Safety data sheet
according to Regulation (EC) No 1907/2006, Article 31

Printing date 12.11.2024 Version number 111.11 (replaces version 111.10) Revision: 11.11.2024

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

1.1 Product identifier

Trade name Essigsäure 60% techn.

Article number: 1000411000001
UFI: 75F0-P0NR-F00V-YJRQ

1.2 Relevant identified uses of the substance or mixture and uses advised against
For details on the identifiable uses according to EC-regulation No. 1907/2006 see annex of this safety data sheet.
Restrictions on use:
Restrictions on use according to REGULATION (EC) No 1907/2006 ANNEX XVII apply to this product (see section 15).
Application of the substance / the mixture
Chemical intermediate
Industrial / Professional use
Cleaning material/ Detergent
Agricultural chemicals
Processing aid.
Waste water treatment

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier:

STOCKMEIER Chemie GmbH & Co.KG, Am Stadtholz 37, DE - 33609 Bielefeld
Tel.: +49 521 / 30 37-0, ehs-bielefeld@stockmeier.de

STOCKMEIER Fluids GmbH & Co. KG, Sanssouci 12, DE – 58802 Balve
Tel.: +49 2375 917 310, fluids@stockmeier.com

BASSERMANN Minerals GmbH & Co. KG, Rudolf-Diesel-Straße 42, DE – 68169 Mannheim
Tel.: +49 621 15 01 0, verkauf@bassermann.de

STOCKMEIER CHEMIA Sp. z o. o. i S.S.K., ul. Obornicka 277, PL - 60-691 Poznań
Tel.: +48 61 666 10 66, zamowienia@stockmeier.pl

STOCKMEIER QUIMICA, S.L.U., Avda. del Baix Llobregat, 3- 5, ES – 08970 Sant Joan Despí (Barcelona)
Tel.: +34 93 506 91 83, tecnico-calidad@stockmeier.es

STOCKMEIER NETHERLANDS B.V., Ridderpoort 5, NL - 2984 BG Ridderkerk
Tel.: +31 180 41 5988, info@stockmeier.nl

STOCKMEIER Chemie Austria, Ricoweg 32b, AT - 2351 Wiener Neudorf
Tel.: +43 2236 623-40, office@stockmeier.at

KEMTAN AG, Seewenweg 6, CH – 4153 Reinach
Tel.: +41 61 711 20 20, info@kemtan.ch

STOCKMEIER CHEMICALS BELUX SA/NV, Rue de la Station 17, BE – 1300 Limal
Tel.: +32 10 421-320, info@stockmeierchemicalsbelux.com

HDS – Chemie Handels GES.M.B.H., Bauernmarkt 24, AT - 1010 Wien
Tel.: +43 15 32 0 999, office@hds-chemie.at
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www.stockmeier.com

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Informing department:
Product safety department. Tel.: 0049 / 521 / 3037-381
E-mail: ehs-bielefeld@stockmeier.de
1.4 Emergency telephone number:
This is an English-language document designed for the European region. For the emergency number and other country-specific data, please refer to the specific national versions of this safety data sheet.
Counselling Centre for Poisoning, Mainz
Tel. (+49) 61 31 / 19 240.
National Poisons Information Service (NPIS) - Emergency call (healthcare professionals): (+44) 844 892 0111 - 0344 892 0111

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.
Hazard pictograms

GHS05

Signal word Danger

Hazard-determining components of labelling:
acetic acid
Hazard statements
H314 Causes severe skin burns and eye damage.
Precautionary statements
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
Additional information:
According to the current state of knowledge, no synthetic polymer microparticles > 0.01% are contained.
2.3 Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
Determination of endocrine-disrupting properties Not applicable.

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SECTION 3: Composition/information on ingredients

3.2 Mixtures
Description: Mixture of the substances listed below with non-hazardous additions (solution in water).

Dangerous components:		
CAS: 64-19-7 EINECS: 200-580-7 Reg.nr.: 01-2119475328-30	acetic acid Flam. Liq. 3, H226; Skin Corr. 1A, H314 Specific concentration limits: Skin Corr. 1A; H314: C ≥ 90 % Skin Corr. 1B; H314: 25 % ≤ C < 90 % Skin Irrit. 2; H315: 10 % ≤ C < 25 % Eye Irrit. 2; H319: 10 % ≤ C < 25 % substance with a Community workplace exposure limit	60,00%

SVHC
This preparation does not contain any substances of very high concern (SVHC) in a concentration of ≥ 0.1 % according to Regulation (EC) 1907/2006, Article 57.
Additional information For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures
General advice: Instantly remove any clothing soiled by the product.
After inhalation Supply fresh air; consult doctor in case of symptoms.
After skin contact
Instantly wash with water and soap and rinse thoroughly. If skin irritation persists, seek medical advice.
After eye contact
Rinse immediately opened eye for several minutes under running water. Then consult doctor.
After swallowing
Rinse out mouth and then drink plenty of water.
Do not induce vomiting. Drink plenty of water. Call for medical help.
Information for doctor
In case of skin burns, check for systemic effects. Use preparations containing aluminium oxide after oral ingestion.
4.2 Most important symptoms and effects, both acute and delayed
Burning and pain of the eyes, skin and mucous membranes. After swallowing, strong irritant effect on the oral cavity and pharynx as well as danger of perforation of the oesophagus.
4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents
CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
For safety reasons unsuitable extinguishing agents Water with a full water jet.
5.2 Special hazards arising from the substance or mixture
Can form explosive gas-air mixtures. In case of incomplete combustion carbon monoxide can arise. Fumes are heavier than air and distributed over ground. Inflammation is possible from a far distance.
5.3 Advice for firefighters
Protective equipment: Wear full protective suit with self-contained breathing apparatus.
Additional information
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

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Cool endangered containers in the vicinity with a water spray jet.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Put on protective equipment and keep unprotected persons away.
Avoid contact with skin, eyes and clothing. Do not breathe vapour. Ventilate contaminate area thoroughly.
Shut off lecks, if possible without personal risk.
Keep away from ignition sources
6.2 Environmental precautions:
Prevent material from reaching sewage system, holes and cellars.
Dilute with much water.
In case of release of larger quantities, inform competent authorities.
6.3 Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.
6.4 Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Keep containers tightly sealed.
Ensure good ventilation/exhaustion at the workplace. Avoid repeated or long-term skin contact.
Prevent formation of aerosols.
When diluting, always stir the product into standing water.
Information about protection against explosions and fires:
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
7.2 Conditions for safe storage, including any incompatibilities
Storage
Store in cool, dry conditions in well sealed containers.
Protect against direct sunlight, other sources of heat and ignition.
Requirements to be met by storerooms and containers:
Observe laws and regulations on the storage and use of substances hazardous to water.
Information about storage in one common storage facility:
Do not store together with alkalis (caustic solutions).
Store away from oxidising agents.
Store away from metals.
7.3 Specific end use(s) No further relevant information available.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with critical values that require monitoring at the workplace:	
64-19-7 acetic acid	
AGW (Germany)	Long-term value: 25 mg/m³, 10 ppm 2(I);DFG, EU, Y
IOELV (EU)	Short-term value: 50 mg/m³, 20 ppm Long-term value: 25 mg/m³, 10 ppm

DNELs		
64-19-7 acetic acid		
Inhalative	DNEL (worker)	25 mg/m³ (Acute, local effects)
		25 mg/m³ (Long-term, local effects)
	DNEL (population)	25 mg/m³ (Acute, local effects)
		25 mg/m³ (Long-term, local effects)

PNECs	
64-19-7 acetic acid	
PNEC water	3,058 mg/l (freshwater)
	0,306 mg/l (marine water)
PNEC sediment	11,36 mg/kg dw (freshwater)
	1,136 mg/kg dw (marine water)
PNEC soil	0,47 mg/kg dw (soil)
PNEC STP	85 mg/l (sewage plant)

Additional information: The lists that were valid during the compilation were used as basis.

