Pelargonic acid Kosher
10560D

Version / Revision	3.01	**Revision Date**	26-Jan-2023
Supersedes Version	3.00***	**Issuing date**	26-Jan-2023

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

1.1. Product identifier

Identification of the substance/preparation **Pelargonic acid Kosher**

Chemical Name Nonanoic acid
CAS-No 112-05-0
EC No. 203-931-2

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

Identified uses
Distribution of substance
Formulation
cleaning agent
Lubricants and lubricant additives
Intermediate
laboratory chemicals
Industrial processing of articles

Uses advised against None

1.3. Details of the supplier of the safety data sheet

Company/Undertaking Identification
OQ Chemicals GmbH
Rheinpromenade 4A
D-40789 Monheim
Germany

Product Information
Product Stewardship
FAX: +49 (0)208 693 2053
email: sc.psq@oq.com

1.4. Emergency telephone number

Emergency telephone number +44 (0) 1235 239 670 (UK)
available 24/7

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

This substance is classified based on Directive 1272/2008/EC and its amendments (CLP Regulation)

Skin corrosion/irritation Category 2, H315
Serious eye damage/eye irritation Category 2, H319
Environmental hazard Aquatic Chronic 3; H412

Additional information
For full text of Hazard- and EU Hazard-statements see SECTION 16.

2.2. Label elements

Labelling according to Regulation 1272/2008/EC and its amendments (CLP Regulation).

Hazard pictograms

Signal word	**Warning**
Hazard statements	H315: Causes skin irritation. H319: Causes serious eye irritation. H412: Harmful to aquatic life with long lasting effects.
Precautionary statements	P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection. P302 + P352: IF ON SKIN: Wash with plenty of soap and water. P332 + P313: If skin irritation occurs: Get medical advice/ attention. P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313: If eye irritation persists: Get medical advice/ attention.

2.3. Other hazards

Vapour/air-mixtures are explosive at intense warming

PBT and vPvB assessment	This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)
Endocrine disrupting assessments	The substance is not listed on the candidate list according to Art. 59(1), REACh. The substance was not assessed as having endocrine disrupting properties according to regulation 2017/2100/EU or 2018/605/EU.

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	1272/2008/EC	Concentration (%)
Pelargonic acid	112-05-0	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Aquatic Chronic 3; H412	> 95,5

For full text of Hazard- and EU Hazard-statements see SECTION 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Keep at rest. Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

Skin
Wash off immediately with soap and plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

Eyes
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Ingestion
Call a physician immediately. Do not induce vomiting without medical advice.

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

Main symptoms
cough, headache, nausea, shortness of breath.

Special hazard
Lung irritation, Lung oedema.

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

General advice
Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

Treat symptomatically. If ingested, flush stomach and compensate acidosis.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
foam, dry chemical, carbon dioxide (CO2), water spray

Unsuitable Extinguishing Media
Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Under conditions giving incomplete combustion, hazardous gases produced may consist of:
carbon monoxide (CO)
carbon dioxide (CO2)
Combustion gases of organic materials must in principle be graded as inhalation poisons
Vapours are heavier than air and may spread along floors
Vapour/air-mixtures are explosive at intense warming

5.3. Advice for firefighters

Special protective equipment for firefighters
Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full fire-fighting turn out gear.

Precautions for firefighting
Keep people away from and upwind of fire. Cool containers / tanks with water spray. Dike and collect water used to fight fire. Water run-off can cause environmental damage.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: For personal protective equipment see section 8. Avoid contact with skin and eyes. Avoid breathing vapors or mists. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Keep away from heat and sources of ignition.
For emergency responders: Personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant). Water runoff can cause environmental damage.

6.3. Methods and material for containment and cleaning up

Methods for containment
Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

Methods for cleaning up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. Dispose of in accordance with local regulations. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

6.4. Reference to other sections

For personal protective equipment see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Further info may be available in the appropriate Exposure scenarios in the annex to this SDS.

Advice on safe handling
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms.

Hygiene measures
When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Advice on the protection of the environment
See Section 8: Environmental exposure controls.

Incompatible products
bases
amines
strong oxidizing agents
reducing agents

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion
Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge

(which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material. Vapour/air-mixtures are explosive at intense warming.

Technical measures/Storage conditions
Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Keep at temperatures between 16 and 40 °C (60 and 104 °F).

Temperature class
T2

7.3. Specific end use(s)

Distribution of substance
Formulation
cleaning agent
Lubricants and lubricant additives
Intermediate
laboratory chemicals
Industrial processing of articles
For specific end use information see the annex of this safety data sheet

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits European Union

No exposure limits established

Exposure limits UK

No exposure limits established.

DNEL & PNEC

Pelargonic acid, CAS: 112-05-0
Workers

DN(M)EL - long-term exposure - systemic effects - Inhalation	No hazard identified
DN(M)EL - acute / short-term exposure - systemic effects - Inhalation	No hazard identified
DN(M)EL - long-term exposure - local effects - Inhalation	Hazard unknown (no further information necessary)
DN(M)EL - acute / short-term exposure - local effects - Inhalation	Hazard unknown (no further information necessary)
DN(M)EL - long-term exposure - systemic effects - Dermal	No hazard identified
DN(M)EL - acute / short-term exposure - systemic effects - Dermal	No hazard identified
DN(M)EL - long-term exposure - local effects - Dermal	Low hazard (no threshold derived)
DN(M)EL - acute / short-term exposure - local effects - Dermal	Low hazard (no threshold derived)
DN(M)EL - local effects - eyes	Low hazard (no threshold derived)

General population

DN(M)EL - long-term exposure - systemic effects - Inhalation	No hazard identified
DN(M)EL - acute / short-term exposure - systemic effects - Inhalation	No hazard identified
DN(M)EL - long-term exposure - local effects - Inhalation	Hazard unknown (no further information necessary)
DN(M)EL - acute / short-term exposure - local effects - Inhalation	Hazard unknown (no further information necessary)
DN(M)EL - long-term exposure - systemic effects - Dermal	No hazard identified
DN(M)EL - acute / short-term exposure - systemic effects - Dermal	No hazard identified
DN(M)EL - long-term exposure - local effects - Dermal	Low hazard (no threshold derived)
DN(M)EL - acute / short-term exposure - local effects - Dermal	Medium hazard (no threshold derived)
DN(M)EL - long-term exposure - systemic effects - Oral	No hazard identified
DN(M)EL - acute / short-term exposure - systemic effects - Oral	No hazard identified
DN(M)EL - local effects - eyes	Low hazard (no threshold derived)

Environment

PNEC aqua - freshwater	0,36 mg/l
PNEC aqua - marine water	0,036 mg/l
PNEC aqua - intermittent releases	0,6 mg/l
PNEC STP	1,4 mg/l
PNEC sediment - freshwater	8,5 mg/kg dw
PNEC sediment - marine water	0,85 mg/kg dw
PNEC Air	No hazard identified
PNEC soil	1,48 mg/kg dw
Secondary poisoning	No potential for bioaccumulation

8.2. Exposure controls

Special adaptations (REACh)
Not applicable.

