.0 - 82.0 °C at 1,013.25 hPa              |

f) Flammability (solid, gas)	No data available
g) Upper/lower flammability or explosive limits	Upper explosion limit: 16 %(V) Lower explosion limit: 4.4 %(V)
h) Flash point	2.0 °C - closed cup
i) Autoignition temperature	No data available
j) Decomposition temperature	No data available
k) pH	No data available
l) Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 0.350 Pas at 20.00 °C
m) Water solubility	1,000 g/l at 25 °C completely soluble
n) Partition coefficient: n-octanol/water	log Pow: -0.54 at 25 °C - Bioaccumulation is not expected.
o) Vapor pressure	98.64 hPa at 20 °C
p) Density	0.78 g/cm <sup>3</sup> at 20 °C
Relative density	No data available
q) Relative vapor density	No data available
r) Particle characteristics	No data available
s) Explosive properties	Not classified as explosive.
t) Oxidizing properties	none

## 9.2 Other safety information

Surface tension 29.0 mN/m at 20.0 °C

Relative vapor density 1.42 - (Air = 1.0)

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Vapors may form explosive mixture with air.

### 10.2 Chemical stability

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

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:

Strong bases

strong reducing agents

Risk of explosion with:

nitrates

perchlorates

perchloric acid

conc. sulfuric acid  
with  
Heat.  
Risk of ignition or formation of inflammable gases or vapours with:  
Oxidizing agents  
Nitric acid  
nitrogen dioxide  
with  
Catalyst  
Generates dangerous gases or fumes in contact with:  
Acids

#### **10.4 Conditions to avoid**

Warming.

#### **10.5 Incompatible materials**

No data available

#### **10.6 Hazardous decomposition products**

In the event of fire: see section 5

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### **SECTION 11: Toxicological information**

#### **11.1 Information on toxicological effects**

##### **Acute toxicity**

LD50 Oral - Mouse - male and female - 617 mg/kg  
(OECD Test Guideline 401)

Acute toxicity estimate Oral - 617 mg/kg  
(ATE value derived from LD50/LC50 value)

LC50 Inhalation - Mouse - male and female - 4 h - 6.022 mg/l - vapor

(OECD Test Guideline 403)

Acute toxicity estimate Dermal - 1,500 mg/kg

(Expert judgment)

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

##### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

##### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Causes serious eye irritation.

(OECD Test Guideline 405)

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

##### **Respiratory or skin sensitization**

Buehler Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

##### **Germ cell mutagenicity**

Test Type: Ames test

Test system: *S. typhimurium*

Metabolic activation: with and without metabolic activation

Result: negative



Remarks: (ECHA)  
Test Type: In vitro mammalian cell gene mutation test  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: US-EPA  
Result: negative  
Test Type: Mutagenicity (mammal cell test): chromosome aberration.  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Result: Positive results were obtained in some in vitro tests.  
Remarks: (National Toxicology Program)  
Test Type: sister chromatid exchange assay  
Test system: Chinese hamster ovary cells  
Metabolic activation: Metabolic activation  
Result: negative  
Remarks: Sister chromatid exchange  
Test system: Saccharomyces cerevisiae  
Metabolic activation: without metabolic activation  
Result: positive  
Remarks: Cytogenetic analysis  
(ECHA)  
Test Type: In vitro mammalian cell gene mutation test  
Test system: Mouse lymphoma test  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

Test Type: Micronucleus test  
Species: Mouse

Application Route: Intraperitoneal  
Method: OECD Test Guideline 474  
Result: negative

#### **Carcinogenicity**

No evidence of carcinogenicity in animal studies.

#### **Reproductive toxicity**

Animal testing did not show any effects on fertility.

#### **Specific target organ toxicity - single exposure**

The substance or mixture is not classified as specific target organ toxicant, single exposure.

#### **Specific target organ toxicity - repeated exposure**

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

#### **Aspiration hazard**

No aspiration toxicity classification

## **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.

Treat as cyanide poisoning., Always have on hand a cyanide first-aid kit, together with proper instructions., The onset of symptoms is generally delayed pending conversion to cyanide., Nausea, Vomiting, Diarrhea, Headache, Dizziness, Rash, Cyanosis, excitement, depression, Drowsiness, impaired judgment, Lack of coordination, stupor, death  
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish                      flow-through test LC50 - Pimephales promelas (fathead minnow) - 1,640 mg/l - 96 h  
Remarks: (ECHA)

Toxicity to algae                      static test NOEC - Phaeodactylum tricornutum - 400 mg/l - 72 h (ISO 10253)  
static test ErC50 - Phaeodactylum tricornutum - 9,696 mg/l - 72 h (ISO 10253)

Toxicity to bacteria

Toxicity to fish(Chronic toxicity)      flow-through test NOEC - Oryzias latipes - 102 mg/l - 21 d (OECD Test Guideline 204)

### 12.2 Persistence and degradability

Biodegradability                      Result: 70 % - Readily biodegradable. (OECD Test Guideline 310)

### 12.3 Bioaccumulative potential

No bioaccumulation is to be expected (log Pow <= 4).