8.2 Exposure controls
Appropriate engineering controls
Room ventilation or extraction. Measures against electrostatic charging.
Individual protection measures, such as personal protective equipment
General protective and hygienic measures
Keep away from food, beverages and fodder.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Avoid contact with the eyes and skin.
Gases, fumes and aerosols should not be inhaled.
Breathing equipment:
Use breathing protection in case of insufficient ventilation.
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
Recommended filter device for short term use: Combination filter E-P2
Hand protection
Protective gloves (EN 374).
Check protective gloves prior to each use for their proper condition.
Material of gloves
Butyl rubber, BR
Chloroprene rubber, CR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

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Penetration time of glove material
Note information regarding permeation rate, penetration times and the degradation supplied by the manufacturer of gloves just as workplace-specific conditions.
Change gloves if notice sign of disenchantment.
Material of gloves is recommended for a short-term single use to protect from splashes. For permanent usage contact manufacturer of gloves.
For the permanent contact gloves made of the following materials are suitable:
Butyl rubber with 0,7 mm coating thickness (recommended: protective index 6, corresponding to > 480 minutes of permeation time according to EN 374).
Attention! Due to conditions (stressing, temperature) the practical usage of chemical protective gloves may be much shorter than the permeation time according to EN 374.
Eye/face protection Tightly sealed safety glasses.
Body protection:
Standard protective work clothing. Chemical resistant safety shoes or boots. If skin contact may occur, wear impermeable protective clothing for this solution.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information	
Physical state	Fluid
Colour:	Colourless
Smell:	Pungent
Odour threshold:	Not determined.
Melting point/freezing point:	-24-30 °C
Boiling point or initial boiling point and boiling range	100 °C (7732-18-5 water, distilled, conductivity or of similar purity)
Flammability	Not applicable.
Lower and upper explosion limit	
Lower:	4 Vol %
Upper:	17 Vol %
Flash point:	>100 °C
Auto-ignition temperature:	485 °C
Decomposition temperature:	Not determined.
pH at 20 °C	>2
pH-value:	
Viscosity:	
Kinematic viscosity	Not determined.
dynamic at 20 °C:	2,11 mPas
Solubility	
Water:	Fully miscible
Partition coefficient n-octanol/water (log value)	Not determined.
Vapour pressure at 20 °C:	23 hPa (7732-18-5 water, distilled, conductivity or of similar purity)
Density and/or relative density	
Density at 20 °C	1,064 g/cm³
Relative density	Not determined.
Vapour density	Not determined.

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9.2 Other information	
Appearance:	
Form:	Fluid
Important information on protection of health and environment, and on safety.	
Self-inflammability:	Product is not selfigniting.
Explosive properties:	Product is not potentially explosive
Evaporation rate	Not determined.

Information with regard to physical hazard classes	
Explosives	Void
Flammable gases	Void
Aerosols	Void
Oxidising gases	Void
Gases under pressure	Void
Flammable liquids	Void
Flammable solids	Void
Self-reactive substances and mixtures	Void
Pyrophoric liquids	Void
Pyrophoric solids	Void
Self-heating substances and mixtures	Void
Substances and mixtures, which emit flammable gases in contact with water	Void
Oxidising liquids	Void
Oxidising solids	Void
Organic peroxides	Void
Corrosive to metals	Void
Desensitised explosives	Void

SECTION 10: Stability and reactivity

10.1 Reactivity No further relevant information available.
10.2 Chemical stability
Thermal decomposition / conditions to be avoided:
Can be distilled without decomposing at normal pressure
10.3 Possibility of hazardous reactions
Reacts with alkali (lyes)
Reacts with metals forming hydrogen
10.4 Conditions to avoid No further relevant information available.
10.5 Incompatible materials:
Bases, base metal
strong oxidising agents
10.6 Hazardous decomposition products:
Formation of carbon monoxide and carbon dioxide in case of fire.
Reaction in contact with metal forming hydrogen.

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SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008
Acute toxicity Based on available data, the classification criteria are not met.

LD/LC50 values that are relevant for classification:		
64-19-7 acetic acid		
Oral	LD50	3310 mg/kg (rat)

Primary irritant effect:
Skin corrosion/irritation
Causes severe skin burns and eye damage.
Serious eye damage/irritation
Causes serious eye damage.
Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
Germ cell mutagenicity Based on available data, the classification criteria are not met.
Carcinogenicity Based on available data, the classification criteria are not met.
Reproductive toxicity Based on available data, the classification criteria are not met.
STOT-single exposure Based on available data, the classification criteria are not met.
STOT-repeated exposure Based on available data, the classification criteria are not met.
Aspiration hazard Based on available data, the classification criteria are not met.
Other information (about experimental toxicology):
The toxikological numerical datas refer to the undilute 100 % substance.
11.2 Information on other hazards

Endocrine disrupting properties
None of the ingredients is listed.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:	
64-19-7 acetic acid	
LC 50 / 96 h	>300 mg/l (Oncorhynchus mykiss) (OECD 203)
EC 50 / 48 h	>300 mg/l (Daphnia magna) (OECD 202)
EC 50 / 72 h	>300 mg/l (Skeletonema costatum) (ISO//DIS 10253)

12.2 Persistence and degradability Completely biodegradable.
12.3 Bioaccumulative potential No bioaccumulation
12.4 Mobility in soil No further relevant information available.
12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
12.6 Endocrine disrupting properties
The product does not contain substances with endocrine disrupting properties.
12.7 Other adverse effects
Remark: Datas refer to the undilute 100 % substance

Respiratory inhibition of communal activated sludge EC 20 (mg/l according to ISO 8192 B):	
64-19-7 acetic acid	
EC 20	800 mg/l (activated sludge (DEV - L2)) (OECD 209 (Activated Sludge, Resp. Inhibition Test))

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Additional ecological information:
General notes:
Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.
Do not allow to enter drainage system, surface or ground water
Water hazard class 1 (Self-assessment): slightly hazardous for water.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
The note below refers to the product left as it is and not to further processed products. When mixed with other products, other disposal routes may be required; if in doubt, consult the supplier of the product or the local authority.
Recommendation
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Waste disposal key number:
Since 1 January 1999, the waste code numbers have not only been product-related but essentially application-related. The waste code number valid for the application can be taken from the European Waste Catalogue.
Uncleaned packagings: Disposal in accordance with official regulations.
Recommendation:
Empty containers completely and send them cleaned for reconditioning or recycling. Dispose of containers only in consultation with local authorities.
L e v e l o p m e n t : After optimal emptying, immediately return to the supplier tightly closed and without cleaning. Make sure that no foreign matter gets into the packaging!
Other containers: Empty completely and clean for reconditioning or reprocessing.
Recommended cleaning agent: Water, if necessary with cleaning agent.

SECTION 14: Transport information

14.1 UN number or ID number	
ADR/RID, IMDG, IATA	UN2790
14.2 UN proper shipping name	
ADR/RID	2790 ACETIC ACID SOLUTION
IMDG, IATA	ACETIC ACID SOLUTION
14.3 Transport hazard class(es)	
ADR/RID	
Class	8 (C3) Corrosive substances. Corrosive substances.
Label	8
IMDG, IATA	
Class	8 Corrosive substances.
Label	8
14.4 Packing group	
ADR/RID, IMDG, IATA	II

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14.5 Environmental hazards:	
Marine pollutant:	No
14.6 Special precautions for user	Warning: Corrosive substances.
Kemler Number:	80
EMS Number:	F-A,S-B
Segregation groups	Acids
Stowage Category	A
14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
Transport/Additional information:	
ADR/RID	
Limited quantities (LQ)	1L
Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
IMDG	
Limited quantities (LQ)	1L
Excepted quantities (EQ)	Código E4 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
UN "Model Regulation":	UN 2790 ACETIC ACID SOLUTION, 8, II

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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.
Hazard pictograms

GHS05

Signal word Danger

Hazard-determining components of labelling:
acetic acid
Hazard statements
H314 Causes severe skin burns and eye damage.
Precautionary statements
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P405 Store locked up.

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P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Directive 2012/18/EU
Named dangerous substances - ANNEX I None of the ingredients is listed.

LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)
None of the ingredients is listed.

REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II
None of the ingredients is listed.

REGULATION (EU) 2019/1148

Regulation (EC) No 273/2004 on drug precursors
None of the ingredients is listed.

Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors
None of the ingredients is listed.

National regulations
Information about limitation of use:
Employment restrictions concerning young persons must be observed.

Other regulations, limitations and prohibitive regulations

Substances of very high concern (SVHC) according to REACH, Article 57
None of the ingredients is listed.

