SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 25.04.2018 Version 11.3

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

1.1 Product identifier

Catalogue No.	109621
Product name	Ethylene glycol for analysis EMSURE® Reag. Ph Eur,Reag. USP
REACH Registration Number	01-2119456816-28-XXXX
CAS-No.	107-21-1

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 number **Please contact the regional company representation in your country.**

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4, Oral, H302

Specific target organ toxicity - repeated exposure, Category 2, Oral, Kidney, H373

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

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms

Signal word

Warning

Hazard statements

H302 Harmful if swallowed.

H373 May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

Precautionary statements

Response

P314 Get medical advice/ attention if you feel unwell.

Reduced labelling (≤125 ml)

Hazard pictograms

Signal word

Warning

Index-No. 603-027-00-1

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

Formula	$HOCH_2CH_2OH$	$C_2H_6O_2$ (Hill)
Index-No.	603-027-00-1	
EC-No.	203-473-3	
Molar mass	62,07 g/mol	

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

Chemical name (Concentration)

CAS-No.	Registration number	Classification
ethylene glycol (>= 80 % - <= 100 %)		

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

107-21-1	01-2119456816-28-XXXX	Acute toxicity, Category 4, H302 Specific target organ toxicity - repeated exposure, Category 2, H373

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

3.2 Mixture

Not applicable

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air. Call in physician.

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

After eye contact: rinse out with plenty of water.

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

Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

4.2 Most important symptoms and effects, both acute and delayed

agitation, Nausea, Vomiting, Tiredness, ataxia (impaired locomotor coordination), CNS disorders, Unconsciousness

4.3 Indication of any immediate medical attention and special treatment needed

Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water, Foam, Carbon dioxide (CO2), Dry powder

Unsuitable extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Combustible.

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

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

5.3 Advice for firefighters

Special protective equipment for firefighters

In the event of fire, wear self-contained breathing apparatus.

Further information

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 material (e.g. Chemizorb®). 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

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

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)

Worker DNEL, longterm	Systemic effects	dermal	106 mg/kg Body weight
Worker DNEL, longterm	Local effects	inhalation	35 mg/m³
Consumer DNEL, longterm	Systemic effects	dermal	53 mg/kg Body weight
Consumer DNEL, longterm	Local effects	inhalation	7 mg/m³

Predicted No Effect Concentration (PNEC)

PNEC Fresh water	10 mg/l
PNEC Marine water	1 mg/l
PNEC Aquatic intermittent release	10 mg/l
PNEC Fresh water sediment	20,9 mg/kg
PNEC Soil	1,53 mg/kg
PNEC Sewage treatment plant	199,5 mg/kg

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.

Eye/face protection

Safety glasses

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

protective clothing

Respiratory protection

required when vapours/aerosols are generated.
Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

Do not let product enter drains.

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	6 - 7,5 at 100 g/l 20 °C
Melting point/range	-14 - -10 °C
Boiling point/boiling range	197,6 °C at 1.013 hPa
Flash point	111 °C Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	3,2 %(V)
Upper explosion limit	15,3 %(V)
Vapour pressure	0,053 hPa at 20 °C

Relative vapour density	2,14
Density	1,11 g/cm3 at 20 °C
Relative density	No information available.
Water solubility	1.000 g/l at 20 °C
Partition coefficient: n-octanol/water	log Pow: -1,36 (experimental) (Lit.) Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	> 200 - 250 °C Distillable in an undecomposed state at normal pressure.
Viscosity, dynamic	21 mPa.s at 20 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Ignition temperature	410 °C Method: DIN 51794
Conductivity	< 1 µS/cm

SECTION 10. Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Risk of explosion with:

Aluminium, perchloric acid

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

chromyl chloride, Strong oxidizing agents, chlorates, Peroxides, potassium permanganate

Exothermic reaction with:

chlorosulfonic acid, Sodium hydroxide, fuming sulfuric acid, sulphuric acid

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

various plastics

10.6 Hazardous decomposition products

no information available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LDLO human: 786 mg/kg

