We create chemistry

Safety data sheet

BASF Safety data sheet according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended from time to time.
Date / Revised: 12.01.2023 Version: 9.0
Date previous version: 16.02.2021 Previous version: 8.0
Date / First version: 19.09.2005
Product: **Caprolactam liquid**

(ID no. 30043506/SDS_GEN_GB/EN)
Date of print 20.10.2025

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

1.1. Product identifier

Caprolactam liquid

Chemical name: Caprolactam liquid
CAS Number: 105-60-2

REACH registration number: 01-2119457029-36-0000, 01-2119457029-36-0001, 01-2119457029-36-0031, 01-2119457029-36-0008, 01-2119457029-36-0006, 01-2119457029-36-0009

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

Relevant identified uses: industrial chemicals
Recommended use: initial product for chemical syntheses, for the production of homopolymerisates and copolymerisates

For the detailed identified uses of the product see appendix of the safety data sheet.

1.3. Details of the supplier of the safety data sheet

Company:
BASF SE
67056 Ludwigshafen
GERMANY

Contact address:
BASF plc
4th and 5th Floors, 2 Stockport Exchange
Railway Road, Stockport, SK1 3GG
UNITED KINGDOM

Telephone: +44 161 475 3000
E-mail address: product-safety-uk-and-ireland@basf.com

1.4. Emergency telephone number

International emergency number:

Telephone: +49 180 2273-112

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Acute Tox. 4 (Inhalation - dust)	H332 Harmful if inhaled.
Acute Tox. 4 (oral)	H302 Harmful if swallowed.
Skin Corr./Irrit. 2	H315 Causes skin irritation.
Eye Dam./Irrit. 2	H319 Causes serious eye irritation.
STOT SE 3	H335 May cause respiratory irritation.

For the classifications not written out in full in this section the full text can be found in section 16.

2.2. Label elements

According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Pictogram:

Signal Word:
Warning

Hazard Statement:

H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H302 + H332	Harmful if swallowed or if inhaled

Precautionary Statements (Prevention):

P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves and eye protection or face protection.

Precautionary Statements (Response):

P312	Call a POISON CENTER or physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Precautionary Statements (Storage):

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.

2.3. Other hazards

According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

No specific dangers known, if the regulations/notes for storage and handling are considered.

The product does not contain a substance above legal limits fulfilling the PBT (persistent/bioaccumulative/toxic) criteria or the vPvB (very persistent/very bioaccumulative) criteria.

SECTION 3: Composition/Information on Ingredients

3.1. Substances

Chemical nature

ε-caprolactam

CAS Number: 105-60-2
EC-Number: 203-313-2
INDEX-Number: 613-069-00-2

For the classifications not written out in full in this section, including the hazard classes and the hazard statements, the full text is listed in section 16.

3.2. Mixtures

Not applicable

SECTION 4: First-Aid Measures

4.1. Description of first aid measures

Immediately remove contaminated clothing. Avoid contact with the skin, eyes and clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:
Wash thoroughly with soap and water Burns caused by molten material require hospital treatment.

On contact with eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

4.3. Indication of any immediate medical attention and special treatment needed
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing media
Suitable extinguishing media:
foam, carbon dioxide, water spray

5.2. Special hazards arising from the substance or mixture
Endangering substances: hydrogen cyanide, nitrogen oxides
Advice: The substances/groups of substances mentioned can be released in case of fire.

5.3. Advice for fire-fighters
Further information:
Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

SECTION 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation. Avoid contact with skin and eyes. Use breathing apparatus if exposed to vapours/dust/aerosol. Information regarding personal protective measures, see section 8.

6.2. Environmental precautions
Do not empty into drains. Retain and dispose of contaminated wash water.

6.3. Methods and material for containment and cleaning up
For large amounts: Allow to solidify and sweep/shovel up.
For residues: Rinse away with water.

6.4. Reference to other sections
Information regarding exposure controls/personal protection and disposal considerations can be found in section 8 and 13.

SECTION 7: Handling and Storage

7.1. Precautions for safe handling

Ensure thorough ventilation of stores and work areas. During transportation in silo trucks the product is covered with nitrogen, do not climb in. Avoid contact with skin and eyes. Wear suitable protective clothing and eye/face protection. Handle in accordance with good industrial hygiene and safety practice.