VOC (EU) 1111,4 g/l
15.2 Chemical safety assessment: A Chemical Safety Assessment has been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
This safety data sheet complies with Regulation (EC) No 1907/2006, Article 31 as amended by Regulation (EU) 2020/878.

UFI market placements:
Germany, Bulgaria, Denmark, DKE, ESE, European Union, Finland, SFS, France, Greece, Ireland, ISE, Croatia, Latvia, FL, Lithuania, LTE, Malta, Netherland, Norway, Germany, Poland, Portugal, Romania, Sweden, Slovakia, Slovenia, Spain, Czechia, Cyprus
Relevant phrases
Complete wording of hazard statements and risk phrases (H-phrases) mentioned in section 3. These phrases refer to the constituents. The labelling for this product is stated in section 2.
H226 Flammable liquid and vapour.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Department issuing data specification sheet: See section 1.3: Responding area
Date of previous version: 08.08.2024
Version number of previous version: 111.10
Abbreviations and acronyms:
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation

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LEV. Local Exhaust Ventilation
RPE: Respiratory Protective Equipment
RCR: Risk Characterisation Ratio (RCR= PEC/PNEC)
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
CLP: Classification, Labelling and Packaging (Regulation (EC) No. 1272/2008)
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
ISO: International Organisation for Standardisation
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
SVHC: Substance of Very High Concern
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Flammable liquids – Category 3
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1

*** Data compared to the previous version altered.**

ANNEX

Exposure Scenarios:

Distribution of the substance
Use as an intermediate
Formulation and (re)packaging of substances and mixtures
Use for industrial cleaning
Use in cleaning agents
Use in agrochemicals
Use as laboratory chemical.
Use in waste water treatment
for industry, trade and consumers where applicable

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Annex: Exposure scenario 1

Short title of the exposure scenario
Use as an intermediate
Industry
Sector of Use
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU8 Manufacture of bulk, large scale chemicals (including petroleum products)
SU9 Manufacture of fine chemicals
Process category
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC15 Use as laboratory reagent
Environmental release category
ERC1 Manufacture of the substance
ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC6a Use of intermediate

Conditions of use
Duration and frequency Includes daily exposures of up to 8 hours (unless otherwise specified).
Physical parameters
Physical state
Fluid
Vapour pressure: 100 hPa (20°C)
Concentration of the substance in the mixture Includes concentrations up to: 100%
Other operational conditions
Assume use at ≤ 20°C above ambient temperature unless otherwise specified.

Risk management measures
The personal protective measures must only be applied in case of potential exposure.
Storage (closed system): PROC1, PROC2
General exposure (closed systems): PROC1, PROC2, PROC3
Provision of extraction, in places where emissions occur (effectiveness: 90%): PROC2, PROC3
Clean/flush the transport lines before decoupling: PROC8a, Effektivität 90%
For subsequent contributing scenarios, ensure a sufficient level of general ventilation (3 to 5 air changes per hour):
Bulk storage (effectiveness 30%) PROC2
Handling in a fume cupboard or under source extraction. Effectiveness 90%: PROC15
Worker protection
Organisational protective measures
Deploy only trained chemical workers.
Keep good industrial hygiene.
Avoid frequent and direct contact with the substance.
Ensure that manual activity components are minimised.
Regularly inspect and maintain equipment and machinery.
Controls to verify correct application of risk minimisation measures and compliance with conditions of use are established.

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Technical protective measures
Ensure that material transfer activities are enclosed or provided with exhaust (effectiveness: 97%): PROC4, PROC8b
Personal protective measures
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
Protective gloves (EN 374).
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Tightly sealed safety glasses.
Standard protective work clothing. Chemical-resistant safety shoes or boots. If skin contact may occur, wear protective clothing impermeable to this substance.
For further information on "Personal protective equipment" see section 8 of the safety data sheet.
Disposal measures
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
If possible, send to be recycled, otherwise burn or deposit in a certified facility.

Exposure estimation The exposure estimation was carried out according to ECETOC TRA v2,0.
Worker (oral)
Industrial hygiene standards are to be observed, which is why oral exposure for workers is not relevant.
Worker (dermal)
When handling corrosive substances and formulations, direct contact occurs only occasionally, therefore it is assumed that daily dermal exposure can be neglected. Dermal exposure to the substance was therefore not quantified.
Worker (inhalation)
long term - systemic:

.	Exposure assessment	RCR
PROC1	0,01 ppm	0,0010
PROC2	1 ppm	0,1
PROC2	7 ppm	0,7 (Bulkwarenlagerung)
PROC3	3,5 ppm	0,35
PROC4	2 ppm	0,2
PROC8a	5 ppm	0,5
PROC8b	1,5 ppm	0,15
PROC15	1 ppm	0,1

Environment
As no environmental hazard was identified, an environmentally based exposure assessment and risk characterisation was not performed.
Upon contact with water, the substance dissociates and any effects caused are due to the associated change in pH. Therefore, exposure after passing through the wastewater treatment plant is considered negligible.

Guidance for downstream users
Under the conditions listed above, the procedure is considered safe.
Other conditions should only be considered if measurements or appropriate calculations demonstrate that the RCR is < 1.
Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.
Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.

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Annex: Exposure scenario 2

Short title of the exposure scenario Formulation and (re)packaging of substances and mixtures
Sector of Use
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
Process category
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC5 Mixing or blending in batch processes
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
PROC14 Tabletting, compression, extrusion, pelletisation, granulation
PROC15 Use as laboratory reagent
Environmental release category ERC2 Formulation into mixture

Conditions of use
Duration and frequency
Includes daily exposures of up to 8 hours (unless otherwise specified).
PROC3: 240 min
Physical parameters
Physical state
Fluid
Vapour pressure: 100 hPa (20°C)
Concentration of the substance in the mixture Includes concentrations up to: 100%
Other operational conditions
Assume use at ≤ 20°C above ambient temperature unless otherwise specified.

Risk management measures
The personal protective measures must only be applied in case of potential exposure.
Storage (closed system): PROC1, PROC2
General exposure (closed systems): PROC1, PROC2, PROC3
Provision of extraction, in places where emissions occur (effectiveness: 90%): PROC3, PROC5, PROC14
Clean/flush the transport lines before decoupling: PROC8a, Effektivität 90%
Sample through a closed loop or other system to prevent exposure. Handle substance in a closed system: (PROC3, Effektivität 90%)
For subsequent contributing scenarios, ensure a sufficient level of general ventilation (3 to 5 air changes per hour):
- Bulk storage (effectiveness 30%) PROC2 alternative: Ensure that the work operation is carried out outdoors.
Handling in a fume cupboard or under source extraction. Effectiveness 90%: PROC15
Worker protection
Organisational protective measures
Deploy only trained chemical workers.
Keep good industrial hygiene.
Avoid frequent and direct contact with the substance.
Ensure that manual activity components are minimised.
Regularly inspect and maintain equipment and machinery.
Controls to verify correct application of risk minimisation measures and compliance with conditions of use are established.

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Technical protective measures
Ensure that material transfer activities are enclosed or provided with exhaust (effectiveness: 90%): PROC4, PROC8a, PROC9, PROC8b (Effektivität 97%)
Personal protective measures
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
Protective gloves (EN 374).
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Tightly sealed safety glasses.
Standard protective work clothing. Chemical-resistant safety shoes or boots. If skin contact may occur, wear protective clothing impermeable to this substance.
For further information on "Personal protective equipment" see section 8 of the safety data sheet.
Disposal measures
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
If possible, send to be recycled, otherwise burn or deposit in a certified facility.

Exposure estimation The exposure estimation was carried out according to EasyTRA v2,0.
Worker (oral)
Industrial hygiene standards are to be observed, which is why oral exposure for workers is not relevant.
Worker (dermal)
When handling corrosive substances and formulations, direct contact occurs only occasionally, therefore it is assumed that daily dermal exposure can be neglected. Dermal exposure to the substance was therefore not quantified.
Worker (inhalation)
long term - systemic:

.	Exposure assessment	RCR	
PROC1	0,01 ppm	0,0010	
PROC2	7 ppm	0,7	(bulk storage)
PROC3	3,5 ppm	0,35	(General Expositon)
PROC3	2,5 ppm	0,25	(Sampling)
PROC3	6 ppm	0,6	
PROC4	2 ppm	0,2	
PROC5	5 ppm	0,5	
PROC8a	5 ppm	0,5	
PROC8b	1,5 ppm	0,15	
PROC9	5 ppm	0,5	
PROC14	5 ppm	0,5	
PROC15	1 ppm	0,1	

Environment
As no environmental hazard was identified, an environmentally based exposure assessment and risk characterisation was not performed.
Upon contact with water, the substance dissociates and any effects caused are due to the associated change in pH. Therefore, exposure after passing through the wastewater treatment plant is considered negligible.