(RTECS)

Symptoms: Nausea, Vomiting

Acute inhalation toxicity

LC50 Rat: > 2,5 mg/l; 6 h ; aerosol

(ECHA)

Acute dermal toxicity

LD50 Mouse: > 3.500 mg/kg

(ECHA)

Skin irritation

Rabbit

Result: No irritation

(ECHA)

Eye irritation

Rabbit

Result: No eye irritation

(ECHA)

Sensitisation

Patch test:

Result: negative

(IUCLID)

Germ cell mutagenicity

Genotoxicity in vivo

Chromosome aberration test

Rat

male and female

Oral

Result: negative

(ECHA)

Genotoxicity in vitro

Ames test

Escherichia coli/Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

Mutagenicity (mammal cell test): chromosome aberration.
Result: negative

(ECHA)

Carcinogenicity

Did not show carcinogenic effects in animal experiments.

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

May cause damage to organs through prolonged or repeated exposure.
Exposure routes: Ingestion
Target Organs: Kidney

Aspiration hazard

This information is not available.

11.2 Further information

After absorption:
agitation, CNS disorders
Systemic effects:
After a latency period:
Tiredness, ataxia (impaired locomotor coordination), Unconsciousness
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to fish

LC50 Oncorhynchus mykiss (rainbow trout): > 18.500 mg/l; 96 h

(External MSDS)

Toxicity to daphnia and other aquatic invertebrates

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

Analytical monitoring: yes

OECD Test Guideline 202

Toxicity to algae

IC5 Scenedesmus quadricauda (Green algae): > 10.000 mg/l; 7 d

(Lit.)

Toxicity to bacteria

static test EC5 Pseudomonas putida: > 10.000 mg/l; 16 h

DIN 38412

12.2 Persistence and degradability

Biodegradability

100 %; 10 d; aerobic

OECD Test Guideline 301A

Readily biodegradable

Biochemical Oxygen Demand (BOD)

780 mg/g (5 d)

(IUCLID)

Chemical Oxygen Demand (COD)

1.190 mg/g

(IUCLID)

Theoretical oxygen demand (ThOD)

1.290 mg/g

(IUCLID)

Ratio BOD/ThBOD

BOD5 60 %

(IUCLID)

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: -1,36

(experimental)

(Lit.) Bioaccumulation is not expected.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

12.6 Other adverse effects

Discharge into the environment must be avoided.

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 - 14.6 Not classified as dangerous in the meaning of transport regulations.

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 - 14.6	Not classified as dangerous in the meaning of transport regulations.

Sea transport (IMDG)

14.1 - 14.6	Not classified as dangerous in the meaning of transport regulations.

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. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	not regulated
Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC	not regulated
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 ≥ 0.1 % (w/w).

National legislation
Storage class 10 - 13

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.

H302	Harmful if swallowed.
H373	May cause damage to organs through prolonged or repeated exposure if swallowed.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms

Signal word

Warning

Hazard statements

H302 Harmful if swallowed.

H373 May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

Precautionary statements

Response

P314 Get medical advice/ attention if you feel unwell.

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.

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

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
PROC15	Use as laboratory reagent

Environmental Release Categories

ERC1	Manufacture of substances
ERC2	Formulation of preparations
ERC6a	Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b	Industrial use of reactive processing aids

2. Contributing scenarios: Operational conditions and risk management measures

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

Amount used

Daily amount per site	86773 kg

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year	300
Emission or Release Factor: Air	0,01 %
Emission or Release Factor: Water	1 %
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
Percentage removed from waste water	87 %

2.2 Contributing scenario controlling environmental exposure for: ERC2, SpERC ESVOC 4

Amount used

Daily amount per site	100000 kg

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year	300
Emission or Release Factor: Air	0,5 %
Emission or Release Factor: Water	0,5 %
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
Percentage removed from waste water	87 %

2.3 Contributing scenario controlling environmental exposure for: ERC6a, SpERC ESVOC 2

Amount used

Daily amount per site	50000 kg

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year	300
Emission or Release Factor: Air	0,002 %
Emission or Release Factor: Water	1 %
Emission or Release Factor: Soil	0,1 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Percentage removed from waste water	87 %

2.4 Contributing scenario controlling worker exposure for: PROC1

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	High volatile liquid

Frequency and duration of use

Frequency of use	8 hours/day
Frequency of use	< 240 days/year

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.