Appropriate Engineering controls
General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Personal protective equipment

General industrial hygiene practice
Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Ensure that eyewash stations and safety showers are close to the workstation location.

Hygiene measures
When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Eye protection
Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash

to the face.
Equipment should conform to EN 166

Hand protection
Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

Suitable material	nitrile rubber
Evaluation	according to EN 374: level 6
Glove thickness	approx 0,55 mm
Break through time	> 480 min

Suitable material	polyvinylchloride / nitrile rubber
Evaluation	according to EN 374: level 6
Glove thickness	approx 0,9 mm
Break through time	> 480 min

Skin and body protection
Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

Environmental exposure controls
If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

Additional advice
Further details on substance data can be found in the registration dossier under the following link: http://echa.europa.eu/information-on-chemicals/registered-substances. For specific exposure controls see the annex to this safety data sheet.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless
Odour	weak
Odour threshold	No data available
Melting point/freezing point	13 °C (Pour point)
Method	DIN ISO 3016
Boiling point or initial boiling point and boiling range	> 245 - < 266 °C @ 1013 hPa
Method	OECD 103
Flammability	Even if not classified as flammable, the product is capable of catching fire or being set on fire.***
Lower explosion limit	0,8 Vol %
Upper explosion limit	9,0 Vol %
Flash point	137 °C @ 1013 hPa
Method	ISO 2719
Autoignition temperature	355 °C @ 1013 hPa
Method	DIN 51794
Decomposition temperature	≥ 266 °C @ 1013 hPa OECD 103
pH	4,4 (0,1 g/l in water @ 25 °C (77 °F)) DIN 19268

Kinematic Viscosity	8,972 mm²/s @ 20 °C
Method	ASTM D445
Solubility	≥ 0,3 g/l @ 20 °C, in water, OECD 105
Partition coefficient n-octanol/water (log value)	3,4 (measured) OECD 117

Vapour pressure

Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
1	0,1	0,001	20	68	DIN EN 13016-2
4,6	0,46	0,005	50	122	DIN EN 13016-2

Density and/or relative density

Values	@ °C	@ °F	Method
0,905	20	68	DIN 51757

Relative vapour density	5,5 (Air = 1) @ 20 °C (68 °F)
Particle characteristics	not applicable

9.2. Other information

Explosive properties	Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties
Oxidizing properties	Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties
Molecular weight	158,23
Molecular formula	C9 H18 O2
log Koc	2 @ pH 7
Dissociation constant	pKa not determinable due to low water solubility @ 20°C (68°F)
Refractive index	1,433 @ 20 °C
Surface tension	31,7 mN/m (0,27 g/l @ 20°C (68°F)), OECD 115
Evaporation rate	No data available

SECTION 10: Stability and Reactivity

10.1. Reactivity

The reactivity of the product corresponds to the typical reactivity shown by the substance group as described in any text book on organic chemistry.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerisation does not occur.

10.4. Conditions to avoid

Avoid contact with heat, sparks, open flame and static discharge. Avoid any source of ignition.

10.5. Incompatible materials

bases, amines, strong oxidizing agents, reducing agents.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Likely routes of exposure Ingestion, Inhalation, Eye contact, Skin contact

Acute toxicity				
Pelargonic acid (112-05-0)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	> 2000 mg/kg	rat, male/female	OECD 423
Oral	LD0	2000 mg/kg	rat, male/female	OECD 423
Dermal	LD50	> 2000 mg/kg	rat, male/female	OECD 402
Dermal	LD0	2000 mg/kg	rat, male/female	OECD 402
Inhalative	LC50	> 5,997 mg/l (4h)	rat, male/female	OECD 403

Pelargonic acid, CAS: 112-05-0
Assessment
Based on available data, the classification criteria are not met for:
Acute oral toxicity
Acute dermal toxicity
Acute inhalation toxicity
STOT SE

Irritation and corrosion				
Pelargonic acid (112-05-0)				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	irritating	OECD 404	4h
Eyes	rabbit	irritating		

Pelargonic acid, CAS: 112-05-0
Assessment
The available data lead to the classification given in section 2

Sensitization				
Pelargonic acid (112-05-0)				
Target Organ Effects	Species	Evaluation	Method	
Skin	guinea pig	not sensitizing	OECD 406	25 %
Skin	mouse	not sensitizing	OECD 429	

Pelargonic acid, CAS: 112-05-0
Assessment
Based on available data, the classification criteria are not met for:
Skin sensitization
For respiratory sensitization, no data are available

Subacute, subchronic and prolonged toxicity				
Pelargonic acid (112-05-0)				
Type	Dose	Species	Method	
Subacute toxicity	NOAEL: 1000 mg/kg/d (28d)	rat, male/female	OECD 407 Oral	Systemic toxicity
Subchronic toxicity	NOAEL: 5074	rat	OECD 408 Oral	Systemic toxicity

	mg/kg/d (90d)			read across

Pelargonic acid, CAS: 112-05-0

Assessment

Based on available data, the classification criteria are not met for:
STOT RE

Carcinogenicity, Mutagenicity, Reproductive toxicity					
Pelargonic acid (112-05-0)					
Type	Dose	Species	Evaluation	Method	
Mutagenicity		Salmonella typhimurium	negative (with metabolic activation) negative (without metabolic activation)	OECD 471 (Ames)	
Mutagenicity		human lymphocytes	negative (with metabolic activation) negative (without metabolic activation)	OECD 473 (Chromosomal Aberration)	
Developmental Toxicity	NOAEL 1500 mg/kg/d	rat		OECD 414	Maternal toxicity, Fetal toxicity Teratogenicity
Developmental Toxicity	NOAEL 425 mg/kg/d	rabbit		OECD 414	Maternal toxicity, Developmental toxicity, Teratogenicity read across
Reproductive toxicity	NOAEL 4700 mg/kg/d	mouse		OECD 416	read across
Mutagenicity		mouse lymphoma cells	negative (without metabolic activation)	OECD 476 (Mammalian Gene Mutation)	

Pelargonic acid, CAS: 112-05-0

CMR Classification

The available data on CMR properties are summarized in the table above. They do not indicate a classification into categories 1A or 1B

Evaluation

In vitro tests showed mutagenic effects
Animal testing did not show any effects on fertility

Pelargonic acid, CAS: 112-05-0

Main symptoms

cough, headache, nausea, shortness of breath.