Guidance for downstream users
Under the conditions listed above, the procedure is considered safe.
Other conditions should only be considered if measurements or appropriate calculations demonstrate that the RCR is < 1.
Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.

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Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.

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Annex: Exposure scenario 3

Short title of the exposure scenario
Use in cleaning agents
Industry
Sector of Use
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU5 Manufacture of textiles, leather, fur
SU6a Manufacture of wood and wood products
SU6b Manufacture of pulp, paper and paper products
Process category
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC7 Industrial spraying
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC10 Roller application or brushing
PROC13 Treatment of articles by dipping and pouring
Environmental release category
ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Conditions of use
Duration and frequency
Includes daily exposures of up to 8 hours (unless otherwise specified).
PROC3: 60 min (General exposure automated process with (semi) closed system).
PROC4: 240 min (Use in enclosed batch processes)
PROC7: 60 min
PROC10: 240 min
Physical parameters
Physical state
Fluid
Vapour pressure: 100 hPa (20°C)
Concentration of the substance in the mixture
Includes concentrations up to: 100%
(unless otherwise stated)
PROC7: ≤ 5%
PROC10: ≤ 5%
Other operational conditions
Assume use at ≤ 20°C above ambient temperature unless otherwise specified.

Risk management measures
The personal protective measures must only be applied in case of potential exposure.
Storage (closed system): PROC2
General exposure (closed systems): PROC2, PROC3
Clean/flush the transport lines before decoupling: PROC8a, Effektivität 90%
Sample through a closed loop or other system to prevent exposure. Handle substance in a closed system: (PROC3, Effektivität 90%)
For subsequent contributing scenarios, ensure a sufficient level of general ventilation (3 to 5 air changes per hour):
- General exposure Automated process (closed systems) (effectiveness 30%) PROC2
- General exposure Automated process with (semi) closed system (effectiveness 30%): PROC3
For subsequent contributing scenarios, ensure that the work process is carried out outdoors. Alternatively, provide a good standard of general ventilation (not less than 3 - 5 times air change rate per hour)

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(effectiveness 30%):
- Bulk storage PROC2
- Spraying PROC7
- Maintenance PROC8a
- Degreasing of small items in cleaning station PROC13

Worker protection

Organisational protective measures

Deploy only trained chemical workers.
Keep good industrial hygiene.
Avoid frequent and direct contact with the substance.
Ensure that manual activity components are minimised.
Regularly inspect and maintain equipment and machinery.
Controls to verify correct application of risk minimisation measures and compliance with conditions of use are established.

Technical protective measures

Ensure that material transfer activities are enclosed or provided with exhaust (effectiveness: 90%): PROC4, PROC8a, PROC13, PROC8b (Effektivität 97%)
Avoid splashes.

Personal protective measures

In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
Protective gloves (EN 374).
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Tightly sealed safety glasses.
Standard protective work clothing. Chemical-resistant safety shoes or boots. If skin contact may occur, wear protective clothing impermeable to this substance.
For further information on "Personal protective equipment" see section 8 of the safety data sheet.

Disposal measures

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
If possible, send to be recycled, otherwise burn or deposit in a certified facility.

Exposure estimation The exposure estimation was carried out according to EasyTRA v2,0.

Worker (oral)

Industrial hygiene standards are to be observed, which is why oral exposure for workers is not relevant.

Worker (dermal)

When handling corrosive substances and formulations, direct contact occurs only occasionally, therefore it is assumed that daily dermal exposure can be neglected. Dermal exposure to the substance was therefore not quantified.

Worker (inhalation)

long term - systemic:

.	Exposure assessment		RCR	
PROC2	7	ppm	0,7	
PROC3	3,5	ppm	0,35	
PROC4	6	ppm	0,6	
PROC7	7	ppm	0,7	
PROC8a	5	ppm	0,5	
PROC8a	3,5	ppm	0,35	(Maintenance)
PROC8b	1,5	ppm	0,15	
PROC9	5	ppm	0,5	
PROC10	4,2	ppm	0,42	
PROC13	5	ppm	0,5	
PROC15	1	ppm	0,1	

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Environment
As no environmental hazard was identified, an environmentally based exposure assessment and risk characterisation was not performed.
Upon contact with water, the substance dissociates and any effects caused are due to the associated change in pH. Therefore, exposure after passing through the wastewater treatment plant is considered negligible.

Guidance for downstream users
Under the conditions listed above, the procedure is considered safe.
Other conditions should only be considered if measurements or appropriate calculations demonstrate that the RCR is < 1.
Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.
Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.

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Annex: Exposure scenario 4

Short title of the exposure scenario
Use in cleaning agents
Professional
Sector of Use
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC10 Roller application or brushing
PROC11 Non industrial spraying
PROC13 Treatment of articles by dipping and pouring
Environmental release category
ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

Conditions of use
Duration and frequency
Includes daily exposures of up to 8 hours (unless otherwise specified).
PROC3: 240 min (General exposure automated process with (semi) closed system).
PROC8a: 60 min (Filling / preparation of equipment from drums or transport containers)
PROC10: 240 min (Short-term manual application by spraying, dipping, etc.)
PROC13: 60 min
Physical parameters
Physical state
Fluid
Vapour pressure: 100 hPa (20°C)
Concentration of the substance in the mixture
Includes concentrations up to: 25%
(unless otherwise stated)
PROC4: ≤ 5% (application of cleaning products)
PROC10: ≤ 5%
PROC11: ≤ 5%
PROC13: ≤ 5%
Other operational conditions
Assume use at ≤ 20°C above ambient temperature unless otherwise specified.

Risk management measures
The personal protective measures must only be applied in case of potential exposure.
Clean/flush the transport lines before decoupling: PROC8a Instandhaltung, (Effektivität 90%)
Provision of extraction, in places where emissions occur (effectiveness: 80%): PROC4 Reinigung med. Geräte
For subsequent contributing scenarios, ensure that operation takes place outside:
Cleaning with high-pressure cleaners, spraying, exterior: PROC11

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For subsequent contributing scenarios, ensure a sufficient level of general ventilation (3 to 5 air changes per hour):
- General exposure Automated process (closed systems) (effectiveness 30%) PROC2
- Application of cleaning products (effectiveness 30%) PROC4
- Maintenance (effectiveness 30%) PROC8a

For the following contributing scenarios, ensure sufficient controlled ventilation (10 to 15 air changes per hour) (effectiveness:70%):
- Semi-automated process: PROC 4
- Transfer of substance or preparation (charging/discharging) from/to vessels/large containers in dedicated equipment for one product only PROC8b
- Cleaning PROC10 (For concentrations above 5%:, reduce activity time to below 60 min)
- Treatment of products by dipping and pouring PROC13

For subsequent contributing scenarios, ensure that the operation is carried out outdoors. Alternatively, provide a good standard of general ventilation (not less than 3 - 5 times air change rate per hour) (effectiveness 30%):
-Filling/preparation of equipment from drums or transport containers PROC8a.
- Application by rolling or brushing Short-term manual application by spraying, dipping, etc. PROC10 alternative: Provision of an extraction system, in places where emissions are
occur. (Effectiveness: 80%), then exposure duration 480 min.

Worker protection

Organisational protective measures

Deploy only trained chemical workers.
Keep good industrial hygiene.
Avoid frequent and direct contact with the substance.
Ensure that manual activity components are minimised.
Regularly inspect and maintain equipment and machinery.
Controls to verify correct application of risk minimisation measures and compliance with conditions of use are established.

Technical protective measures

Ensure that material transfer activities are enclosed or provided with exhaust (effectiveness: 90%): PROC4, PROC8a, PROC13, PROC8b (Effektivität 97%)
Avoid splashes.