2.5 Contributing scenario controlling worker exposure for: PROC2

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	High volatile liquid

Frequency and duration of use

Frequency of use	8 hours/day
Frequency of use	< 240 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.

2.6 Contributing scenario controlling worker exposure for: PROC3, PROC4, PROC8b, PROC9, PROC15

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.

Physical Form (at time of use)	Low volatile liquid
Process Temperature	< 75 °C

Frequency and duration of use

Frequency of use	8 hours/day
Frequency of use	< 240 days/year

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.

2.8 Contributing scenario controlling worker exposure for: PROC8a

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Low volatile liquid
Process Temperature	< 75 °C

Frequency and duration of use

Frequency of use	8 hours/day
Frequency of use	< 240 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.

2.9 Contributing scenario controlling worker exposure for: PROC5, PROC10

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Low volatile liquid
Process Temperature	< 75 °C

Frequency and duration of use

Frequency of use	8 hours/day
Frequency of use	< 240 days/year

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 chemically resistant gloves (tested to EN374) in combination with specific activity training.

3. Exposure estimation and reference to its source

Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC1		All compartments	< 1	ECETOC TRA
2.2	ERC2		All compartments	< 1	ECETOC TRA
2.3	ERC6a		All compartments	< 1	ECETOC TRA

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.4	PROC1		< 1	ECETOC TRA
2.5	PROC2		< 1	ECETOC TRA

2.6	PROC3	< 1	ECETOC TRA
2.6	PROC4	< 1	ECETOC TRA
2.6	PROC8b	< 1	ECETOC TRA
2.6	PROC9	< 1	ECETOC TRA
2.6	PROC15	< 1	ECETOC TRA
2.8	PROC8a	< 1	ECETOC TRA
2.9	PROC5	< 1	ECETOC TRA
2.9	PROC10	< 1	ECETOC TRA

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).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool ScIDeEx® at www.merckmillipore.com/scideex.

EXPOSURE SCENARIO 2 (Professional use)

1. Professional use Reagent for analysis)

Sectors of end-use

SU 22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Chemical product category

PC21 Laboratory chemicals

Process categories

PROC15 Use as laboratory reagent

Environmental Release Categories

ERC2 Formulation of preparations

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

ERC6b Industrial use of reactive processing aids

2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling environmental exposure for: ERC2, SpERC ESVOC 4

Amount used

Daily amount per site	100000 kg

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year	300
Emission or Release Factor: Air	0,5 %
Emission or Release Factor: Water	0,5 %
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

Percentage removed from waste water	87 %

2.2 Contributing scenario controlling environmental exposure for: ERC6a, SpERC ESVOC 2

Amount used

Daily amount per site	50000 kg

Environment factors not influenced by risk management

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

Other given operational conditions affecting environmental exposure

Number of emission days per year	300
Emission or Release Factor: Air	0,002 %
Emission or Release Factor: Water	1 %
Emission or Release Factor: Soil	0,1 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Percentage removed from waste water	87 %

2.3 Contributing scenario controlling worker exposure for: PROC15

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Low volatile liquid
Process Temperature	< 75 °C

Frequency and duration of use

Frequency of use	8 hours/day

Frequency of use < 240 days/year

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.

3. Exposure estimation and reference to its source

Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC2		All compartments	< 1	ECETOC TRA
2.2	ERC6a		All compartments	< 1	ECETOC TRA

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.3	PROC15		< 1	ECETOC TRA

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).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool ScIDeEx® at www.merckmillipore.com/scideex.