Target Organ Systemic Toxicant - Single exposure

Based on available data, the classification criteria are not met for:
STOT SE

Target Organ Systemic Toxicant - Repeated exposure

Based on available data, the classification criteria are not met for:
STOT RE

Aspiration toxicity

Due to the viscosity, this product does not present an aspiration hazard

11.2. Information on other hazards

Endocrine disrupting properties
The substance has not been identified as having endocrine disrupting properties in accordance with section 2.3.
Note
Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link:
http://echa.europa.eu/information-on-chemicals/registered-substances.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity			
Pelargonic acid (112-05-0)			
Species	Exposure time	Dose	Method
Pimephales promelas (fathead minnow)	96h	LC50: 104 mg/l	OECD 203
Daphnia magna (Water flea)	48h	EC50: 96 mg/l	EPA OPP 72-2
Pseudokirchneriella subcapitata	72h	EC50: 60 mg/l (Growth rate)	OECD 201 read across
Activated sludge (domestic)	28 d	NOEC: >= 14 mg/l	OECD 301B

Long term toxicity				
Pelargonic acid (112-05-0)				
Type	Species	Dose	Method	
Reproductive toxicity	Daphnia magna (Water flea)	NOEC: 18 mg/l (21d)	OECD 211	read across
Reproductive toxicity	Daphnia magna (Water flea)	EC50: 47 mg/l/21d	OECD 211	read across
Aquatic toxicity	Pseudokirchneriella subcapitata	NOAEC: 29 mg/l (3d) Growth rate	OECD 201	read across

Terrestrial toxicity				
Pelargonic acid (112-05-0)				
Species	Exposure time	Dose	Type	Method
Colinus virginianus (bobwhite quail).	8 d	LC50: > 5620 ppm	Mortality	EPA OPP 71-2
Colinus virginianus (bobwhite quail).	14 d	LD50: > 2250 mg/kg bw	Mortality	EPA OPP 72-1
Anas platyrhynchos (mallard duck)	8 d	LC50: > 5620 ppm	Mortality	

12.2. Persistence and degradability

Pelargonic acid, CAS: 112-05-0
Biodegradation
68 - 75 % (28 d), activated sludge (domestic), aerobic, non-adapted, OECD 301 B.

Abiotic Degradation		
Pelargonic acid (112-05-0)		
Type	Result	Method

Hydrolysis	not expected	
Photolysis	No data available Half-life (DT50): 1,64 days	calculated

12.3. Bioaccumulative potential

Pelargonic acid (112-05-0)		
Type	Result	Method
log Pow	3,4 @ 25 °C (77 °F)	measured, OECD 117
BCF	3,162	calculated

12.4. Mobility in soil

Pelargonic acid (112-05-0)		
Type	Result	Method
Surface tension	31,7 mN/m (0,27 g/l @ 20°C (68°F))	OECD 115
Adsorption/Desorption	log Koc: 2 @ pH 7 calculated	
Distribution to environmental compartments	no data available	

12.5. Results of PBT and vPvB assessment

Pelargonic acid, CAS: 112-05-0
PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

12.6. Endocrine disrupting properties

The substance has not been identified as having endocrine disrupting properties in accordance with section 2.3.

12.7. Other adverse effects

Pelargonic acid, CAS: 112-05-0
No data available

Note
Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product Information
Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.
Hazardous waste according to European Waste Catalogue (EWC)

Uncleaned empty packaging

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

SECTION 14: Transport information

Section 14.1 - 14.6

ADR/RID Not restricted

ADN ADN Container
Not restricted

ICAO-TI / IATA-DGR Not restricted

IMDG Not restricted

14.7. Maritime transport in bulk according to IMO instruments

Product name	Nonanoic acid
Ship type	3
Pollution category	Y
Hazard class	S/P

SECTION 15: Regulatory information

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

Regulation 1272/2008, Annex VI

Pelargonic acid, CAS: 112-05-0

Classification	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Aquatic Chronic 3; H412
Hazard pictograms	GHS07 Exclamation mark
Signal word	Warning
Hazard statements	H315, H319, H412

DI 2012/18/EU (Seveso III)

Category	not subject

DI 1999/13/EC (VOC Guideline)

Component	Status
Pelargonic acid CAS: 112-05-0	regulated

The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019 No. 758

Component	Status
Pelargonic acid CAS: 112-05-0	The substance is/will be pre-registered

For details and further information please refer to the original regulation.

International Inventories

Pelargonic acid, CAS: 112-05-0
AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2039312 (EU)
ENCS (2)-608 (JP)
ISHL (2)-608 (JP)
KECI KE-26163 (KR)
INSQ (MX)
PICCS (PH)
TSCA (US)
NZIoC (NZ)
TCSI (TW)

National regulatory information Great Britain

Releases to air (Pollution Inventory Substances)
not subject

Releases to water (Pollution Inventory Substances)
not subject

Releases to sewer (Pollution Inventory Substances)
not subject
For details and further information please refer to the original regulation

15.2. Chemical safety assessment

The Chemical Safety Report (CSR) has been generated. For Exposure Scenarios see the annex.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H412: Harmful to aquatic life with long lasting effects.

Abbreviations
A table of terms and abbreviations can be found under the following link:
http://echa.europa.eu/documents/10162/13632/information_requirements_r20_en.pdf

Training advice
For effective first-aid, special training / education is needed.

Sources of key data used to compile the datasheet
Information contained in this safety data sheet is based on OQ owned data and public sources deemed valid or acceptable. The absence of data elements required by OSHA, ANSI or Annex II, Regulation 1907/2006/EC

indicates, that no data meeting these requirements is available.