Personal protective measures

Wear chemically resistant gloves in combination with basic employee training (Efficiency: 90%): PROC11, PROC13
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
Protective gloves (EN 374).
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Tightly sealed safety glasses.
Standard protective work clothing. Chemical-resistant safety shoes or boots. If skin contact may occur, wear protective clothing impermeable to this substance.
For further information on "Personal protective equipment" see section 8 of the safety data sheet.
Wearing a full-face mask TM3 according to EN 147 with filter type A or better: PROC11

Disposal measures

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
If possible, send to be recycled, otherwise burn or deposit in a certified facility.

Exposure estimation The exposure estimation was carried out according to ECETOC TRA v2,0.

Worker (oral)

Industrial hygiene standards are to be observed, which is why oral exposure for workers is not relevant.

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Worker (dermal)

When handling corrosive substances and formulations, direct contact occurs only occasionally, therefore it is assumed that daily dermal exposure can be neglected. Dermal exposure to the substance was therefore not quantified.

Worker (inhalation)

long term - systemic:

.	Exposure assessment	RCR	
PROC2	8,4 ppm	0,84	
PROC3	9 ppm	0,9	
PROC4	9 ppm	0,9	(Semi-automated process)
PROC4	6 ppm	0,6	(Cleaning of medical devices)
PROC4	7 ppm	0,7	(Application of cleaning products)
PROC8a	8,4 ppm	0,84	(Filling/preparation of equipment from drums or transport containers)
PROC8a	4,2 ppm	0,42	(Maintenance)
PROC8b	9 ppm	0,9	
PROC9	5 ppm	0,5	
PROC10	6 ppm	0,6	(Cleaning)
PROC10	8,4 ppm	0,84	(without LEV)
PROC10	4 ppm	0,4	(with LEV)
PROC11	7 ppm	0,7	
PROC13	6 ppm	0,6	
PROC15	1 ppm	0,1	

Environment

As no environmental hazard was identified, an environmentally based exposure assessment and risk characterisation was not performed.

Upon contact with water, the substance dissociates and any effects caused are due to the associated change in pH. Therefore, exposure after passing through the wastewater treatment plant is considered negligible.

Guidance for downstream users

Under the conditions listed above, the procedure is considered safe.

Other conditions should only be considered if measurements or appropriate calculations demonstrate that the RCR is < 1.

Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.

Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.

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Annex: Exposure scenario 5

Short title of the exposure scenario
Use in cleaning agents
Consumer
Sector of Use
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU21 Consumer uses: Private households / general public / consumers
Product category
PC3 Air care products
PC4 Anti-Freeze and de-icing products
PC8 Biocidal products
PC9a Coatings and paints, thinners, paint removers
PC9b Fillers, putties, plasters, modelling clay
PC9c Finger paints
PC24 Lubricants, greases, release products
PC35 Washing and cleaning products (including solvent based products)
PC38 Welding and soldering products, flux products
Environmental release category
ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
Physical parameters
Physical state
Fluid
Vapour pressure: 20,79 hPa (20°C)
Other operational conditions
Assume use at ≤ 20°C above ambient temperature unless otherwise specified.
Other operational conditions affecting consumer exposure Indoor application.

Risk management measures
PC3: Air treatment products., PC3_2: Subcategory: Air treatment, continuous action (solid and liquid).
Exposure of adults, Content: up to 10%, Application time: 480 min 1 applications per day, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area fingertips (36 cm2), Quantities used Amount per use 0.48 g

PC4: Antifreeze and de-icing agents, PC4_1: Subcategory: Washing of car windows
Exposure of adults, Content: up to 1%, Application time: 1.2 min 1 applications per day, Room size 34 m3, Air exchange rate per hour 1.5, Covers use in a single garage with typical ventilation. Quantities used Quantity per use 0.5 g

PC4: Antifreeze and de-icing agent, PC4_2: Subcategory: Filling in a (car) radiator
Exposure of adults, Content: up to 10%, Application time: 10.2 min 1 applications per day, Room size 34 m3, Air exchange rate per hour 1.5, Covers use in a single garage with typical ventilation, Exposed skin area Both palms (430 cm²), Used quantities Amount per use 2 kg

PC4: Antifreeze and de-icer, PC4_3: Subcategory: lock de-icer
Exposure of adults, Content: up to 25%, Application time: 15 min 1 applications per day, Room size 34 m3, Air exchange rate per hour 1.5, Covers use in a single garage with typical ventilation, Exposed skin area One palm (215 cm²), Used quantities Amount per use 4 g, Ensure spraying away from people.

PC8: Biocidal products, PC8_1, PC35_1: Subcategory: Washing and dishwashing products.
Exposure of adults, Content: up to 5%, Application duration: 30 min 1 applications per day, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area Both hands (860 cm²), Quantities used Amount per use 15 g

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PC8: Biocidal products, PC8_2, PC35_2: Subcategory:Cleaning products, liquids (all-purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Exposure of adults, Content: up to 5%, Application duration: 19.8 min 1 applications per day, 128 days per year, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area Both hands (860 cm²), Quantities used Amount per use 27 g

PC8: Biocidal products, PC8_3, PC35_3: Subcategory: cleaning agents, sprays in spray-head bottles.
(all-purpose cleaners, sanitary products, glass cleaners)
Exposure of adults, Content: up to 1.5%, Application time: 19.8 min 1 applications per day, 128 days per year, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area Both palms (430 cm²), Quantities used Quantity per use 35 g, Ensure spraying away from persons.

PC9a: Coatings and paints, thinners, paint removers, PC9a_1, PC15_1: Subcategory: Aqueous latex wall paint
Exposure of adults, Content: up to 1.5%, Application time: 132 min 1 applications per day, 4 days per year, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area Both palms (430 cm²), Used quantities Amount per use 2.76 kg

PC9a: Coatings and paints, thinners, paint removers, PC9a_2, PC15_2: Subcategory: solvent-rich, high-solids, aqueous paint
Exposure of adults, Content: up to 12%, Application time: 132 min 1 applications per day, 6 days per year, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area Both palms (430 cm²), Used amounts Amount per use 744 g

PC9a: Coatings and paints, thinners, paint removers, PC9a_3, PC15_3: Subcategory:
Aerosol spray can
Exposure of adults, Content: up to 0.5%, Application time: 19.8 min 1 applications per day, 2 days per year, Room size 34 m3, Air exchange rate per hour 1.5, Covers use in a single garage with typical ventilation, Quantities used Quantity per use 215 g, Ensure spraying away from people.

PC9a: Coatings and paints, thinners, paint removers, PC9a_4, PC15_4: Subcategory: removers (paint, adhesive, wallpaper, sealant removers).
Exposure of adults, Content: up to 17%, Application time: 120 min 1 applications per day, 3 days per year, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area Both hands (860 cm²), Quantities used Amount per use 491 g, Ensure that is sprayed away from people.

PC9b: fillers, putty, mortar, modelling clay, PC9b_1: subcategory: fillers and putty.
Exposure of adults, wt: up to 2%, duration of use: 240 min 1 applications per day, 112 days per year, room size 20 m3, air exchange rate per hour 0.6, exposed skin area fingertips (36 cm2), used amounts Amount per use 85 g

PC9b: fillers, putties, mortars, modelling clays, PC9b_2: subcategory: mortars and floor levelling compounds
Exposure of adults, Content: up to 0.6%, Application time: 240 min 1 applications per day, 12 days per year, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area Both hands (860 cm²), Amount used per use 13.8 kg

PC9b: Fillers, putties, mortars, modelling clay, PC9b_3: Subcategory: modelling clay
Exposure of children, Content: up to 1%, Application time: 1 applications per day, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area hands (254cm2), Quantities used per use 1 g

PC9c: Finger paints
Exposure of children, Content: up to 1%, Application time: 1 applications per day, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area hands (254cm2), Used amounts Amount per use 1.35 g
Relevant for oral exposure assessment

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PC24: Lubricants, greases and parting agents, PC13_1, PC24_1: Subcategory: liquids
Adult exposure, Content: up to 80%, Application duration: 10.2 min 1 applications per day, 4 days per year, Room size 34 m3, Air exchange rate per hour 1.5, Covers use in a single garage with typical ventilation, Exposed skin area Both palms (480 cm²), Quantities used Amount per use 2.2 kg

PC24: Lubricants, greases and release agents, PC24_2: Subcategory: Pastes
Exposure of adults, Content: up to 20%, Application duration: 1 applications per day, 10 days per year, Room size 34 m3, Air exchange rate per hour 1.5, Covers use in a single garage with typical ventilation, Exposed skin area Both palms (480 cm²), Amount used per use 34 g

PC24: Lubricants, greases and release agents, PC24_3: Subcategory: sprays
Exposure of adults, Content: up to 0.7%, Application time: 10.2 min 1 applications per day, 6 days per year, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area Both palms (430 cm²), Amount used per use 73 g, Ensure spraying away from people.

