BYK-320

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

1.1 Product identifier

Trade name	:	BYK-320
UFI	:	3Q68-10KA-M005-QP82
Product code	:	000000000000100794

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

Use of the Substance/Mixture	:	Leveling Additive

1.3 Details of the supplier of the safety data sheet

Company	:	BYK-Chemie GmbH Abelstrasse 45 46483 Wesel
Telephone	:	+49 281 670-0
Telefax	:	+49 281 65735
Information	:	Regulatory Affairs
Telephone	:	+49 281 670-23532
Telefax	:	+49 281 670-23533
E-mail address	:	GHS.BYK@altana.com

1.4 Emergency telephone number

Europe	+44 1235 239670
Middle East/Africa	+44 1235 239671
Americas	+1 215 207 0061
East/South East Asia	+65 3158 1074
(Local India: 000 800 100 7479)	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Carcinogenicity, Category 1B	H350: May cause cancer.
Specific target organ toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure, Category 1	H372: Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Long-term (chronic) aquatic hazard,	H411: Toxic to aquatic life with long lasting effects.

Category 2

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements :

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H336	May cause drowsiness or dizziness.
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

Supplemental Hazard Statements : EUH066 Repeated exposure may cause skin dryness or cracking.

Precautionary statements :

Prevention:

P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe mist or vapours.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P331	Do NOT induce vomiting.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.

Hazardous components which must be listed on the label:

- 64742-82-1 naphtha (petroleum), hydrodesulphurized heavy; Low boiling point hydrogen treated naphtha

- 98-82-8 cumene

Additional Labelling

Restricted to professional users.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Solution of a polyether modified polymethylalkylsiloxane

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
naphtha (petroleum), hydrodesulphurized heavy; Low boiling point hydrogen treated naphtha	64742-82-1 01-2119458049-33	Flam. Liq. 3; H226 STOT SE 3; H336 STOT RE 1; H372 (Central nervous system) Asp. Tox. 1; H304 Aquatic Chronic 2; H411 EUH066	>= 30 - < 50
2-methoxy-1-methylethyl acetate	108-65-6 203-603-9 01-2119475791-29	STOT SE 3; H336 Flam. Liq. 3; H226	>= 3 - < 5
cumene	98-82-8 202-704-5	Flam. Liq. 3; H226 Carc. 1B; H350 STOT SE 3; H335 (Respiratory system) Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 0,25 - < 0,5
oct-1-ene	111-66-0 203-893-7 01-2119486877-14	Flam. Liq. 2; H225 Asp. Tox. 1; H304 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 EUH066	>= 0,1 - < 0,25

		M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Symptoms of poisoning may appear several hours later.
Do not leave the victim unattended.

If inhaled : Consult a physician after significant exposure.
If unconscious, place in recovery position and seek medical advice.

In case of skin contact : If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No information available.

Risks : May be fatal if swallowed and enters airways.
May cause drowsiness or dizziness.
May cause cancer.
Causes damage to organs through prolonged or repeated exposure.
Repeated exposure may cause skin dryness or cracking.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Carbon oxides

5.3 Advice for firefighters

Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Contain spillage, and then collect with non-combustible

absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

For disposal considerations see section 13., For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	Avoid formation of aerosol. Do not breathe vapours/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	:	Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from open flames, hot surfaces and sources of ignition.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards.
Further information on storage stability	:	No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s)	:	No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
2-methoxy-1-	108-65-6	TWA	50 ppm	2000/39/EC

methylethyl acetate			275 mg/m3	
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		STEL	100 ppm 550 mg/m3	2000/39/EC
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
cumene	98-82-8	TWA	20 ppm 100 mg/m3	2000/39/EC
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		STEL	50 ppm 250 mg/m3	2000/39/EC
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		TWA	10 ppm 50 mg/m3	2019/1831/EU
	Further information: A skin notation assigned to the occupational exposure limit value indicates the possibility of significant uptake through the skin., Indicative			
		STEL	50 ppm 250 mg/m3	2019/1831/EU
	Further information: A skin notation assigned to the occupational exposure limit value indicates the possibility of significant uptake through the skin., Indicative			