### 12.4 Mobility in soil

Not expected to adsorb on soil.

### 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

Biological effects:  
Hazard for drinking water supplies.  
Discharge into the environment must be avoided.  
Avoid release to the environment.

Stability in water                      DT50 - > 9,999 d pH 7 at 25 °C  
Remarks: (calculated)Hydrolyzes slowly.

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## 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.

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## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: 1648

IMDG: 1648

IATA: 1648

### 14.2 UN proper shipping name

ADR/RID: ACETONITRILE

IMDG: ACETONITRILE

IATA: Acetonitrile

### 14.3 Transport hazard class(es)

ADR/RID: 3

IMDG: 3

IATA: 3

### 14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

### 14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

### 14.6 Special precautions for user

Tunnel restriction code : (D/E)

Further information : No data available

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## 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.

#### Authorisations and/or restrictions on use

##### National legislation

Seveso III: Directive 2012/18/EU of the P5c FLAMMABLE LIQUIDS  
European Parliament and of the Council  
on the control of major-accident hazards  
involving dangerous substances.

##### Other regulations

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

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

## 15.2 Chemical Safety Assessment

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

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### SECTION 16: Other information

#### Full text of H-Statements

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

#### 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](http://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

<b>SU 3:</b> Industrial uses: Uses of substances as such or in preparations at industrial sites
<b>SU 3, SU9, SU 10:</b> 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)
<b>PC19:</b> Intermediate <b>PC21:</b> Laboratory chemicals
<b>PROC1:</b> Use in closed process, no likelihood of exposure <b>PROC2:</b> Use in closed, continuous process with occasional controlled exposure <b>PROC3:</b> Use in closed batch process (synthesis or formulation) <b>PROC4:</b> Use in batch and other process (synthesis) where opportunity for exposure arises <b>PROC5:</b> Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) <b>PROC8a:</b> Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities <b>PROC8b:</b> Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities <b>PROC9:</b> Transfer of substance or preparation into small containers (dedicated filling line, including weighing) <b>PROC15:</b> Use as laboratory reagent
<b>ERC1, ERC2, ERC4, ERC6a, ERC6b:</b> Manufacture of substances, 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

<b>SU 22:</b> Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<b>SU 22:</b> Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
<b>PC21:</b> Laboratory chemicals <b>PROC15:</b> Use as laboratory reagent
<b>ERC2, ERC6a, ERC6b:</b> Formulation of preparations, Industrial use resulting in manufacture of another substance (use of intermediates), Industrial use of reactive processing aids

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### 1. Short title of Exposure Scenario: Industrial use

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Main User Groups	: <b>SU 3</b>
Sectors of end-use	: <b>SU 3, SU9, SU 10</b>
Chemical product category	: <b>PC19, PC21</b>
Process categories	: <b>PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC15</b>
Environmental Release Categories	: <b>ERC1, ERC2, ERC4, ERC6a, ERC6b:</b>

## 2. Exposure scenario

### 2.1 Contributing scenario controlling environmental exposure for: ERC1, SpERC ESVOC 1

#### Amount used

Annual amount per site : 8500 t

#### Other given operational conditions affecting environmental exposure

Number of emission days per year : 300

Emission or Release Factor: Air : 0.5 %

Emission or Release Factor: Water : 1 %

Water

Emission or Release Factor: Soil : 0.01 %

#### Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Onsite sewage treatment plant

Flow rate of sewage treatment plant effluent : 2,000 m<sup>3</sup>/d

Sludge Treatment

: Sewage sludge should not be applied to natural soils.

### 2.1 Contributing scenario controlling environmental exposure for: ERC2

#### Amount used

Annual amount per site : 5 t

#### Other given operational conditions affecting environmental exposure

Number of emission days per year : 20

Emission or Release Factor: Air : 2.5 %

Emission or Release Factor: Water : 2 %

Water

Emission or Release Factor: Soil : 0.01 %

#### 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 m<sup>3</sup>/d

Sludge Treatment

: Spreading as a worst case scenario

### 2.1 Contributing scenario controlling environmental exposure for: ERC4

#### Amount used

Annual amount per site : 500 t

#### Other given operational conditions affecting environmental exposure

Number of emission days per year : 200

Emission or Release Factor: Air : 100 %

Emission or Release Factor: Water : 100 %

Water

Emission or Release Factor: Soil : 5 %

#### Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Municipal sewage treatment plant  
Flow rate of sewage treatment : 2,000 m3/d  
plant effluent  
Sludge Treatment : Spreading as a worst case scenario  
The concentration in the sewage treatment plant should be below the respective PNEC STP