Further information for the safety data sheet
Changes against the previous version are marked by ***. Observe national and local legal requirements. For more information, other material safety data sheets or technical data sheets please consult the OQ homepage (www.chemicals.oq.com).

Disclaimer
For industrial use only. The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. OQ Chemicals makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.

End of Safety Data Sheet

Annex to the extended Safety Data Sheet (eSDS)

Exposure scenario identification

1	**Formulation & (re)packing of substances and mixtures**
2	**Use in Cleaning Products**
3	**Use in Cleaning Products**
4	**Lubricants**
5	**Lubricants**
6	**Industrial use resulting in manufacture of another substance (use of intermediates)**
7	**Use in laboratories**
8	**Industrial processing of articles**
9	**Industrial processing of articles**
10	**Industrial processing of articles**

Number of the ES 1

Short title of the exposure scenario
Formulation & (re)packing of substances and mixtures

List of use descriptors

Sector of uses [SU]
SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

Process categories [PROC]
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)
PROC13: Treatment of articles by dipping and pouring
PROC14: production of preparations or articles by tabletting, compression, extrusion, pelettisation
PROC15: Use as laboratory reagent

Environmental release categories [ERC]
ERC2: Formulation of preparations (mixtures)

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenanance and associated laboratory activities.

Further explanations
Industrial use
Human health hazard assessment:
For concentrations below 10 %, the mixture is not hazardous with respect to the substance, no RMM/OCs are necessary

Contributing Scenarios

Number of the contributing scenario 1
Contributing exposure scenario controlling environmental exposure for ERC 2

Further specification
Chesar 2.2, release factors for (Sp)ERC were modified.
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently).
Amounts used
Daily amount per site: 2 to
Annual amount per site: 200 to
Fraction of Regional tonnage used locally: 1
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Other given operational conditions affecting environmental exposure
Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 2.5 %
Release fraction to wastewater from process: 0.9 %
Release fraction to soil from process: 0.01%
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000
The minimum grade of elimination in the sewage plant is (%): 87.5
Conditions and measures related to external treatment of waste for disposal
none
Conditions and measures related to external recovery of waste
none

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 14, PROC 15

Further specification
Qualitative approach used to conclude safe use.
Product characteristics
Covers percentage substance in the product: >=10 %
Frequency and duration of use
8 h (full shift)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Organisational measures to prevent /limit releases, dispersion and exposure
Regular cleaning of equipment and work area
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Training for staff on good practice
Good standard of personal hygiene
Minimization of manual phases
Work procedures minimizing of splashes and spills
Avoidance of contact with contaminated tools and objects
Conditions and measures related to personal protection, hygiene and health evaluation
Full skin coverage with appropriate light-weight barrier material. Wear suitable gloves (tested to EN374) and eye protection.

Exposure estimation and reference to its source

Environment
Environment PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.113 mg/l; RCR: 0.313
Fresh Water (Sediment)	PEC: 1.593 mg/kg dw; RCR: 0.187
Marine Water (Pelagic)	PEC: 0.011 mg/l; RCR: 0.313
Marine Water (Sediment)	PEC: 0.159 mg/kg dw; RCR: 0.187
Agricultural Soil	PEC: 0.255 mg/kg dw; RCR: 0.173
Sewage Treatment Plant (Effluent)	PEC: 1.128 mg/l; RCR: 0.806

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES
Usage of relase factors allows downstream users to verify in a first approximation, if the combination of local usage and production conditions meets the defined release quantities resulting from this exposure scenario (calculated as M(site) [see amounts used, contributing scenario 1] x release factor [Technical conditions and measures at process level (source) to prevent release; contributing scenario 1])

associated uses:
Should consumer uses be associated with this exposure scenario, please contact OQ for further details
Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational conditions differ from the ones described above and you are unsure if they are also safe

Number of the ES 2

Short title of the exposure scenario
Use in Cleaning Products

List of use descriptors

Sector of uses [SU]
SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Process categories [PROC]
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC7: Industrial spraying
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
PROC10: Roller application or brushing
PROC13: Treatment of articles by dipping and pouring
PROC15: Use as laboratory reagent
PROC17: Lubrication at high energy conditions and in partly open process

Environmental release categories [ERC]
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand).

Further explanations
Industrial use
Human health hazard assessment:
For concentrations below 10 %, the mixture is not hazardous with respect to the substance, no RMM/OCs are necessary

Contributing Scenarios

Number of the contributing scenario **1**
Contributing exposure scenario controlling environmental exposure for ERC 4

Further specification

assessment tool used:, Chesar 2.2, release factors for (Sp)ERC were modified.
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently).
Amounts used
Daily amount per site: 5 to
Annual amount per site: 100 to
Fraction of Regional tonnage used locally: 1
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Other given operational conditions affecting environmental exposure
Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 100 %
Release fraction to wastewater from process: 0.3 %
Release fraction to soil from process: 5%
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000
The minimum grade of elimination in the sewage plant is (%): 87.5
Conditions and measures related to external treatment of waste for disposal
none

Conditions and measures related to external recovery of waste
none

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for
PROC 1, PROC 2, PROC 3, PROC 7, PROC 8a, PROC 8b, PROC 10, PROC 13, PROC 15, PROC 17

Further specification
Qualitative approach used to conclude safe use.
Product characteristics
Covers percentage substance in the product: >=10 %
Frequency and duration of use
8 h (full shift)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Organisational measures to prevent /limit releases, dispersion and exposure
Regular cleaning of equipment and work area
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Training for staff on good practice
Good standard of personal hygiene
Minimization of manual phases
Work procedures minimizing of splashes and spills
Avoidance of contact with contaminated tools and objects
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves (tested to EN374) and eye protection. Full skin coverage with appropriate light-weight barrier material.