PC35: Detergents and cleaning products (including solvent-based products), PC8_1, PC35_1: Subcategory: Laundry and dishwashing products
Exposure of adults, Content: up to 5%, Application time: 30 min 1 applications per day, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area Both hands (860 cm²), Used amounts Amount per use 15 g

PC35: Detergents and cleaning products (including solvent-based products)., PC8_2, PC35_2: Subcategory:Cleaning products, liquids (all-purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners).
Exposure of adults, Content: up to 5%, Application duration: 19.8 min 1 applications per day, 128 days per year, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area Both hands (860 cm²), Amount used per use 27 g

PC35: Detergents and cleaning products (including solvent-based products), PC8_3, PC35_3: Sub-category: detergents, sprays in spray-head bottles (all-purpose cleaners, sanitary products, glass cleaners).
Exposure of adults, Content: up to1.5%, Application duration: 1 applications per day, 128 days per year, Room size 20 m3, Air exchange rate per hour 0.6, Quantities used Quantity per use 35 g, Ensure spraying away from people.

PC38: Welding and soldering products, fluxes
Exposure of adults, Content: up to 20%, Application time: 60 min 1 applications per day, Room size 20 m3, Air exchange rate per hour 0.6, Exposed skin area Both palms (430 cm²), Quantities used per application 12 g, Ensure that is sprayed away from persons.
is used.

Worker protection

Personal protective measures

Avoid contact with the eyes and skin.
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
Protective gloves (EN 374).
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Tightly sealed safety glasses.
Standard protective work clothing. Chemical-resistant safety shoes or boots. If skin contact may occur, wear protective clothing impermeable to this substance.
For further information on "Personal protective equipment" see section 8 of the safety data sheet.

Measures for consumer protection Keep out of reach of children.

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Disposal measures
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
If possible, send to be recycled, otherwise burn or deposit in a certified facility.

Exposure estimation The exposure estimation was carried out according to EasyTRA v2,0.
Environment
As no environmental hazard was identified, an environmentally based exposure assessment and risk characterisation was not performed.
Upon contact with water, the substance dissociates and any effects caused are due to the associated change in pH. Therefore, exposure after passing through the wastewater treatment plant is considered negligible.
Consumer

long term- systemisch	dermal (RCR)			inhalative (RCR)		
PC3 2	< 0,01	mg/kg KG/d	(< 0,01)	< 0,01	mg/m³	(< 0,01)
PC4 1	< 0,01	mg/kg KG/d	(< 0,01)	< 0,01	mg/m³	(< 0,01)
PC4 2	7,1	mg/kg KG/d	(0,1)	0,02	mg/m³	(< 0,01)
PC4 3	8,89	mg/kg KG/d	(0,12)	0,26	mg/m³	(0,01)
PC8 1/PC35 1	0,07	mg/kg KG/d	(< 0,01)	0,01	mg/m³	(< 0,01)
PC8 2/PC35 2	7,11	mg/kg KG/d	(0,1)	< 0,01	mg/m³	(< 0,01)
PC8 3/PC35 3	1,06	mg/kg KG/d	(0,01)	0,17	mg/m³	(0,01)
PC9a 1/PC15 1	1,07	mg/kg KG/d	(0,01)	1,05	mg/m³	(0,04)
PC9a 2/PC15 2	8,53	mg/kg KG/d	(0,12)	2,27	mg/m³	(0,09)
PC9a 3/PC15 3	< 0,01	mg/kg KG/d	(< 0,01)	0,34	mg/m³	(0,01)
PC9a 4/PC15 4	24,17	mg/kg KG/d	(0,34)	2,03	mg/m³	(0,08)
PC9b 1	0,12	mg/kg KG/d	(< 0,01)	0,05	mg/m³	(< 0,01)
PC9b 2	0,85	mg/kg KG/d	(0,01)	2,01	mg/m³	(0,08)
PC9b 3	0,13	mg/kg KG/d	(< 0,01)			
PC9c	2,53	mg/kg KG/d	(0,04)			
PC13 1/PC24 1	62,09	mg/kg KG/d	(0,86)	0,03	mg/m³	(< 0,01)
PC24 2	15,52	mg/kg KG/d	(0,22)	< 0,01	mg/m³	(< 0,01)
PC24 3	0,5	mg/kg KG/d	(0,01)	0,17	mg/m³	(0,01)
PC8 1/PC35 1	0,07	mg/kg KG/d	(< 0,01)	0,01	mg/m³	(< 0,01)
PC8 2/PC35 2	7,11	mg/kg KG/d	(0,1)	0,01	mg/m³	(< 0,01)
PC8 3/PC35 3	1,06	mg/kg KG/d	(0,01)	0,17	mg/m³	(0,01)
PC 38	< 0,01	mg/kg KG/d	(0,01)	0,04	mg/m³	(< 0,01)

long term- systemisch	oral (RCR)		
PC9b 3	1,00	mg/m³	(0,14)
PC9c	1,35	mg/m³	(0,19)

Guidance for downstream users
Under the conditions listed above, the procedure is considered safe.
Other conditions should only be considered if measurements or appropriate calculations demonstrate that the RCR is < 1.
Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.
Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.

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Annex: Exposure scenario 6

Short title of the exposure scenario
Use in agrochemicals
Professional
Sector of Use
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
Process category
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC15 Use as laboratory reagent
Environmental release category ERC1 Manufacture of the substance

Conditions of use
Duration and frequency
Includes daily exposures of up to 8 hours (unless otherwise specified).
PROC2: 240 min (outdoor application)
PROC4: 60 min (mixing operations)
PROC8a: 240 min (maintenance)
PROC 8b: 240 min
Physical parameters
Physical state
Fluid
Vapour pressure: 100 hPa (20°C)
Concentration of the substance in the mixture
Includes concentrations up to: 100%
(unless otherwise stated)
PROC8a: ≤ 5% (Disposal of waste (disposal/transfer))
PROC8a: ≤ 5% (maintenance)
Other operational conditions
Assume use at ≤ 20°C above ambient temperature unless otherwise specified.

Risk management measures
The personal protective measures must only be applied in case of potential exposure.
Storage (closed system): PROC1, PROC2, PROC8a, PROC8b
General exposure (closed systems): PROC1
Clean/flush the transport lines before decoupling: PROC8a (Instandhaltung), Effektivität 80%
Use barrel pumps: PROC8b (Effektivität 80%)
For subsequent contributing scenarios, ensure that operation takes place outside:
Use in closed continuous processes with occasional controlled exposure: PROC2 (effectiveness 30%).
Mixing operations PROC4 (effectiveness 30%)
For subsequent contributing scenarios, ensure that the operation is carried out outdoors. Alternatively, provide a good standard of general ventilation (not less than 3 - 5 times air change rate per hour) (Effectiveness 30%):
- Disposal of waste (disposal/transfer) PROC8a

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Worker protection
Organisational protective measures
Deploy only trained chemical workers.
Keep good industrial hygiene.
Avoid frequent and direct contact with the substance.
Ensure that manual activity components are minimised.
Regularly inspect and maintain equipment and machinery.
Controls to verify correct application of risk minimisation measures and compliance with conditions of use are established.
Technical protective measures Avoid splashes.
Personal protective measures
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
Protective gloves (EN 374).
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Tightly sealed safety glasses.
Standard protective work clothing. Chemical-resistant safety shoes or boots. If skin contact may occur, wear protective clothing impermeable to this substance.
For further information on "Personal protective equipment" see section 8 of the safety data sheet.
Disposal measures
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
If possible, send to be recycled, otherwise burn or deposit in a certified facility.

