

according to Regulation (EC) No. 1907/2006

Revision Date 16.05.2017

Version 1.1

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

1.1 Product identifier

Catalogue No. 543828

Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

REACH Registration Number This product is a mixture. REACH Registration Number see section 3.

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

Identified uses Reagent for analysis

In compliance with the conditions described in the annex to this safety

data sheet.

1.3 Details of the supplier of the safety data sheet

Company Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0

Responsible Department LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone Please contact the regional company representation in your country.

number

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Corrosive to metals, Category 1, H290

Skin corrosion, Category 1B, H314

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

according to Regulation (EC) No. 1907/2006

Catalogue No. 543828

Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

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.

Precautionary statements

Prevention

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Reduced labelling (≤125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

Precautionary statements

according to Regulation (EC) No. 1907/2006

Catalogue No. 543828

Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous solution

3.1 Substance

Not applicable

3.2 Mixture

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

CAS-No. Registration number Classification

phosphoric acid (>= 50 % - <= 100 %)

PBT/vPvB: Not applicable for inorganic substances

7664-38-2 01-2119485924-24-

XXXX Corrosive to metals, Category 1, H290

Skin corrosion, Category 1B, H314

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 aider needs to protect himself.

After inhalation: fresh air. Call in physician.

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After skin contact: wash off with plenty of water. Remove contaminated clothing. Call a physician immediately.

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

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

Irritation and corrosion, Cough, Shortness of breath, Pain, Spasm, shock, conjunctivitis Risk of blindness!

4.3 Indication of any immediate medical attention and special treatment needed

No information 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

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

5.2 Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

Oxides of phosphorus

5.3 Advice for firefighters

Special protective equipment 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.

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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

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment 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 with liquid-absorbent and neutralising material (e.g. Chemizorb® H⁺, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Hygiene measures

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

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

No metal or light-weight-metal containers.

according to Regulation (EC) No. 1907/2006

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Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

Storage conditions

Tightly closed.

Recommended storage temperature see product label.

7.3 Specific end use(s)

See exposure scenario in the Annex to this MSDS.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

phosphoric acid (7664-38-2)

Worker DNEL, acute Local effects inhalation 2 mg/m³

Worker DNEL, Local effects inhalation 1 mg/m³

longterm

Consumer DNEL, Local effects inhalation 0,73 mg/m³

longterm

Predicted No Effect Concentration (PNEC)

phosphoric acid (7664-38-2)

PNEC no data available

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

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Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

Eye/face protection

Tightly fitting safety goggles

Hand protection

full contact:

Glove material: Nitrile rubber
Glove thickness: 0,11 mm
Break through time: > 480 min

splash contact:

Glove material: Nitrile rubber
Glove thickness: 0,11 mm
Break through time: > 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet<(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment

Acid-resistant protective clothing

Respiratory protection

required when vapours/aerosols are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

Do not let product enter drains.

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Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form liquid

Colour colourless

Odour odourless

Odour Threshold Not applicable

pH < 0,5

at 100 g/l

20 °C

Melting point ca. 21 °C

Boiling point/boiling range ca. 158 °C

at 1.013 hPa

Flash point does not flash

Evaporation rate No information available.

Flammability (solid, gas) No information available.

Lower explosion limit Not applicable

Upper explosion limit Not applicable

Vapour pressure 2 hPa

at 20 °C

Relative vapour density No information available.

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Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

Density 1,71 g/cm3

at 20 °C

Relative density No information available.

Water solubility at 20 °C

soluble

Partition coefficient: n-

No information available.

octanol/water

Auto-ignition temperature No information available.

Decomposition temperature No information available.

Viscosity, dynamic No information available.

Explosive properties Not classified as explosive.

Oxidizing properties Oxidizing potential

9.2 Other data

Ignition temperature not combustible

Viscosity, kinematic 30,5 mm2/s

at 20 °C

Corrosion May be corrosive to metals.

SECTION 10. Stability and reactivity

10.1 Reactivity

See section 10.3

10.2 Chemical stability

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

according to Regulation (EC) No. 1907/2006

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Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

10.3 Possibility of hazardous reactions

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

Metals, metal alloys

Possible formation of:

Hydrogen

Violent reactions possible with:

bases, metallic oxides

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

Aluminium, iron/iron-containing compounds, Mild steel

Gives off hydrogen by reaction with metals.