Protection against fire and explosion:
Vapours may form explosive mixture with air. Take precautionary measures against static discharges.

7.2. Conditions for safe storage, including any incompatibilities

Segregate from acids and bases. Segregate from oxidants.

Suitable materials for containers: Stainless steel 1.4301 (V2), Aluminium, Stainless steel 1.4401
Further information on storage conditions: Keep under nitrogen.

Storage stability:
Storage temperature: 75 - 90 °C
The stated storage temperature should be noted.

7.3. Specific end use(s)

See exposure scenario(s) in the attachment to this safety data sheet.

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Components with occupational exposure limits

105-60-2: ε-caprolactam

TWA value 10 mg/m3 (WEL/EH 40 (UK)), Vapor and dust
TWA value 1 mg/m3 (WEL/EH 40 (UK)), Inhalable dust
TWA value 10 mg/m3 (OEL (EU)), Vapor and dust
indicative
STEL value 40 mg/m3 (OEL (EU)), Vapor and dust
indicative
STEL value 3 mg/m3 (WEL/EH 40 (UK)), Inhalable dust
Ceiling limit value/factor: 15 min
STEL value 20 mg/m3 (WEL/EH 40 (UK)), Vapor and dust
Ceiling limit value/factor: 15 min

PNEC
marine water: 0.2 mg/l

intermittent release: 1 mg/l

sediment (freshwater): 18.7 mg/kg

sediment (marine water): 1.87 mg/kg

soil: 2.55 mg/kg

STP: 1737 mg/l

freshwater: 2 mg/l

DNEL
worker:
Short-term exposure - local effects, Inhalation: 5 mg/m3

8.2. Exposure controls

Personal protective equipment

Respiratory protection:
Respiratory protection in case of vapour/aerosol release. Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

Hand protection:
Chemical resistant protective gloves (EN ISO 374-1)
Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):
butyl rubber (butyl) - 0.7 mm coating thickness
nitrile rubber (NBR) - 0.4 mm coating thickness
Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:
Tightly fitting safety goggles (splash goggles) (e.g. EN 166)

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

General safety and hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Take off immediately all contaminated clothing. At the end of the shift the skin should be cleaned and skin-care agents applied.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Form:	melt	
Colour:	colourless	
Odour:	faint specific odour	
Odour threshold:		
	No data available.	
pH value:	7 - 8.5	(pH Meter)
	(333 g/l, 20 °C)	
solidification temperature:	69.3 °C	(other)
boiling temperature:	270.8 °C	(other)
	(1,013 mbar)	
Sublimation point:		
	No applicable information available.	
Flash point:	141.5 °C	(ISO 2719, closed cup)
Evaporation rate:		
	No data available.	
Flammability:	not highly flammable	(UN Test N.1 (ready combustible solids))
Lower explosion limit:		(DIN EN 15794)
	(130.5 °C)	
	The lower explosion point of the substance/mixture has been determined. The explosion point describes the temperature of a flammable liquid at which the concentration of the saturated vapour mixed with air equals the lower explosion limit.	
Upper explosion limit:		
	For solids not relevant for classification and labelling.	
Ignition temperature:	395 °C	(DIN 51794)
Vapour pressure:	0.0013 hPa	
	(20 °C)	
	Literature data.	
	0.089 hPa	
	(60 °C)	
	Literature data.	
Density:	1.014 g/cm3	(OECD Guideline 109)
	(80 °C)	
Relative density:	1.105	(OECD Guideline 109)
	(20 °C)	
Relative vapour density (air):		
	No data available.	
Solubility in water:	Literature data.	
	4,650 g/l	
	(20 °C)	
Partitioning coefficient n-octanol/water (log Kow):	0.12	(OECD Guideline 107)
	(25 °C)	

Self ignition:	The value has not be determined because of the low risk of self-ignition in consequence of the low melting point.	Test type: Self-ignition at high temperatures.
	Based on its structural properties the product is not classified as self-igniting.	Test type: Spontaneous self-ignition at room-temperature.
Thermal decomposition:	No decomposition if correctly stored and handled.	
Viscosity, dynamic:	8.52 mPa.s (80 °C)	(internal method)
Viscosity, kinematic:	Study scientifically not justified.	
Explosion hazard:	Based on the chemical structure there is no indication of explosive properties.	
Fire promoting properties:	Based on its structural properties the product is not classified as oxidizing.	