Exposure estimation The exposure estimation was carried out according to ECETOC TRA v2,0.
Worker (oral)
Industrial hygiene standards are to be observed, which is why oral exposure for workers is not relevant.
Worker (dermal)
When handling corrosive substances and formulations, direct contact occurs only occasionally, therefore it is assumed that daily dermal exposure can be neglected. Dermal exposure to the substance was therefore not quantified.
Worker (inhalation)
long term - systemic:

.	Exposure assessment		RCR	
PROC1	0,01	ppm	0,001	
PROC2	8,4	ppm	0,84	
PROC4	7	ppm	0,7	(mixing operations)
PROC8a	2,8	ppm	0,28	(Disposal of waste (disposal/transfer))
PROC8a	2,4	ppm	0,24	(Maintenance)
PROC8b	6	ppm	0,6	

Environment
As no environmental hazard was identified, an environmentally based exposure assessment and risk characterisation was not performed.
Upon contact with water, the substance dissociates and any effects caused are due to the associated change in pH. Therefore, exposure after passing through the wastewater treatment plant is considered negligible.

Guidance for downstream users
Under the conditions listed above, the procedure is considered safe.
Other conditions should only be considered if measurements or appropriate calculations demonstrate that the RCR is < 1.
Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.

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Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.

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Annex: Exposure scenario 7

Short title of the exposure scenario
Use in agrochemicals
Consumer
Sector of Use
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU21 Consumer uses: Private households / general public / consumers
Product category
PC12 Fertilisers
PC27 Plant protection products
Environmental release category
ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)

Conditions of use
Duration and frequency
Includes application up to 120 min hours/event.
1 Event(s)/day (unless otherwise specified)
Physical parameters
Physical state
Fluid
Vapour pressure: 20,79 hPa (20°C)
Concentration of the substance in the mixture
Includes concentrations up to: 15%
(unless otherwise stated)
Other operational conditions
Assume use at ≤ 20°C above ambient temperature unless otherwise specified.
Other operational conditions affecting consumer exposure Indoor application.

Risk management measures
PC12: Fertilisers, PC27: Plant protection products.
Adult exposure, Room size 20 m3, Air exchange rate per hour 2.5, Exposed skin area Both hands (860 cm²), Keep away from children, In case of contact with eyes, rinse thoroughly with water. In case of skin contact, wash thoroughly with water.

PC12: Fertilisers, PC27: Plant protection products.
Exposure of children, Room size 20 m3, Air exchange rate per hour 2.5, Exposed skin area Both hands (860 cm²), Quantities used Amount per use 0.3 g (Relevant for oral
Exposure assessment), Keep away from children, In case of contact with eyes, rinse thoroughly with water. In case of skin contact, wash thoroughly with water.
Worker protection
Personal protective measures
Avoid contact with the eyes and skin.
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
Protective gloves (EN 374).
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Tightly sealed safety glasses.
Standard protective work clothing. Chemical-resistant safety shoes or boots. If skin contact may occur, wear protective clothing impermeable to this substance.
For further information on "Personal protective equipment" see section 8 of the safety data sheet.

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Disposal measures
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
If possible, send to be recycled, otherwise burn or deposit in a certified facility.

Exposure estimation The exposure estimation was carried out according to EasyTRA v2,0.
Environment
As no environmental hazard was identified, an environmentally based exposure assessment and risk characterisation was not performed.
Upon contact with water, the substance dissociates and any effects caused are due to the associated change in pH. Therefore, exposure after passing through the wastewater treatment plant is considered negligible.
Consumer
long term- systemisch
PC12/PC27:
dermal (RCR): 21,33 mg/kg KG/d (0,3)
inhalativ (RCR): < 0,01 mg/m³ (< 0,01)
oral (RCR): 4,5 mg/kg KG/d (0,63)

Guidance for downstream users
Under the conditions listed above, the procedure is considered safe.
Other conditions should only be considered if measurements or appropriate calculations demonstrate that the RCR is < 1.
Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.
Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.

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Annex: Exposure scenario 8

Short title of the exposure scenario
Use as laboratory chemical.
Industry
Sector of Use
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
Process category
PROC10 Roller application or brushing
PROC15 Use as laboratory reagent
Environmental release category
ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

Conditions of use
Duration and frequency
Includes daily exposures of up to 8 hours (unless otherwise specified).
PROC10: 60 min
Physical parameters
Physical state
Fluid
Vapour pressure: 100 hPa (20°C)
Concentration of the substance in the mixture
Includes concentrations up to: 100%
(unless otherwise stated)
Other operational conditions
Assume use at ≤ 20°C above ambient temperature unless otherwise specified.

Risk management measures
The personal protective measures must only be applied in case of potential exposure.
For subsequent contributing scenarios, ensure a sufficient level of controlled ventilation (10 to 15 air changes per hour):
Application by rolling or brushing: PROC10
For subsequent contributing scenarios, handling in a fume cupboard or under source extraction. (Effectiveness: 90%):
Use as laboratory reagent: PROC15
Worker protection
Organisational protective measures
Deploy only trained chemical workers.
Keep good industrial hygiene.
Avoid frequent and direct contact with the substance.
Ensure that manual activity components are minimised.
Regularly inspect and maintain equipment and machinery.
Controls to verify correct application of risk minimisation measures and compliance with conditions of use are established.
Personal protective measures
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
Protective gloves (EN 374).
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Tightly sealed safety glasses.

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Standard protective work clothing. Chemical-resistant safety shoes or boots. If skin contact may occur, wear protective clothing impermeable to this substance.
For further information on "Personal protective equipment" see section 8 of the safety data sheet.

Disposal measures
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
If possible, send to be recycled, otherwise burn or deposit in a certified facility.

Exposure estimation The exposure estimation was carried out according to ECETOC TRA v2,0.

Worker (oral)
Industrial hygiene standards are to be observed, which is why oral exposure for workers is not relevant.

Worker (dermal)
When handling corrosive substances and formulations, direct contact occurs only occasionally, therefore it is assumed that daily dermal exposure can be neglected. Dermal exposure to the substance was therefore not quantified.

Worker (inhalation)
long term - systemic:

.	Exposure assessment	RCR
PROC10	3 ppm	0,3
PROC15	1 ppm	0,1

Environment
As no environmental hazard was identified, an environmentally based exposure assessment and risk characterisation was not performed.
Upon contact with water, the substance dissociates and any effects caused are due to the associated change in pH. Therefore, exposure after passing through the wastewater treatment plant is considered negligible.

Guidance for downstream users
Under the conditions listed above, the procedure is considered safe.
Other conditions should only be considered if measurements or appropriate calculations demonstrate that the RCR is < 1.
Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.
Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.

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Annex: Exposure scenario 9

Short title of the exposure scenario
Use as laboratory chemical.
Professional
Sector of Use
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category
PROC10 Roller application or brushing
PROC15 Use as laboratory reagent
Environmental release category
ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

Conditions of use
Duration and frequency
Includes daily exposures of up to 8 hours (unless otherwise specified).
PROC10: At concentrations above 5%:, reduction of activity duration to below 60 min.
Physical parameters
Physical state
Fluid
Vapour pressure: 100 hPa (20°C)
Concentration of the substance in the mixture
Includes concentrations up to: 100%
(unless otherwise stated)
PROC10: ≤ 5%
Other operational conditions
Assume use at ≤ 20°C above ambient temperature unless otherwise specified.

Risk management measures
The personal protective measures must only be applied in case of potential exposure.
For subsequent contributing scenarios, ensure a sufficient level of controlled ventilation (10 to 15 air changes per hour):
Application by rolling or brushing: PROC10 (Effektivität: 70%)
For subsequent contributing scenarios, handle in a fume cupboard or under source extraction.
Alternatively: Provide an extraction system, at locations where emissions occur. (Effectiveness: 80%):
Use as laboratory reagent: PROC15
Worker protection
Organisational protective measures
Deploy only trained chemical workers.
Keep good industrial hygiene.
Avoid frequent and direct contact with the substance.
Ensure that manual activity components are minimised.
Regularly inspect and maintain equipment and machinery.
Controls to verify correct application of risk minimisation measures and compliance with conditions of use are established.
Technical protective measures Avoid splashes.
Personal protective measures
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
Protective gloves (EN 374).
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

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Tightly sealed safety glasses.
Standard protective work clothing. Chemical-resistant safety shoes or boots. If skin contact may occur, wear protective clothing impermeable to this substance.
For further information on "Personal protective equipment" see section 8 of the safety data sheet.