## 2.1 Contributing scenario controlling environmental exposure for: ERC6a

### Amount used

Annual amount per site : 1000 t

### Other given operational conditions affecting environmental exposure

Number of emission days per : 100  
year

Emission or Release Factor: Air : 5 %

Emission or Release Factor: : 2 %

Water

Emission or Release Factor: Soil : 0.10 %

### Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Municipal sewage treatment plant

Flow rate of sewage treatment : 2,000 m3/d

plant effluent

Sludge Treatment : Spreading as a worst case scenario

## 2.1 Contributing scenario controlling environmental exposure for: ERC6b

### Amount used

Annual amount per site : 1000 t

### Other given operational conditions affecting environmental exposure

Number of emission days per : 100  
year

Emission or Release Factor: Air : 0.10 %

Emission or Release Factor: : 5 %

Water

Emission or Release Factor: Soil : 0.025 %

### Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant : Municipal sewage treatment plant

Flow rate of sewage treatment : 2,000 m3/d

plant effluent

Sludge Treatment : Spreading as a worst case scenario

## 2.6 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8b, PROC15

### Product characteristics

Concentration of the Substance in : Covers the percentage of the substance in the product  
Mixture/Article up to 100 % (unless stated differently).

Physical Form (at time of use) : Medium volatile liquid

Process Temperature : < 20 °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)

### Technical conditions and measures

Provide a good standard of general ventilation.

### 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.

### Additional good practice advice beyond the REACH Chemical Safety Assessment

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

## 2.7 Contributing scenario controlling worker exposure for: PROC5, PROC8a, PROC9

### Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).  
Physical Form (at time of use) : Medium volatile liquid  
Process Temperature : < 20 °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.

### Technical conditions and measures

Provide a good standard of general ventilation.

### 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.

### Additional good practice advice beyond the REACH Chemical Safety Assessment

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*
ERC1	EUSES		Fresh water			0.175
ERC1	EUSES		Fresh water sediment			0.175
ERC1	EUSES		Sea water			0.175
ERC1	EUSES		Sea sediment			0.175
ERC1	EUSES		Soil			< 0.01
ERC1	EUSES		Sewage treatment plant			< 0.01
ERC2	EUSES		Fresh water			< 0.01
ERC2	EUSES		Fresh water sediment			< 0.01
ERC2	EUSES		Sea water			< 0.01
ERC2	EUSES		Sea			< 0.01

			sediment			
ERC2	EUSES		Soil			< 0.01
ERC2	EUSES		Sewage treatment plant			< 0.01
ERC4	EUSES		Fresh water			0.32
ERC4	EUSES		Fresh water sediment			0.32
ERC4	EUSES		Sea water			0.32
ERC4	EUSES		Sea sediment			0.32
ERC4	EUSES		Soil			0.82
ERC4	EUSES		Sewage treatment plant			1
ERC6a	EUSES		Fresh water			0.12
ERC6a	EUSES		Fresh water sediment			0.12
ERC6a	EUSES		Sea water			0.12
ERC6a	EUSES		Sea sediment			0.12
ERC6a	EUSES		Soil			0.66
ERC6a	EUSES		Sewage treatment plant			0.39
ERC6b	EUSES		Fresh water			0.30
ERC6b	EUSES		Fresh water sediment			0.30
ERC6b	EUSES		Sea water			0.30
ERC6b	EUSES		Sea sediment			0.30
ERC6b	EUSES		Soil			0.16
ERC6b	EUSES		Sewage treatment plant			0.97

### Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
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	longterm, inhalative, systemic			0.13
PROC2	ECETOC TRA 3	longterm, dermal, systemic			< 0.01

PROC2		longterm, combined, systemic			0.13
PROC3	ECETOC TRA 3	longterm, inhalative, systemic			0.25
PROC3	ECETOC TRA 3	longterm, dermal, systemic			< 0.01
PROC3		longterm, combined, systemic			0.25
PROC4	ECETOC TRA 3	longterm, inhalative, systemic			0.50
PROC4	ECETOC TRA 3	longterm, dermal, systemic			0.04
PROC4		longterm, combined, systemic			0.55
PROC8b	ECETOC TRA 3	longterm, inhalative, systemic			0.63
PROC8b	ECETOC TRA 3	longterm, dermal, systemic			0.09
PROC8b		longterm, combined, systemic			0.71
PROC15	ECETOC TRA 3	longterm, inhalative, systemic			0.25
PROC15	ECETOC TRA 3	longterm, dermal, systemic			< 0.01
PROC15		longterm, combined, systemic			0.25