Exposure estimation and reference to its source

Environment
Environment PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.094 mg/l; RCR: 0.261
Fresh Water (Sediment)	PEC: 1.328 mg/kg dw; RCR: 0.156
Marine Water (Pelagic)	PEC: 0.009 mg/l; RCR: 0.261
Marine Water (Sediment)	PEC: 0.133 mg/kg dw; RCR: 0.156
Agricultural Soil	PEC: 0.226 mg/kg dw; RCR: 0.152
Sewage Treatment Plant (Effluent)	PEC: 0.94 mg/l; RCR: 0.672

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES
Usage of relase factors allows downstream users to verify in a first approximation, if the combination of local usage and production conditions meets the defined release quantities resulting from this exposure scenario (calculated as M(site) [see amounts used, contributing scenario 1] x release factor [Technical conditions and measures at process level (source) to prevent release; contributing scenario 1])

associated uses:
Should consumer uses be associated with this exposure scenario, please contact OQ for further details
Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational conditions differ from the ones described above and you are unsure if they are also safe

Number of the ES 3

Short title of the exposure scenario

Use in Cleaning Products

List of use descriptors

Sector of uses [SU]
SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process categories [PROC]
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC10: Roller application or brushing
PROC11: Non industrial spraying
PROC13: Treatment of articles by dipping and pouring
PROC15: Use as laboratory reagent
PROC19: Hand-mixing with intimate contact and only PPE available

Environmental release categories [ERC]
ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand).

Further explanations
Professional use
Human health hazard assessment:
For concentrations below 10 %, the mixture is not hazardous with respect to the substance, no RMM/OCs are necessary

Contributing Scenarios

Number of the contributing scenario **1**
Contributing exposure scenario controlling environmental exposure for ERC 8a ERC 8d

Further specification

assessment tool used:, Chesar 2.2.
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently).
Amounts used
daily wide dispersive use: 5.5E-5 to/d
Amounts used (EU): 10 to/a
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 100 Local marine water dilution factor: 10 3
Other given operational conditions affecting environmental exposure
Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 100 %
Release fraction to wastewater from process: 100 %
Release fraction to soil from process: 0%

Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000
The minimum grade of elimination in the sewage plant is (%): 87.5
Conditions and measures related to external treatment of waste for disposal
none
Conditions and measures related to external recovery of waste
none

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for
PROC 1, PROC 2, PROC 4, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13, PROC 15, PROC 19

Further specification
Qualitative approach used to conclude safe use.
Product characteristics
Covers percentage substance in the product: >=10 %
Frequency and duration of use
8 h (full shift)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Organisational measures to prevent /limit releases, dispersion and exposure
Regular cleaning of equipment and work area
Training for staff on good practice
Good standard of personal hygiene
Minimization of manual phases
Work procedures minimizing of splashes and spills
Avoidance of contact with contaminated tools and objects
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Conditions and measures related to personal protection, hygiene and health evaluation
Full skin coverage with appropriate light-weight barrier material. Wear suitable gloves (tested to EN374) and eye protection.

Environment
PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 3.736E-4 mg/l; RCR: < 0.01
Fresh Water (Sediment)	PEC: 0.005 mg/kg dw; RCR: < 0.01
Marine Water (Pelagic)	PEC: 3.693E-5 mg/l; RCR: < 0.01
Marine Water (Sediment)	PEC: 5.215E-4 mg/kg dw; RCR: < 0.01
Agricultural Soil	PEC: 7.794E-4 mg/kg dw; RCR: < 0.01
Sewage Treatment Plant (Effluent)	PEC: 3.45E-5 mg/l; RCR: 2.46E-5

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES
Usage of relase factors allows downstream users to verify in a first approximation, if the combination of local usage and production conditions meets the defined release quantities resulting from this exposure scenario (calculated as M(site) [see amounts used, contributing scenario 1] x release factor [Technical conditions and measures at process level (source) to prevent release; contributing scenario 1])

associated uses:
Should consumer uses be associated with this exposure scenario, please contact OQ for further details
Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational

conditions differ from the ones described above and you are unsure if they are also safe

Number of the ES 4

Short title of the exposure scenario
Lubricants

List of use descriptors

Sector of uses [SU]
SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Process categories [PROC]
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
PROC13: Treatment of articles by dipping and pouring

Environmental release categories [ERC]
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

Further explanations
Industrial use
Human health hazard assessment:
For concentrations below 10 %, the mixture is not hazardous with respect to the substance, no RMM/OCs are necessary

Contributing Scenarios

Number of the contributing scenario 1
Contributing exposure scenario controlling environmental exposure for ERC 4

Further specification

assessment tool used:, Chesar 2.2, release factors for (Sp)ERC were modified.
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently).
Amounts used
Daily amount per site: 5 to
Annual amount per site: 100 to
Fraction of Regional tonnage used locally: 1
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Other given operational conditions affecting environmental exposure

Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 100 %
Release fraction to wastewater from process: 0.3 %
Release fraction to soil from process: 5%
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m^3/d): 2000
The minimum grade of elimination in the sewage plant is (%): 100
Conditions and measures related to external treatment of waste for disposal
none
Conditions and measures related to external recovery of waste
none

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 13

Further specification
Qualitative approach used to conclude safe use.
Product characteristics
Covers percentage substance in the product up to >=10 %
Frequency and duration of use
8 h (full shift)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Organisational measures to prevent /limit releases, dispersion and exposure
Regular cleaning of equipment and work area
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Training for staff on good practice
Good standard of personal hygiene
Minimization of manual phases
Work procedures minimizing of splashes and spills
Avoidance of contact with contaminated tools and objects
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves (tested to EN374) and eye protection. Full skin coverage with appropriate light-weight barrier material.

Exposure estimation and reference to its source

Environment
PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 3.736E-4 mg/l; RCR: < 0.01
Fresh Water (Sediment)	PEC: 0.005 mg/kg dw; RCR: < 0.01
Marine Water (Pelagic)	PEC: 3.693E-5 mg/l; RCR: < 0.01
Marine Water (Sediment)	PEC: 5.215E-4 mg/kg dw; RCR: < 0.01
Agricultural Soil	PEC: 7.794E-4 mg/kg dw; RCR: < 0.01
Sewage Treatment Plant (Effluent)	PEC: 0.003 mg/l; RCR: < 0.01

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES
Usage of relase factors allows downstream users to verify in a first approximation, if the combination of local usage and production conditions meets the defined release quantities resulting from this exposure scenario (calculated as M(site) [see amounts used, contributing scenario 1] x release factor [Technical conditions and measures at process level (source) to prevent release; contributing scenario 1])

associated uses:

Should consumer uses be associated with this exposure scenario, please contact OQ for further details
Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational conditions differ from the ones described above and you are unsure if they are also safe

Number of the ES 5

Short title of the exposure scenario
Lubricants

List of use descriptors

Sector of uses [SU]
SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process categories [PROC]
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC10: Roller application or brushing
PROC11: Non industrial spraying
PROC13: Treatment of articles by dipping and pouring

Environmental release categories [ERC]
ERC8a: Wide dispersive indoor use of processing aids in open systems

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.