10.6 Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Mixture

Acute oral toxicity

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach., Pain

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Acute dermal toxicity

This information is not available.

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Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

Skin irritation

Mixture causes burns.

Eye irritation

conjunctivitis Mixture causes serious eye damage. Risk of blindness!

Sensitisation

This information is not available.

Germ cell mutagenicity

This information is not available.

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

Specific target organ toxicity - single exposure

This information is not available.

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

Systemic effects:

Convulsions, shock

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Components

phosphoric acid

according to Regulation (EC) No. 1907/2006

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Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

Acute oral toxicity

LD50 Rat: ca. 2.600 mg/kg OECD Test Guideline 423

Acute dermal toxicity

LD50 Rabbit: 2.740 mg/kg

(IUCLID)

Skin irritation

Rabbit

Result: Causes burns.

US-EPA

Eye irritation

Rabbit

Result: Causes burns.

(IUCLID)

Sensitisation
Patch test: human
Result: negative

(IUCLID)

Germ cell mutagenicity Genotoxicity in vitro

Ames test

Escherichia coli/Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test

Result: negative

Method: OECD Test Guideline 473

In vitro mammalian cell gene mutation test

Mouse lymphoma test Result: negative

Method: OECD Test Guideline 476

SECTION 12. Ecological information

Mixture

according to Regulation (EC) No. 1907/2006

Catalogue No. 543828

Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

12.1 Toxicity

No information available.

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not conducted.

12.6 Other adverse effects

Additional ecological information

Harmful effect due to pH shift. Caustic even in diluted form. Depending on the concentration, phosphorus compounds may contribute to the eutrophication of water supplies.

Discharge into the environment must be avoided.

Components

phosphoric acid

Toxicity to fish

LC50 Gambusia affinis (Mosquito fish): 138 mg/l; 96 h

(External MSDS)

Toxicity to daphnia and other aquatic invertebrates

static test EC50 Daphnia magna (Water flea): > 100 mg/l; 48 h

Analytical monitoring: yes OECD Test Guideline 202

Toxicity to algae

static test ErC50 Desmodesmus subspicatus (green algae): > 100 mg/l; 72 h

Analytical monitoring: yes OECD Test Guideline 201

Toxicity to bacteria

EC50 activated sludge: 270 mg/l

(IUCLID)

according to Regulation (EC) No. 1907/2006

Catalogue No. 543828

Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

Partition coefficient: n-octanol/water

log Pow: -0,77 (calculated)

(Lit.) Bioaccumulation is not expected.

PBT/vPvB: Not applicable for inorganic substances

SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number UN 1805

14.2 Proper shipping name PHOSPHORIC ACID, SOLUTION

14.3 Class 8

14.4 Packing group

14.5 Environmentally hazardous --

14.6 Special precautions for yes

user

Tunnel restriction code E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

according to Regulation (EC) No. 1907/2006

Catalogue No. 543828

Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

14.1 UN number UN 1805

14.2 Proper shipping name PHOSPHORIC ACID, SOLUTION

14.3 Class 8

14.4 Packing group

14.5 Environmentally hazardous --

14.6 Special precautions for no

user

Sea transport (IMDG)

14.1 UN number UN 1805

14.2 Proper shipping name PHOSPHORIC ACID SOLUTION

14.3 Class 8

14.4 Packing group

14.5 Environmentally hazardous --

14.6 Special precautions for yes

user

EmS F-A S-B

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard SEVESO III
Legislation Not applicable

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at

work.

Regulation (EC) No 1005/2009 on substances that not regulated

deplete the ozone layer

according to Regulation (EC) No. 1907/2006

Catalogue No. 543828

Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

Regulation (EC) No 850/2004 of the European

not regulated

Parliament and of the Council of 29 April 2004 on

persistent organic pollutants and amending

Directive 79/117/EEC

Substances of very high concern (SVHC)

This product does not contain substances

of very high concern according to

Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory

concentration limit of \geq 0.1 % (w/w).