\*Risk characterisation ratio

PROC5	ECETOC TRA 3	longterm, inhalative, systemic			0.13
PROC5	ECETOC TRA 3	longterm, dermal, systemic			0.09
PROC5		longterm, combined, systemic			0.21
PROC8a	ECETOC TRA 3	longterm, inhalative, systemic			0.13
PROC8a	ECETOC TRA 3	longterm, dermal, systemic			0.09
PROC8a		longterm,			0.21

		combined, systemic			
PROC9	ECETOC TRA 3	longterm, inhalative, systemic			0.13
PROC9	ECETOC TRA 3	longterm, dermal, systemic			0.04
PROC9		longterm, combined, systemic			0.17

\*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](http://www.merckmillipore.com/scideex).

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

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#### 1. Short title of Exposure Scenario: Professional use

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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

###### Amount used

Annual amount per site : 5 t

###### Other given operational conditions affecting environmental exposure

Number of emission days per year : 20

Emission or Release Factor: Air : 2.5 %

Emission or Release Factor: : 2 %  
Water  
Emission or Release Factor: Soil : 0.01 %

**Conditions and measures related to municipal sewage treatment plant**

Type of Sewage Treatment Plant : Municipal sewage treatment plant  
Flow rate of sewage treatment : 2,000 m<sup>3</sup>/d  
plant effluent  
Sludge Treatment : Spreading as a worst case scenario

**2.1 Contributing scenario controlling environmental exposure for: ERC6a**

**Amount used**

Annual amount per site : 1000 t

**Other given operational conditions affecting environmental exposure**

Number of emission days per : 100  
year  
Emission or Release Factor: Air : 5 %  
Emission or Release Factor: : 2 %  
Water  
Emission or Release Factor: Soil : 0.10 %

**Conditions and measures related to municipal sewage treatment plant**

Type of Sewage Treatment Plant : Municipal sewage treatment plant  
Flow rate of sewage treatment : 2,000 m<sup>3</sup>/d  
plant effluent  
Sludge Treatment : Spreading as a worst case scenario

**2.1 Contributing scenario controlling environmental exposure for: ERC6b**

**Amount used**

Annual amount per site : 1000 t

**Other given operational conditions affecting environmental exposure**

Number of emission days per : 100  
year  
Emission or Release Factor: Air : 0.10 %  
Emission or Release Factor: : 5 %  
Water  
Emission or Release Factor: Soil : 0.025 %

**Conditions and measures related to municipal sewage treatment plant**

Type of Sewage Treatment Plant : Municipal sewage treatment plant  
Flow rate of sewage treatment : 2,000 m<sup>3</sup>/d  
plant effluent  
Sludge Treatment : Spreading as a worst case scenario

**2.4 Contributing scenario controlling worker exposure for: PROC15**

**Product characteristics**

Concentration of the Substance in : Covers the percentage of the substance in the product  
Mixture/Article up to 100 % (unless stated differently).  
Physical Form (at time of use) : Medium volatile liquid  
Process Temperature : < 20 °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)

**Technical conditions and measures**

Provide a good standard of general ventilation.

**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.

**Additional good practice advice beyond the REACH Chemical Safety Assessment**

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	EUSES		Fresh water			< 0.01
ERC2	EUSES		Fresh water sediment			< 0.01
ERC2	EUSES		Sea water			< 0.01
ERC2	EUSES		Sea sediment			< 0.01
ERC2	EUSES		Soil			< 0.01
ERC2	EUSES		Sewage treatment plant			< 0.01
ERC6a	EUSES		Fresh water			0.12
ERC6a	EUSES		Fresh water sediment			0.12
ERC6a	EUSES		Sea water			0.12
ERC6a	EUSES		Sea sediment			0.12
ERC6a	EUSES		Soil			0.66
ERC6a	EUSES		Sewage treatment plant			0.39
ERC6b	EUSES		Fresh water			0.30
ERC6b	EUSES		Fresh water sediment			0.30
ERC6b	EUSES		Sea water			0.30
ERC6b	EUSES		Sea sediment			0.30
ERC6b	EUSES		Soil			0.16
ERC6b	EUSES		Sewage treatment plant			0.97

#### Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR*
PROC15	ECETOC TRA 3	longterm, inhalative,			0.25

		systemic			
PROC15	ECETOC TRA 3	longterm, dermal, systemic			< 0.01
PROC15		longterm, combined, systemic			0.25

\*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](http://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).