9.2. Other information

Burning rate:	> 2.2 mm/s, 120 s	(UN Test N.1 (ready combustible solids))
Self heating ability:	It is not a substance capable of spontaneous heating.	
pKA:	The substance does not dissociate.	
Adsorption/water - soil:	KOC: 57.35; log KOC: 1.758	(calculated)
Surface tension:	Based on chemical structure, surface activity is not to be expected.	
Grain size distribution:	The substance / product is marketed or used in a non solid or granular form.	
Molar mass:	113.16 g/mol	

SECTION 10: Stability and Reactivity

10.1. Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:	No corrosive effect on metal.	
Reactions with water/air:	Which flammable gases:	Incomplete combustion results in formation of toxic gases, containing mainly carbon monoxide and carbon dioxide.
	Which toxic gases:	nitrogen oxides
	Which Peroxides:	
Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.

10.2. Chemical stability
The product is stable if stored and handled as prescribed/indicated.

10.3. Possibility of hazardous reactions
Reacts with oxidizing agents. Polymerization coupled with heat formation.

10.4. Conditions to avoid
Temperature: > 100 °C
Avoid all sources of ignition: heat, sparks, open flame. Avoid formation of polymers in valves and pipes.

10.5. Incompatible materials

Substances to avoid:
oxidizing agents

10.6. Hazardous decomposition products

Thermal decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated., Incomplete combustion results in formation of toxic gases, containing mainly carbon monoxide and carbon dioxide.

SECTION 11: Toxicological Information

11.1. Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:
Of moderate toxicity after short-term inhalation. Of moderate toxicity after single ingestion. Virtually nontoxic after a single skin contact.

Experimental/calculated data:
LD50 rat (oral): 1,475 mg/kg (Directive 84/449/EEC, B.1)

LC50 rat (by inhalation): approx. 8.16 mg/l 4 h (BASF-Test)
An aerosol with respirable particles was tested.

LD50 rat (dermal): > 2,000 mg/kg (Directive 92/69/EEC, B.3)

Irritation

Assessment of irritating effects:
Eye contact causes irritation. Skin contact causes irritation.

Experimental/calculated data:
Skin corrosion/irritation
human: Irritant.

Serious eye damage/irritation
human: Irritant.

Respiratory/Skin sensitization

Assessment of sensitization:
Skin sensitizing effects were not observed in animal studies.

Experimental/calculated data:
modified Buehler test guinea pig: Non-sensitizing. (OECD Guideline 406)

Germ cell mutagenicity

Assessment of mutagenicity:
Most of the results from the available studies show no evidence of a mutagenic effect.

Carcinogenicity

Assessment of carcinogenicity:
In long-term animal studies in which the substance was given in high concentrations by feed, a carcinogenic effect was not observed.

Experimental/calculated data:
rat (oral feed) 103 weeks
ca. 187.5 and 375 mg/kg bw
Result: negative

mouse (oral feed) 103 weeks
ca. 1071 and 2143 mg/kg bw
Result: negative

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect.

Experimental/calculated data:

Fertility rat (oral feed)
NOAEL Mat.: 500 mg/kg
NOAEL F1: approx. 100 mg/kg
NOAEL F2: 100 mg/kg

Developmental toxicity

Assessment of teratogenicity:
The substance did not cause malformations in animal studies; however, toxicity to development was observed at high doses that were toxic to the parental animals.

Experimental/calculated data:
rat (gavage) 6-15 days of gestation; 100, 500, 1000 mg/kg
NOAEL Teratog.: 1,000 mg/kg
NOAEL Mat.: 100 mg/kg

rabbit (gavage) 6-28 days of gestation; 50, 150, 250 mg/kg
NOAEL Teratog.: > 250 mg/kg
NOAEL Mat.: 150 mg/kg

Experiences in humans

Experimental/calculated data:
local skin irritation, irritation of the mucous membranes:
The symptoms/diagnosis/findings mentioned can occur in higher concentrations.