Disposal measures
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
If possible, send to be recycled, otherwise burn or deposit in a certified facility.

Exposure estimation The exposure estimation was carried out according to ECETOC TRA v2,0.

Worker (oral)
Industrial hygiene standards are to be observed, which is why oral exposure for workers is not relevant.

Worker (dermal)
When handling corrosive substances and formulations, direct contact occurs only occasionally, therefore it is assumed that daily dermal exposure can be neglected. Dermal exposure to the substance was therefore not quantified.

Worker (inhalation)
long term - systemic:

.	Exposure assessment	RCR
PROC10	6 ppm	0,6
PROC15	2 ppm	0,2

Environment
As no environmental hazard was identified, an environmentally based exposure assessment and risk characterisation was not performed.
Upon contact with water, the substance dissociates and any effects caused are due to the associated change in pH. Therefore, exposure after passing through the wastewater treatment plant is considered negligible.

Guidance for downstream users
Under the conditions listed above, the procedure is considered safe.
Other conditions should only be considered if measurements or appropriate calculations demonstrate that the RCR is < 1.
Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.
Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.

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Annex: Exposure scenario 10

Short title of the exposure scenario
Use in waste water treatment
Industry
Sector of Use
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU8 Manufacture of bulk, large scale chemicals (including petroleum products)
SU9 Manufacture of fine chemicals
Process category
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC15 Use as laboratory reagent
Environmental release category ERC1 Manufacture of the substance

Conditions of use
Duration and frequency
Includes daily exposures of up to 8 hours (unless otherwise specified).
PROC2: 240 min (bulk transfer)
PROC3: 60 min (General exposure)
PROC4: 240 min (General exposure)
PROC8b: 240 min
Physical parameters
Physical state
Fluid
Vapour pressure: 100 hPa (20°C)
Concentration of the substance in the mixture
Includes concentrations up to: 100%
(unless otherwise stated)
Other operational conditions
Assume use at ≤ 20°C above ambient temperature unless otherwise specified.

Risk management measures
The personal protective measures must only be applied in case of potential exposure.
Storage (closed system): PROC1
General exposure (closed systems): PROC1, PROC2
Clean/flush the transport lines before decoupling: PROC8a, Effektivität 80%
Use barrel pumps: PROC8b
For subsequent contributing scenarios, ensure that the work process is carried out outdoors. Alternatively, provide a good standard of general ventilation (not less than 3 - 5 times air change rate per hour) (effectiveness 30%):
- General exposure PROC3, PROC4
- Maintenance PROC8a (If the technical/organisational measures are not feasible:, wear adequate respiratory protection with adequate effectiveness).
Worker protection
Organisational protective measures
Deploy only trained chemical workers.

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Keep good industrial hygiene.
Avoid frequent and direct contact with the substance.
Ensure that manual activity components are minimised.
Regularly inspect and maintain equipment and machinery.
Controls to verify correct application of risk minimisation measures and compliance with conditions of use are established.

Personal protective measures
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
Protective gloves (EN 374).
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Tightly sealed safety glasses.
Standard protective work clothing. Chemical-resistant safety shoes or boots. If skin contact may occur, wear protective clothing impermeable to this substance.
For further information on "Personal protective equipment" see section 8 of the safety data sheet.

Disposal measures
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
If possible, send to be recycled, otherwise burn or deposit in a certified facility.

Exposure estimation The exposure estimation was carried out according to ECETOC TRA v2,0.

Worker (oral)
Industrial hygiene standards are to be observed, which is why oral exposure for workers is not relevant.

Worker (dermal)
When handling corrosive substances and formulations, direct contact occurs only occasionally, therefore it is assumed that daily dermal exposure can be neglected. Dermal exposure to the substance was therefore not quantified.

Worker (inhalation)
long term - systemic:

.	Exposure assessment		RCR
PROC1	0,01	ppm	0,0010
PROC2	6	ppm	0,6
PROC3	3,5	ppm	0,35
PROC4	8,4	ppm	0,84
PROC8a	7	ppm	0,7 (Maintenance)
PROC8b	6	ppm	0,6

Environment
As no environmental hazard was identified, an environmentally based exposure assessment and risk characterisation was not performed.
Upon contact with water, the substance dissociates and any effects caused are due to the associated change in pH. Therefore, exposure after passing through the wastewater treatment plant is considered negligible.

Guidance for downstream users
Under the conditions listed above, the procedure is considered safe.
Other conditions should only be considered if measurements or appropriate calculations demonstrate that the RCR is < 1.
Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.
Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.

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Annex: Exposure scenario 11

Short title of the exposure scenario
Use in waste water treatment
Professional
Sector of Use
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU8 Manufacture of bulk, large scale chemicals (including petroleum products)
SU9 Manufacture of fine chemicals
Process category
PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.
PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
PROC4 Chemical production where opportunity for exposure arises
PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
PROC15 Use as laboratory reagent
Environmental release category ERC1 Manufacture of the substance

Conditions of use
Duration and frequency
Includes daily exposures of up to 8 hours (unless otherwise specified).
PROC3: 60 min
PROC4: 60 min (mixing operations)
Physical parameters
Physical state
Fluid
Vapour pressure: 100 hPa (20°C)
Concentration of the substance in the mixture
Includes concentrations up to: 100%
(unless otherwise stated)
Other operational conditions
Assume use at ≤ 20°C above ambient temperature unless otherwise specified.

Risk management measures
The personal protective measures must only be applied in case of potential exposure.
Storage (closed system): PROC1, PROC8a, PROC8b
General exposure (closed systems): PROC1 (Lagerung)
For subsequent contributing scenarios, ensure that operation takes place outside:
Use in closed batch processes: PROC3
Clean/flush the transport lines before decoupling: PROC8a, Effektivität 90%
Use barrel pumps: PROC8b (Effektivität 80%)
For subsequent contributing scenarios, ensure that the work operation is carried out outdoors. Alternatively, provide a good standard of general ventilation (not less than 3 - 5 times air change rate per hour) (effectiveness 30%):
- general exposure PROC3, PROC8a, PROC8b
- Mixing operations PROC4
Worker protection
Organisational protective measures
Deploy only trained chemical workers.
Keep good industrial hygiene.
Avoid frequent and direct contact with the substance.
Ensure that manual activity components are minimised.

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Regularly inspect and maintain equipment and machinery.
Controls to verify correct application of risk minimisation measures and compliance with conditions of use are established.

Personal protective measures

Wear chemically resistant gloves in combination with basic employee training (Efficiency: 90%): PROC8a
In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air.
Protective gloves (EN 374).
Butyl rubber, BR
Nitrile rubber, NBR
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
Tightly sealed safety glasses.
Standard protective work clothing. Chemical-resistant safety shoes or boots. If skin contact may occur, wear protective clothing impermeable to this substance.
For further information on "Personal protective equipment" see section 8 of the safety data sheet.

Disposal measures

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
If possible, send to be recycled, otherwise burn or deposit in a certified facility.

Exposure estimation The exposure estimation was carried out according to ECETOC TRA v2,0.

Worker (oral)

Industrial hygiene standards are to be observed, which is why oral exposure for workers is not relevant.

Worker (dermal)

When handling corrosive substances and formulations, direct contact occurs only occasionally, therefore it is assumed that daily dermal exposure can be neglected. Dermal exposure to the substance was therefore not quantified.

Worker (inhalation)

long term - systemic:

.	Exposure assessment		RCR
PROC1	0,01	ppm	0,001
PROC3	3,5	ppm	0,35
PROC4	7	ppm	0,7 (mixing processes)
PROC8a	7	ppm	0,7
PROC8b	7	ppm	0,7

Environment

As no environmental hazard was identified, an environmentally based exposure assessment and risk characterisation was not performed.
Upon contact with water, the substance dissociates and any effects caused are due to the associated change in pH. Therefore, exposure after passing through the wastewater treatment plant is considered negligible.

Guidance for downstream users

Under the conditions listed above, the procedure is considered safe.
Other conditions should only be considered if measurements or appropriate calculations demonstrate that the RCR is < 1.
Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.
Detailed information on the exposure estimation can be found at http://www.ecetoc.org/tra.