Further explanations
Professional use
Human health hazard assessment:
For concentrations below 10 %, the mixture is not hazardous with respect to the substance, no RMM/OCs are necessary

Contributing Scenarios

Number of the contributing scenario 1
Contributing exposure scenario controlling environmental exposure for ERC 8a

Further specification

assessment tool used:, Chesar 2.2.
Amounts used
daily wide dispersive use: 5.5E-5 to/d
Amounts used (EU): 100 to/a
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Other given operational conditions affecting environmental exposure
Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 1 %
Release fraction to wastewater from process: 1 %

Release fraction to soil from process: 0%
Conditions and measures related to municipal sewage treatment plant
Size of industrial sewage treatment plant (m3/d): 2000
The minimum grade of elimination in the sewage plant is (%): 87.5
Conditions and measures related to external treatment of waste for disposal
none
Conditions and measures related to external recovery of waste
none

Number of the contributing scenario **2**
Contributing exposure scenario controlling worker exposure for
PROC 2, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13, PROC 17

Further specification
Qualitative approach used to conclude safe use.
Product characteristics
Covers percentage substance in the product: >=10 %
Frequency and duration of use
8 h (full shift)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Organisational measures to prevent /limit releases, dispersion and exposure
Regular cleaning of equipment and work area
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Training for staff on good practice
Good standard of personal hygiene
Minimization of manual phases
Work procedures minimizing of splashes and spills
Avoidance of contact with contaminated tools and objects
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves (tested to EN374) and eye protection. Full skin coverage with appropriate light-weight barrier material.

Exposure estimation and reference to its source

Environment
Environment PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 3.736E-4 mg/l; RCR: < 0.01
Fresh Water (Sediment)	PEC: 0.005 mg/kg dw; RCR: < 0.01
Marine Water (Pelagic)	PEC: 3.693E-5 mg/l; RCR: < 0.01
Marine Water (Sediment)	PEC: 5.215E-4 mg/kg dw; RCR: < 0.01
Agricultural Soil	PEC: 7.794E-4 mg/kg dw; RCR: < 0.01
Sewage Treatment Plant (Effluent)	PEC: 0.003 mg/l; RCR: < 0.01

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES
Usage of relase factors allows downstream users to verify in a first approximation, if the combination of local usage and production conditions meets the defined release quantities resulting from this exposure scenario (calculated as M(site) [see amounts used, contributing scenario 1] x release factor [Technical conditions and measures at process level (source) to prevent release; contributing scenario 1])

associated uses:
Should consumer uses be associated with this exposure scenario, please contact OQ for further details
Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational conditions differ from the ones described above and you are unsure if they are also safe

Number of the ES 6

Short title of the exposure scenario

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

List of use descriptors

Sector of uses [SU]
SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
SU9: Manufacture of fine chemicals
SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Process categories [PROC]
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
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)
PROC15: Use as laboratory reagent

Environmental release categories [ERC]
ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Use as an intermediate (not related to Strictly Controlled Conditions). Includes incidental exposures during recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (ncluding marine vessel/barge, road/rail car and bulk container).

Further explanations
Industrial use
Human health hazard assessment:
For concentrations below 10 %, the mixture is not hazardous with respect to the substance, no RMM/OCs are necessary

Contributing Scenarios

Number of the contributing scenario 1
Contributing exposure scenario controlling environmental exposure for ERC 6a

Further specification

assessment tool used:, Chesar 2.2, release factors for (Sp)ERC were modified.
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently).
Amounts used
Daily amount per site: 5 to
Annual amount per site: 100 to
Fraction of Regional tonnage used locally: 1
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure
Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 5 %
Release fraction to wastewater from process: 0.3 %
Release fraction to soil from process: 0.1%
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m^3/d): 2000
The minimum grade of elimination in the sewage plant is (%): 87.5
Conditions and measures related to external treatment of waste for disposal
none
Conditions and measures related to external recovery of waste
none

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 9, PROC 15

Further specification
Qualitative approach used to conclude safe use.
Product characteristics
Covers percentage substance in the product: >=10 %
Frequency and duration of use
8 h (full shift)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Organisational measures to prevent /limit releases, dispersion and exposure
Regular cleaning of equipment and work area
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Training for staff on good practice
Good standard of personal hygiene
Minimization of manual phases
Work procedures minimizing of splashes and spills
Avoidance of contact with contaminated tools and objects
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves (tested to EN374) and eye protection. Full skin coverage with appropriate light-weight barrier material.

Exposure estimation and reference to its source

Environment
Environment PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.094 mg/l; RCR: 0.261
Fresh Water (Sediment)	PEC: 1.33 mg/kg dw; RCR: 0.156
Marine Water (Pelagic)	PEC: 0.009 mg/l; RCR: 0.261
Marine Water (Sediment)	PEC: 0.133 mg/kg dw; RCR: 0.156
Agricultural Soil	PEC: 0.213 mg/kg dw; RCR: 0.144
Sewage Treatment Plant (Effluent)	PEC: 0.94 mg/l; RCR: 0.672

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES
Usage of relase factors allows downstream users to verify in a first approximation, if the combination of local usage and production conditions meets the defined release quantities resulting from this exposure scenario (calculated as M(site) [see amounts used, contributing scenario 1] x release factor [Technical conditions and measures at process level (source) to prevent release; contributing scenario 1])

associated uses:

Should consumer uses be associated with this exposure scenario, please contact OQ for further details
Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational conditions differ from the ones described above and you are unsure if they are also safe

Number of the ES 7

Short title of the exposure scenario
Use in laboratories

List of use descriptors

Sector of uses [SU]
SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Process categories [PROC]
PROC10: Roller application or brushing
PROC15: Use as laboratory reagent

Environmental release categories [ERC]
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Use of small quantities within laboratory settings, including material transfers and equipment cleaning

Further explanations
Industrial use
Human health hazard assessment:
For concentrations below 10 %, the mixture is not hazardous with respect to the substance, no RMM/OCs are necessary

Contributing Scenarios

Number of the contributing scenario 1
Contributing exposure scenario controlling environmental exposure for ERC 4