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006

Substance name	End Use	Exposure routes	Potential health effects	Value
naphtha (petroleum), hydrodesulphurized heavy; Low boiling point hydrogen treated naphtha	Workers	Inhalation	Long-term systemic effects	330 mg/m3
	Workers	Skin contact	Long-term systemic effects	21 mg/kg
	Consumers	Inhalation	Long-term systemic effects	71 mg/m3
	Consumers	Skin contact	Long-term systemic effects	12 mg/kg
	Consumers	Ingestion	Long-term systemic effects	21 mg/kg
2-methoxy-1-methylethyl acetate	Workers	Skin contact	Long-term systemic effects	796 mg/kg
	Workers	Inhalation	Long-term systemic effects	275 mg/m3
	Consumers	Skin contact	Long-term systemic effects	320 mg/kg
	Consumers	Inhalation	Long-term systemic effects	33 mg/m3
	Consumers	Ingestion	Long-term systemic	36 mg/kg

			effects	
	Workers	Inhalation	Acute local effects	550 mg/m3
	Consumers	Inhalation	Acute local effects	33 mg/m3

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006

Substance name	Environmental Compartment	Value
2-methoxy-1-methylethyl acetate	Fresh water	0,635 mg/l
	Marine water	0,0635 mg/l
	Intermittent releases	6,35 mg/l
	Sewage treatment plant	100 mg/l
	Fresh water sediment	3,29 mg/kg
	Marine sediment	0,329 mg/kg
	Soil	0,29 mg/kg
oct-1-ene	Fresh water	0,012 mg/l
	Fresh water sediment	6,06 mg/kg
	Soil	1,25 mg/kg
	Marine water	0,012 mg/l
	Marine sediment	6,06 mg/kg

8.2 Exposure controls

Personal protective equipment

Eye/face protection : Eye wash bottle with pure water
Tightly fitting safety goggles

Hand protection
Material : Nitrile rubber
Break through time : > 480 min
Glove thickness : 0,55 mm

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

Environmental exposure controls

General advice : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour : colourless

Odour : not significant

Odour Threshold	:	No data available
Melting point/ range	:	< 0 °C Method: derived
Initial boiling point	:	144,00 °C Method: derived
Upper explosion limit / Upper flammability limit	:	12,00 %(V)
Lower explosion limit / Lower flammability limit	:	0,6 %(V)
Flash point	:	38,00 °C Method: 48 (Abel-Pensky) DIN 51755
Auto-ignition temperature	:	> 200 °C Method: DIN 51 794/ DIN prEN 14 522
Decomposition temperature	:	No data available
pH	:	5 (20 °C) Concentration: 1 % Method: Universal pH-value indicator
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	25,000 mm2/s (20,00 °C)
Solubility(ies)		
Water solubility	:	immiscible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Vapour pressure	:	3,0000000 hPa (20,00 °C) Method: derived
Relative density	:	No data available
Density	:	0,8600 g/cm3 (20,00 °C) Method: 4 (20°C oscillating U-tube)
Bulk density	:	Not applicable

Relative vapour density	:	No data available

9.2 Other information

Flammability (liquids)	:	Sustains combustion
Evaporation rate	:	No data available
Surface tension	:	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	No decomposition if stored and applied as directed. Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid	:	No decomposition if used as directed. Avoid storage of open containers at elevated temperatures. Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid	:	Strong oxidizing 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

Acute toxicity

Not classified due to lack of data.

Product:

Acute oral toxicity	:	LD50 (Rat): > 10.000,000000 mg/kg Method: OECD Test Guideline 401

Components:

2-methoxy-1-methylethyl acetate:

Acute oral toxicity	:	LD50 (Rat, female): > 5.000 mg/kg Method: OECD Test Guideline 401 GLP: yes
Acute inhalation toxicity	:	Remarks: No data available
Acute dermal toxicity	:	Remarks: No data available

oct-1-ene:

Acute inhalation toxicity	:	LC50 (Rat): 40,2 mg/l Test atmosphere: vapour Method: OECD Test Guideline 403 GLP: no
Acute dermal toxicity	:	LD50 (Rabbit): > 2.000 mg/kg Method: OECD Test Guideline 402 GLP: yes

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Product:

Species	:	Rabbit
Assessment	:	No skin irritation
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

Components:

2-methoxy-1-methylethyl acetate:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation
GLP	:	yes

oct-1-ene:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Repeated exposure may cause skin dryness or cracking.
GLP	:	yes

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Product:

Species	:	Rabbit
Assessment	:	No eye irritation
Method	:	OECD Test Guideline 405
Result	:	No eye irritation

Components:

2-methoxy-1-methylethyl acetate:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
GLP	:	yes

oct-1-ene:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation
GLP	:	yes

Respiratory or skin sensitisation

Skin sensitisation

Not classified due to lack of data.