Specific target organ toxicity (single exposure)

Assessment of STOT single:
Causes temporary irritation of the respiratory tract.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:
After repeated exposure the prominent effect is local irritation. The substance may cause damage to the upper respiratory tract after repeated inhalation, as shown in animal studies.

Aspiration hazard

No aspiration hazard expected.

Other relevant toxicity information

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses.

SECTION 12: Ecological Information

12.1. Toxicity

Assessment of aquatic toxicity:
There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:
LC0 (96 h) 100 mg/l, Oryzias latipes (OECD Guideline 203, semistatic)

LC50 (96 h) 500 - 1,000 mg/l, Salmo gairdneri, syn. O. mykiss (OECD 203; ISO 7346; 84/449/EEC, C.1, static)

LC50 (96 h) 707.1 mg/l, Salmo gairdneri, syn. O. mykiss (OECD 203; ISO 7346; 84/449/EEC, C.1, static)

Aquatic invertebrates:
EC50 (48 h) > 1,000 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

EC50 (48 h) > 500 mg/l, Daphnia magna (DIN 38412 Part 11, static)

EC50 (48 h) > 500 mg/l, Daphnia magna (DIN 38412 Part 11, static)

Aquatic plants:
No observed effect concentration (72 h) 1,000 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)

EC50 (72 h) > 1,000 mg/l (growth rate), Selenastrum capricornutum (OECD Guideline 201, static)

EC50 (72 h) 427.5 mg/l (growth rate), Scenedesmus subspicatus (DIN 38412 Part 9, static)

EC50 (72 h) > 1,000 mg/l (biomass), Selenastrum capricornutum (OECD Guideline 201, static)

Microorganisms/Effect on activated sludge:
EC50 (17 h) 4,240 mg/l, Pseudomonas putida (other, aquatic)

Chronic toxicity to fish:
Study scientifically not justified.

Chronic toxicity to aquatic invertebrates:
No observed effect concentration (21 d) 100 mg/l, Daphnia magna (OECD Guideline 211, semistatic)

Assessment of terrestrial toxicity:
No data available.
Study scientifically not justified.

12.2. Persistence and degradability

Assessment biodegradation and elimination (H2O):
Readily biodegradable (according to OECD criteria).

Elimination information:
82 % BOD of the ThOD (14 d) (OECD 301C; ISO 9408; 92/69/EEC, C.4-F) (aerobic, activated sludge) Readily biodegradable (according to OECD criteria).

Assessment of stability in water:
In contact with water the substance will hydrolyse slowly.
Information on Stability in Water (Hydrolysis):
$t_{1/2}$ > 1 a, (other, pH 7)

12.3. Bioaccumulative potential

Assessment bioaccumulation potential:
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Bioaccumulation potential:
Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

12.4. Mobility in soil

Assessment transport between environmental compartments:
Volatility: The substance will not evaporate into the atmosphere from the water surface.
Adsorption in soil: Adsorption to solid soil phase is not expected.

12.5. Results of PBT and vPvB assessment

According to Annex XIII of Regulation (EC) No.1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): The product does not fulfill the criteria for PBT (Persistent/bioaccumulative/toxic) and vPvB (very persistent/very bioaccumulative). Self classification

12.6. Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

12.7. Additional information

Sum parameter

Chemical oxygen demand (COD): 1,960 mg/g

Biochemical oxygen demand (BOD): 1,110 mg/g

Other ecotoxicological advice:

Do not release untreated into natural waters.

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Contact manufacturer.
Incinerate in suitable incineration plant, observing local authority regulations.

The UK Environmental Protection (Duty of Care) Regulations (EP) and amendments should be noted (United Kingdom).
This product and any uncleaned containers must be disposed of as hazardous waste in accordance with the 2005 Hazardous Waste Regulations and amendments (United Kingdom)

Contaminated packaging:
Uncleaned empties should be disposed of in the same manner as the contents.