Further specification

assessment tool used:, Chesar 2.2, release factors for (Sp)ERC were modified.
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently).
Amounts used
Daily amount per site: 1 to
Annual amount per site: 20 to
Fraction of Regional tonnage used locally: 1
Environment factors not influenced by risk management
River flow rate: 18000 m³/d Local freshwater dilution factor: 10 Local marine water dilution factor: 100
Other given operational conditions affecting environmental exposure
Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 100 %
Release fraction to wastewater from process: 1.5 %
Release fraction to soil from process: 5%
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000

The minimum grade of elimination in the sewage plant is (%): 87.5
Conditions and measures related to external treatment of waste for disposal
none
Conditions and measures related to external recovery of waste
none

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 10, PROC 15

Further specification
Qualitative approach used to conclude safe use.
Product characteristics
Covers percentage substance in the product: >=10 %
Frequency and duration of use
8 h (full shift)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Organisational measures to prevent /limit releases, dispersion and exposure
Regular cleaning of equipment and work area
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Training for staff on good practice
Good standard of personal hygiene
Minimization of manual phases
Work procedures minimizing of splashes and spills
Avoidance of contact with contaminated tools and objects
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves (tested to EN374) and eye protection. Full skin coverage with appropriate light-weight barrier material.

Environment
PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.094 mg/l; RCR: 0.261
Fresh Water (Sediment)	PEC: 1.328 mg/kg dw; RCR: 0.156
Marine Water (Pelagic)	PEC: 0.009 mg/l; RCR: 0.261
Marine Water (Sediment)	PEC: 0.133 mg/kg dw; RCR: 0.156
Agricultural Soil	PEC: 0.215 mg/kg dw; RCR: 0.145
Sewage Treatment Plant (Effluent)	PEC: 0.94 mg/l; RCR: 0.672

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES
Usage of relase factors allows downstream users to verify in a first approximation, if the combination of local usage and production conditions meets the defined release quantities resulting from this exposure scenario (calculated as M(site) [see amounts used, contributing scenario 1] x release factor [Technical conditions and measures at process level (source) to prevent release; contributing scenario 1])

associated uses:
Should consumer uses be associated with this exposure scenario, please contact OQ for further details
Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational conditions differ from the ones described above and you are unsure if they are also safe

Number of the ES 8

Short title of the exposure scenario

Industrial processing of articles

List of use descriptors

Sector of uses [SU]
SU7: Printing and reproduction of recorded media
SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Process categories [PROC]
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC13: Treatment of articles by dipping and pouring

Environmental release categories [ERC]
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Exposing, developing, bleaching, fixing, washing and drying in dedicated equipment

Further explanations
Industrial use
Human health hazard assessment:
For concentrations below 10 %, the mixture is not hazardous with respect to the substance, no RMM/OCs are necessary

Contributing Scenarios

Number of the contributing scenario 1
Contributing exposure scenario controlling environmental exposure for ERC 4

Further specification

assessment tool used:, Chesar 2.2, release factors for (Sp)ERC were modified.
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently).
Amounts used
Daily amount per site: 0.5 to
Annual amount per site: 10 to
Fraction of Regional tonnage used locally: 1
Environment factors not influenced by risk management
River flow rate: 18000 m³/d
Local freshwater dilution factor: 10
Local marine water dilution factor: 100
Other given operational conditions affecting environmental exposure
Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 100 %
Release fraction to wastewater from process: 3 %
Release fraction to soil from process: 5%
Conditions and measures related to municipal sewage treatment plant
Size of municipal sewage system/ treatment plant (m³/d): 2000
The minimum grade of elimination in the sewage plant is (%): 87.5
Conditions and measures related to external treatment of waste for disposal
none
Conditions and measures related to external recovery of waste
none

Number of the contributing scenario 2
Contributing exposure scenario controlling worker exposure for PROC 5, PROC 13

Further specification
Qualitative approach used to conclude safe use.
Product characteristics
Covers percentage substance in the product: >=10 %
Frequency and duration of use
8 h (full shift)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Organisational measures to prevent /limit releases, dispersion and exposure
Regular cleaning of equipment and work area
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Training for staff on good practice
Good standard of personal hygiene
Minimization of manual phases
Work procedures minimizing of splashes and spills
Avoidance of contact with contaminated tools and objects
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves (tested to EN374) and eye protection. Full skin coverage with appropriate light-weight barrier material.

Exposure estimation and reference to its source

Environment
Environment PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.094 mg/l; RCR: 0.261
Fresh Water (Sediment)	PEC: 1.328 mg/kg dw; RCR: 0.156
Marine Water (Pelagic)	PEC: 0.009 mg/l; RCR: 0.261
Marine Water (Sediment)	PEC: 0.133 mg/kg dw; RCR: 0.156
Agricultural Soil	PEC: 0.214 mg/kg dw; RCR: 0.144
Sewage Treatment Plant (Effluent)	PEC: 0.94 mg/l; RCR: 0.672

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES
Usage of relase factors allows downstream users to verify in a first approximation, if the combination of local usage and production conditions meets the defined release quantities resulting from this exposure scenario (calculated as M(site) [see amounts used, contributing scenario 1] x release factor [Technical conditions and measures at process level (source) to prevent release; contributing scenario 1])

associated uses:
Should consumer uses be associated with this exposure scenario, please contact OQ for further details
Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational conditions differ from the ones described above and you are unsure if they are also safe

Number of the ES 9

Short title of the exposure scenario
Industrial processing of articles

List of use descriptors

Sector of uses [SU]
SU7: Printing and reproduction of recorded media
SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Process categories [PROC]
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC13: Treatment of articles by dipping and pouring

Environmental release categories [ERC]
ERC5: Industrial use resulting in inclusion into or onto a matrix

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Exposing, developing, bleaching, fixing, washing and drying in dedicated equipment

Further explanations
Industrial use
For concentrations below 10 %, the mixture is not hazardous with respect to the substance, no RMM/OCs are necessary

Contributing Scenarios

Number of the contributing scenario **1**
Contributing exposure scenario controlling environmental exposure for ERC 5