Respiratory sensitisation

Not classified due to lack of data.

Product:

Remarks	:	No data available

Components:

2-methoxy-1-methylethyl acetate:

Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Not a skin sensitizer.
GLP	:	yes

Germ cell mutagenicity

Not classified due to lack of data.

Product:

Genotoxicity in vitro	:	Remarks: No data available
Genotoxicity in vivo	:	Remarks: No data available

Components:

naphtha (petroleum), hydrodesulphurized heavy; Low boiling point hydrogen treated naphtha:

Germ cell mutagenicity-Assessment	:	Classified based on benzene content < 0.1% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note P)

Carcinogenicity

May cause cancer.

Product:

Remarks : No data available

Components:

naphtha (petroleum), hydrodesulphurized heavy; Low boiling point hydrogen treated naphtha:

Carcinogenicity - Assessment : Classified based on benzene content < 0.1% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note P)

Reproductive toxicity

Not classified due to lack of data.

Product:

Effects on fertility : Remarks: No data available

Effects on foetal development : Remarks: No data available

STOT - single exposure

May cause drowsiness or dizziness.

Product:

Remarks : No data available

STOT - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Product:

Remarks : No data available

Repeated dose toxicity

Product:

Remarks : No human information is available.

Aspiration toxicity

May be fatal if swallowed and enters airways.

Product:

No data available

11.2 Information on other hazards

Endocrine disrupting properties

Not classified due to lack of data.

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Product:

Remarks : Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Concentrations substantially above the TLV value may cause narcotic effects.
Solvents may degrease the skin.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : Remarks: No data available

Components:

2-methoxy-1-methylethyl acetate:

Toxicity to fish : LC50 (Fish): 100 - 180 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
GLP: no

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): > 1.000 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: no

oct-1-ene:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,87 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants	:	(Pseudokirchneriella subcapitata): 1 - 10 mg/l Exposure time: 96 h Method: OECD Test Guideline 201 GLP: yes
M-Factor (Acute aquatic toxicity)	:	1
M-Factor (Chronic aquatic toxicity)	:	1

12.2 Persistence and degradability

Product:

Biodegradability	:	Remarks: No data available

Components:

naphtha (petroleum), hydrodesulphurized heavy; Low boiling point hydrogen treated naphtha:

Biodegradability	:	Result: Readily biodegradable. Method: OECD Test Guideline 301F GLP: yes

2-methoxy-1-methylethyl acetate:

Biodegradability	:	Result: Readily biodegradable. Method: OECD Test Guideline 301F GLP: yes

oct-1-ene:

Biodegradability	:	Result: Readily biodegradable. Method: OECD Test Guideline 301C GLP: No information available.

12.3 Bioaccumulative potential

Product:

Bioaccumulation	:	Remarks: No data available

Components:

2-methoxy-1-methylethyl acetate:

Partition coefficient: n-octanol/water	:	log Pow: 1,2 (20 °C) pH: 6,8 Method: OECD Test Guideline 117 GLP: yes

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment	:	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

14.1 UN number or ID number

ADR	:	UN 1993
IMDG	:	UN 1993
IATA	:	UN 1993

14.2 UN proper shipping name

ADR	:	FLAMMABLE LIQUID, N.O.S. (Mineral spirit, 1-Methoxy-2-propanol acetate)
IMDG	:	FLAMMABLE LIQUID, N.O.S. (Mineral spirit, 1-Methoxy-2-propanol acetate)
IATA	:	Flammable liquid, n.o.s. (Mineral spirit, 1-Methoxy-2-propanol acetate)

14.3 Transport hazard class(es)

ADR	:	3
IMDG	:	3
IATA	:	3

14.4 Packing group

ADR

Packing group	:	III
Classification Code	:	F1
Hazard Identification Number	:	30
Labels	:	3
Tunnel restriction code	:	D/E

IMDG

Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-E
Remarks	:	IMDG Code segregation group - none

IATA (Cargo)

Packing instruction (cargo aircraft)	:	366
Packing group	:	III
Labels	:	Flammable Liquids

IATA (Passenger)

Packing instruction (passenger aircraft)	:	355
Packing instruction (LQ)	:	Y344
Packing group	:	III
Labels	:	Flammable Liquids

14.5 Environmental hazards

ADR

Environmentally hazardous	:	yes

IMDG

Marine pollutant	:	yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries must be considered:: Number on list 3 Number on list 28: cumene Number on list 75: If you intend to use this product as tattoo ink, please contact your vendor.
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	P5c	FLAMMABLE LIQUIDS
	E2	ENVIRONMENTAL HAZARDS

15.2 Chemical safety assessment

For further information see eSDS.