SECTION 14: Transport Information

Land transport

ADR

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

RID

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

Inland waterway transport
ADN

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user:	None known

Transport in inland waterway vessel
Not evaluated

Sea transport

IMDG

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

Air transport

IATA/ICAO

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

14.1. UN number or ID number
See corresponding entries for “UN number or ID number” for the respective regulations in the tables above.

14.2. UN proper shipping name
See corresponding entries for “UN proper shipping name” for the respective regulations in the tables above.

14.3. Transport hazard class(es)
See corresponding entries for “Transport hazard class(es)” for the respective regulations in the tables above.

14.4. Packing group
See corresponding entries for “Packing group” for the respective regulations in the tables above.

14.5. Environmental hazards
See corresponding entries for “Environmental hazards” for the respective regulations in the tables above.

14.6. Special precautions for user
See corresponding entries for “Special precautions for user” for the respective regulations in the tables above.

14.7. Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

SECTION 15: Regulatory Information

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

Prohibitions, Restrictions and Authorizations

Annex XVII of Regulation (EC) No 1907/2006: Number on List: 3, 75

Directive 2012/18/EU - Control of Major Accident Hazards involving dangerous substances (EU): Listed in above regulation: no

The data should be considered when making any assessment under the Control of Substances Hazardous to Health Regulations (COSHH), and related guidance, for example, 'COSHH Essentials' (United Kingdom).

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

15.2. Chemical Safety Assessment

Chemical Safety Assessment performed

SECTION 16: Other Information

Full text of the classifications, including the hazard classes and the hazard statements, if mentioned in section 2 or 3:

Acute Tox.	Acute toxicity
Skin Corr./Irrit.	Skin corrosion/irritation
Eye Dam./Irrit.	Serious eye damage/eye irritation
STOT SE	Specific target organ toxicity — single exposure
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H302 + H332	Harmful if swallowed or if inhaled

Abbreviations
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road. ADN = The European Agreement concerning the International Carriage of Dangerous Goods by Inland waterways. ATE = Acute Toxicity Estimates. CAO = Cargo Aircraft Only. CAS = Chemical Abstract Service. CLP = Classification, Labelling and Packaging of substances and mixtures. DIN = German national organization for standardization. DNEL = Derived No Effect Level. EC50 = Effective concentration median for 50% of the population. EC = European Community. EN = European Standards. IARC = International Agency for Research on Cancer. IATA = International Air Transport Association. IBC-Code = Intermediate Bulk Container code. IMDG = International Maritime Dangerous Goods Code. ISO = International Organization for Standardization. STEL = Short-Term Exposure Limit. LC50 = Lethal concentration median for 50% of the population. LD50 = Lethal dose median for 50% of the population. TLV = Threshold Limit Value. MARPOL = The International Convention for the Prevention of Pollution from Ships. NEN = Dutch Norm. NOEC = No Observed Effect Concentration. OEL = Occupational Exposure Limit. OECD = Organization for Economic Cooperation and Development. PBT = Persistent, Bioaccumulative and Toxic. PNEC = Predicted No Effect Level. PPM = Parts per million. RID = The European Agreement concerning the International Carriage of Dangerous Goods by Rail. TWA = Time Weight Average. UN-number = UN number at transport. vPvB = very Persistent and very Bioaccumulative.

The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

Annex: Exposure Scenarios

Index

****

1. Short title of exposure scenario

Distribution of substance
ERC2; PROC2, PROC8b, PROC9

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation into mixture As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam

	Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	4.7149 mg/m³
Risk Characterization Ratio (RCR)	0.94298
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa

Process temperature	90 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Outdoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, Workplace measurements
	Worker - inhalation, long-term - local
Exposure estimate	1 mg/m³
Risk Characterization Ratio (RCR)	0.2
Assessment method	Qualitative assessment
	Worker - dermal

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	0.13 Pa
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of	

manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.1 mg/m³
Risk Characterization Ratio (RCR)	0.02
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	0.13 Pa
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	

Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.1 mg/m³
Risk Characterization Ratio (RCR)	0.02
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