Further specification

assessment tool used:, Chesar 2.2, release factors for (Sp)ERC were modified.
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently).
Amounts used
Daily amount per site: 0.5 to
Annual amount per site: 10 to
Fraction of Regional tonnage used locally: 1
Environment factors not influenced by risk management
River flow rate: 18000 m³/d
Local freshwater dilution factor: 10
Local marine water dilution factor: 100
Other given operational conditions affecting environmental exposure
Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 50 %
Release fraction to wastewater from process: 3 %
Release fraction to soil from process: 1%
Conditions and measures related to municipal sewage treatment plant
Size of industrial sewage treatment plant (m3/d): 2000
The minimum grade of elimination in the sewage plant is (%): 87.5
Conditions and measures related to external treatment of waste for disposal
none
Conditions and measures related to external recovery of waste
none

Number of the contributing scenario **2**
Contributing exposure scenario controlling worker exposure for

PROC 5, PROC 13

Further specification
Qualitative approach used to conclude safe use.
Product characteristics
Covers percentage substance in the product: >=10 %
Frequency and duration of use
8 h (full shift)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Organisational measures to prevent /limit releases, dispersion and exposure
Regular cleaning of equipment and work area
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Training for staff on good practice
Good standard of personal hygiene
Minimization of manual phases
Work procedures minimizing of splashes and spills
Avoidance of contact with contaminated tools and objects
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves (tested to EN374), coverall and eye protection. Wear suitable gloves (tested to EN374) and eye protection. Full skin coverage with appropriate light-weight barrier material.

Exposure estimation and reference to its source

Environment
Environment PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.094 mg/l; RCR: 0.261
Fresh Water (Sediment)	PEC: 1.328 mg/kg dw; RCR: 0.156
Marine Water (Pelagic)	PEC: 0.009 mg/l; RCR: 0.261
Marine Water (Sediment)	PEC: 0.133 mg/kg dw; RCR: 0.156
Air	PEC: .?1 mg/m³; RCR: .?2
Agricultural Soil	PEC: 0.213 mg/kg dw; RCR: 0.144
Sewage Treatment Plant (Effluent)	PEC: 0.94 mg/l; RCR: 0.672

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES
Usage of relase factors allows downstream users to verify in a first approximation, if the combination of local usage and production conditions meets the defined release quantities resulting from this exposure scenario (calculated as M(site) [see amounts used, contributing scenario 1] x release factor [Technical conditions and measures at process level (source) to prevent release; contributing scenario 1])

associated uses:
Should consumer uses be associated with this exposure scenario, please contact OQ for further details
Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational conditions differ from the ones described above and you are unsure if they are also safe

Number of the ES 10

Short title of the exposure scenario
Industrial processing of articles

List of use descriptors

Sector of uses [SU]
SU7: Printing and reproduction of recorded media
SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites

Process categories [PROC]
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC13: Treatment of articles by dipping and pouring

Environmental release categories [ERC]
ERC6b: Industrial use of reactive processing aids

Product characteristics
Refer to attached safety data sheets

Processes and activities covered by the exposure scenario
Exposing, developing, bleaching, fixing, washing and drying in dedicated equipment

Further explanations
Industrial use
Human health hazard assessment:
For concentrations below 10 %, the mixture is not hazardous with respect to the substance, no RMM/OCs are necessary

Contributing Scenarios

Number of the contributing scenario **1**
Contributing exposure scenario controlling environmental exposure for ERC 6b

Further specification

assessment tool used:, Chesar 2.2, release factors for (Sp)ERC were modified.
Product characteristics
Covers percentage substance in the product up to 100 % (unless stated differently).
Amounts used
Daily amount per site: 0.5 to
Annual amount per site: 10 to
Fraction of Regional tonnage used locally: 1
Environment factors not influenced by risk management
River flow rate: 18000 m³/d
Local freshwater dilution factor: 10
Local marine water dilution factor: 100
Other given operational conditions affecting environmental exposure
Indoor/Outdoor use
Technical conditions and measures at process level (source) to prevent release
Release fraction to air from process: 0.025 %
Release fraction to wastewater from process: 3 %
Release fraction to soil from process: 0.1%
Conditions and measures related to municipal sewage treatment plant
Size of industrial sewage treatment plant (m3/d): 2000
The minimum grade of elimination in the sewage plant is (%): 87.5
Conditions and measures related to external treatment of waste for disposal
none
Conditions and measures related to external recovery of waste
none

Number of the contributing scenario **2**
Contributing exposure scenario controlling worker exposure for PROC 5, PROC 13

Further specification
Qualitative approach used to conclude safe use.
Product characteristics
Covers percentage substance in the product: >=10 %
Frequency and duration of use
8 h (full shift)
Other given operational conditions affecting workers exposure
Indoor and outdoor use
Organisational measures to prevent /limit releases, dispersion and exposure
Regular cleaning of equipment and work area
Supervision in place to check that the RMMs in place are being used correctly and OCs followed.
Training for staff on good practice
Good standard of personal hygiene
Minimization of manual phases
Work procedures minimizing of splashes and spills
Avoidance of contact with contaminated tools and objects
Conditions and measures related to personal protection, hygiene and health evaluation
Wear suitable gloves tested to EN374. Wear suitable gloves (tested to EN374) and eye protection. Full skin coverage with appropriate light-weight barrier material.

Frequency and duration of use
8 h (full shift)

Exposure estimation and reference to its source

Environment
Environment PEC = predicted environmental concentration (local); RCR = risk characterisation ratio

Fresh Water (Pelagic)	PEC: 0.094 mg/l; RCR: 0.261
Fresh Water (Sediment)	PEC: 1.33 mg/kg dw; RCR: 0.156
Marine Water (Pelagic)	PEC: 0.009 mg/l; RCR: 0.261
Marine Water (Sediment)	PEC: 0.133 mg/kg dw; RCR: 0.156
Agricultural Soil	PEC: 0.212 mg/kg dw; RCR: 0.143
Sewage Treatment Plant (Effluent)	PEC: 0.94 mg/l; RCR: 0.671

Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES
Usage of relase factors allows downstream users to verify in a first approximation, if the combination of local usage and production conditions meets the defined release quantities resulting from this exposure scenario (calculated as M(site) [see amounts used, contributing scenario 1] x release factor [Technical conditions and measures at process level (source) to prevent release; contributing scenario 1])

associated uses:
Should consumer uses be associated with this exposure scenario, please contact OQ for further details
Other combinations of operational conditions may also be safe. Please contact OQ in case your local operational conditions differ from the ones described above and you are unsure if they are also safe