National legislation

Storage class 8B

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Danger

according to Regulation (EC) No. 1907/2006

Catalogue No. 543828

Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

Hazard statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

Precautionary statements

Prevention

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation

This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

according to Regulation (EC) No. 1907/2006

Catalogue No. 543828

Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

EXPOSURE SCENARIO 1 (Industrial use)

1. Industrial use Reagent for analysis)

Sectors of end-use

SU 3 Industrial uses: Uses of substances as such or in preparations at industrial sites

SU9 Manufacture of fine chemicals

SU 10 Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)

Chemical product category

PC19 Intermediate

PC21 Laboratory chemicals

Process categories

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

PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation

PROC15 Use as laboratory reagent

Environmental Release Categories

	E a mas of a thank	- £
ERC2	Formulation	of preparations

ERC4 Industrial use of processing aids in processes and products, not becoming part of articles

ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)

ERC6b Industrial use of reactive processing aids

according to Regulation (EC) No. 1907/2006

Catalogue No. 543828

Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15

Product characteristics

Concentration of the Substance in Covers the percentage of the substance in the product up to

Mixture/Article 100 %.

Physical Form (at time of use) Solid, low dustiness

Frequency and duration of use

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

Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor Indoor without 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. Tightly fitting safety goggles

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice Wear suitable coveralls to prevent exposure to the skin.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15

Product characteristics

Concentration of the Substance in Covers the percentage of the substance in the product up to

Mixture/Article 100 %.

Physical Form (at time of use)

Low volatile liquid

Process Temperature < 84 °C

Frequency and duration of use

according to Regulation (EC) No. 1907/2006

Catalogue No. 543828

Product name ortho-Phosphoric acid 85% for HPLC LiChropur®

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

Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor without local exhaust ventilation (LEV)

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. Tightly fitting safety goggles

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice Wear suitable coveralls to prevent exposure to the skin.

3. Exposure estimation and reference to its source

Environment

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

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.1	PROC1	longterm, inhalative, local	0,01	MEASE, Solid
2.1	PROC2	longterm, inhalative, local	0,01	MEASE, Solid
2.1	PROC3	longterm, inhalative, local	0,1	MEASE, Solid
2.1	PROC4	longterm, inhalative, local	0,5	MEASE, Solid
2.1	PROC5	longterm, inhalative, local	0,5	MEASE, Solid
2.1	PROC8a	longterm, inhalative, local	0,5	MEASE, Solid
2.1	PROC8b	longterm, inhalative, local	0,1	MEASE, Solid
2.1	PROC9	longterm, inhalative, local	0,1	MEASE, Solid
2.1	PROC10	longterm, inhalative, local	0,5	MEASE, Solid
2.1	PROC14	longterm, inhalative, local	0,1	MEASE, Solid
2.1	PROC15	longterm, inhalative, local	0,1	MEASE, Solid

Catalogue No.

according to Regulation (EC) No. 1907/2006

Product name		ortho-Phosphoric acid 85% for HPLC LiChropur®			
2.2	PROC1	longterm, inhalative, local	0,01	MEASE, Liquid	
2.2	PROC2	longterm, inhalative, local	0,01	MEASE, Liquid	

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2.2	PROC1	longterm, inhalative, local	0,01	MEASE, Liquid
2.2	PROC2	longterm, inhalative, local	0,01	MEASE, Liquid
2.2	PROC3	longterm, inhalative, local	0,1	MEASE, Liquid
2.2	PROC4	longterm, inhalative, local	0,5	MEASE, Liquid
2.2	PROC5	longterm, inhalative, local	0,5	MEASE, Liquid
2.2	PROC8a	longterm, inhalative, local	0,5	MEASE, Liquid
2.2	PROC8b	longterm, inhalative, local	0,1	MEASE, Liquid
2.2	PROC9	longterm, inhalative, local	0,1	MEASE, Liquid
2.2	PROC10	longterm, inhalative, local	0,5	MEASE, Liquid
2.2	PROC14	longterm, inhalative, local	0,1	MEASE, Liquid
2.2	PROC15	longterm, inhalative, local	0,1	MEASE, Liquid

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

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).