* * * * * * * * * * * * * * * *

2. Short title of exposure scenario

Formulation, (liquid preperations), (use in industrial settings)
ERC2; PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC2: Formulation into mixture As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	0.13 Pa
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Avoid frequent and direct contact with	

substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.0471 mg/m³
Risk Characterization Ratio (RCR)	0.00943
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs	

followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	4.7149 mg/m³
Risk Characterization Ratio (RCR)	0.94298
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 25 %
Physical state	liquid
Vapour pressure of the substance during use	0.13 Pa
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	

Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.8487 mg/m³
Risk Characterization Ratio (RCR)	0.169736
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	0.13 Pa
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	4.7149 mg/m³

Risk Characterization Ratio (RCR)	0.94298
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC5: Mixing or blending in batch processes Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	4.7149 mg/m³
Risk Characterization Ratio (RCR)	0.94298
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.943 mg/m³
Risk Characterization Ratio (RCR)	0.188596
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial

Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	4.7149 mg/m³
Risk Characterization Ratio (RCR)	0.94298
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 5 %

Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	4.7149 mg/m³
Risk Characterization Ratio (RCR)	0.94298
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

* * * * * * * * * * * * * * * * *

3. Short title of exposure scenario

Use as an intermediate
SU8, SU9; ERC6a; PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC6a: Use of intermediate As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Operational conditions

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.0471 mg/m³
Risk Characterization Ratio (RCR)	0.00943
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed

	continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	4.7149 mg/m³
Risk Characterization Ratio (RCR)	0.94298
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial

Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	1.4145 mg/m³
Risk Characterization Ratio (RCR)	0.282894
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC4: Chemical production where opportunity for exposure arises Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %

Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	2.3575 mg/m³
Risk Characterization Ratio (RCR)	0.47149
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa

Process temperature	90 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 95 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	1.1787 mg/m³
Risk Characterization Ratio (RCR)	0.235745
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	60 min 5 days per week

Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.4715 mg/m³
Risk Characterization Ratio (RCR)	0.094298
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

*** * * * * * * * * * * * * * * ***

4. Short title of exposure scenario

Use as Monomer
SU12; ERC6c; PROC1, PROC2, PROC3, PROC8b, PROC14, PROC15, PROC28

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC6c: Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article) As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent

	containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	70000 Pa
Process temperature	250 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.0471 mg/m³
Risk Characterization Ratio (RCR)	0.00943
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	

Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	70000 Pa
Process temperature	250 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	2.3575 mg/m³
Risk Characterization Ratio (RCR)	0.47149
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %

Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	1.4145 mg/m³
Risk Characterization Ratio (RCR)	0.282894
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa

Process temperature	90 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, Workplace measurements
	Worker - inhalation, long-term - local
Exposure estimate	0.57 mg/m³
Risk Characterization Ratio (RCR)	0.114
Assessment method	Qualitative assessment
	Worker - dermal

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 5 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	70000 Pa
Process temperature	250 °C
Duration and Frequency of activity	240 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures

Risk Management Measures	
Local exhaust ventilation	Effectiveness: 95 %
Provide a good standard of general ventilation (not less than 3 - 5 air changes per hour)	Effectiveness: 30 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.0007 mg/m³
Risk Characterization Ratio (RCR)	0.00014
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 25 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	70000 Pa
Process temperature	250 °C
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	

Local exhaust ventilation	Effectiveness: 95 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.003 mg/m³
Risk Characterization Ratio (RCR)	0.0006
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC14: Tabletting, compression, extrusion, pelletisation, granulation Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 25 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	0.13 Pa
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and	

work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.06 mg/m³
Risk Characterization Ratio (RCR)	0.012
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	0.13 Pa
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker

	Worker - inhalation, long-term - local
Exposure estimate	0.1 mg/m³
Risk Characterization Ratio (RCR)	0.02
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC28: Manual maintenance (cleaning and repair) of machinery Use domain: industrial
Operational conditions	
Physical state	liquid
Vapour pressure of the substance during use	0.13 Pa
Risk Management Measures	
Supervision in place to check that the RMMs in place are being used correctly and OCs followed. Avoid frequent and direct contact with substance. Ensure minimization of manual phases	
Regular cleaning of equipment and work area., Avoid inhalation of the product.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Avoid inhalation of the product.	
Exposure estimate and reference to its source	
Assessment method	Qualitative assessment

****

5. Short title of exposure scenario

Use as Monomer for resins
ERC6c; PROC1, PROC2, PROC3, PROC8b

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC6c: Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article) As no environmental hazard was identified no

	environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	70000 Pa
Process temperature	250 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.0471 mg/m³
Risk Characterization Ratio (RCR)	0.00943
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC2: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 5 %
Physical state	liquid
Vapour pressure of the substance during use	70000 Pa
Process temperature	250 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	2.3575 mg/m³
Risk Characterization Ratio (RCR)	0.47149
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical

	industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	1.4145 mg/m³
Risk Characterization Ratio (RCR)	0.282894
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial

Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	100 Pa
Process temperature	90 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, Workplace measurements
	Worker - inhalation, long-term - local
Exposure estimate	0.57 mg/m³
Risk Characterization Ratio (RCR)	0.114
Assessment method	Qualitative assessment
	Worker - dermal

****

6. Short title of exposure scenario

Use as Monomer for thermo hardened resins
ERC6c; PROC1, PROC3, PROC8a, PROC8b

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC6c: Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)

	As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
Operational conditions	

Contributing exposure scenario	
Use descriptors covered	PROC1: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions. Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	200 Pa
Process temperature	100 °C
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.0471 mg/m³
Risk Characterization Ratio (RCR)	0.00943
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	

For scaling see: http://www.ecetoc.org/tra

Contributing exposure scenario	
Use descriptors covered	PROC3: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	liquid
Vapour pressure of the substance during use	200 Pa
Process temperature	100 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 90 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	1.4145 mg/m³
Risk Characterization Ratio (RCR)	0.282894
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8a: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	0.13 Pa
Duration and Frequency of activity	15 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.5 mg/m³
Risk Characterization Ratio (RCR)	0.1
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC8b: Transfer of substance or mixture (charging and discharging) at dedicated facilities Use domain: industrial
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %

Physical state	liquid
Vapour pressure of the substance during use	200 Pa
Process temperature	100 °C
Duration and Frequency of activity	60 min 5 days per week
Indoor/Outdoor	Indoor
	Operation is carried out at ambient or elevated temperatures
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, Workplace measurements
	Worker - inhalation, long-term - local
Exposure estimate	0.57 mg/m³
Risk Characterization Ratio (RCR)	0.114
Assessment method	Qualitative assessment
	Worker - dermal

****

7. Short title of exposure scenario

Use as laboratory reagent/agent
ERC8c; PROC15

Control of exposure and risk management measures

Contributing exposure scenario	
Use descriptors covered	ERC8c: Widespread use leading to inclusion into/onto article (indoor) As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

Operational conditions

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: professional
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %
Physical state	Solid, low dustiness
Vapour pressure of the substance during use	0.13 Pa
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	0.1 mg/m³
Risk Characterization Ratio (RCR)	0.02
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

Contributing exposure scenario	
Use descriptors covered	PROC15: Use a laboratory reagent. Use domain: professional
Operational conditions	
Concentration of the substance	ε-caprolactam Content: >= 0 % - <= 100 %

Physical state	liquid
Vapour pressure of the substance during use	0.13 Pa
Duration and Frequency of activity	480 min 5 days per week
Indoor/Outdoor	Indoor
	Assumes activities are at ambient temperature.
Risk Management Measures	
Local exhaust ventilation	Effectiveness: 80 %
Avoid frequent and direct contact with substance. Ensure minimization of manual phases Supervision in place to check that the RMMs in place are being used correctly and OCs followed.	
Regular cleaning of equipment and work area.	
Avoid contact with eyes.	
Use suitable eye protection.	
Avoid skin contact.	
Wear suitable gloves tested to EN ISO 374-1.	
In case of potential exposure:	
Exposure estimate and reference to its source	
Assessment method	EASY TRA v4.2, ECETOC TRA v3.0, Worker
	Worker - inhalation, long-term - local
Exposure estimate	4.7149 mg/m³
Risk Characterization Ratio (RCR)	0.94298
Assessment method	Qualitative assessment
	Worker - dermal
Guidance to Downstream Users	
For scaling see: http://www.ecetoc.org/tra	

****