SECTION 16: Other information

Items where relevant changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Full text of H-Statements

H225	:	Highly flammable liquid and vapour.
H226	:	Flammable liquid and vapour.
H304	:	May be fatal if swallowed and enters airways.
H335	:	May cause respiratory irritation.

H336	:	May cause drowsiness or dizziness.
H350	:	May cause cancer.
H372	:	Causes damage to organs through prolonged or repeated exposure.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.
H411	:	Toxic to aquatic life with long lasting effects.
EUH066	:	Repeated exposure may cause skin dryness or cracking.

Full text of other abbreviations

Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Asp. Tox.	:	Aspiration hazard
Carc.	:	Carcinogenicity
Flam. Liq.	:	Flammable liquids
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure
2000/39/EC	:	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
2019/1831/EU	:	Europe. Commission Directive 2019/1831/EU establishing a fifth list of indicative occupational exposure limit values
2000/39/EC / TWA	:	Limit Value - eight hours
2000/39/EC / STEL	:	Short term exposure limit
2019/1831/EU / TWA	:	Limit Value - eight hours
2019/1831/EU / STEL	:	Short term exposure limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; BGW - Biological Limit Values; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); LSPN - List of Hazardous Notified Substances (Chile); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration,

Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture:		**Classification procedure:**
Flam. Liq. 3	H226	Based on product data or assessment
Carc. 1B	H350	Calculation method
STOT SE 3	H336	Calculation method
STOT RE 1	H372	Calculation method
Asp. Tox. 1	H304	Calculation method
Aquatic Chronic 2	H411	Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

REG_EU / EN

Annex: Exposure Scenarios

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Number	Title
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ES 5	Cleaning; Industrial uses (SU3).
ES 6	Cleaning; Professional uses (SU22).
ES 7	Use in laboratories; Industrial uses (SU3).
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ES 1: Formulation & (re)packing of substances and mixtures; Industrial uses (SU3).

1.1. Title section

Exposure Scenario name	:	Formulation & (re)packing of substances and mixtures
Structured Short Title	:	Formulation & (re)packing of substances and mixtures; Industrial uses (SU3).

Environment		
CS 1	**Formulation into mixture**	ERC2
Worker		
CS 2	**Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions, Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, Chemical production where opportunity for exposure arises, Mixing or blending in batch processes, Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, Transfer of substance or mixture (charging/discharging) at dedicated facilities, Transfer of substance or mixture into small containers (dedicated filling line, including weighing), Tabletting, compression, extrusion, pelettisation, granulation, Use as laboratory reagent**	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Formulation into mixture (ERC2)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid
Vapour pressure	:	< 0,5 kPa
Temperature	:	20 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Annual amount per site	:	7800 kg/day
Maximum allowable site tonnage (MSafe)	:	950.000 kg

Release type	:	Continuous release
Emission days	:	300
Conditions and measures related to sewage treatment plant		
STP type	:	Municipal Sewage Treatment Plant
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations. External recovery and recycling of waste should comply with applicable local and/or national regulations.
Other conditions affecting environmental exposure		
Receiving surface water flow	:	2.000 m3/d
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100

1.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1) / Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2) / Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3) / Chemical production where opportunity for exposure arises (PROC4) / Mixing or blending in batch processes (PROC5) / Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a) / Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b) / Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9) / Tabletting, compression, extrusion, pelettisation, granulation (PROC14) / Use as laboratory reagent (PROC15)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid
Vapour pressure	:	< 0,5 kPa
Temperature	:	20 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	8 h
Use frequency	:	5 days per week

Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: Formulation into mixture (ERC2)

Additional information on exposure estimation
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.

ES 2: Use in coatings; Industrial uses (SU3).

2.1. Title section

Exposure Scenario name	:	Use in coatings
Structured Short Title	:	Use in coatings; Industrial uses (SU3).

Environment		
CS 1	**Use in coatings**	ERC4
Worker		
CS 2	**Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions, Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, Chemical production where opportunity for exposure arises, Mixing or blending in batch processes, Industrial spraying, Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, Transfer of substance or mixture (charging/discharging) at dedicated facilities, Roller application or brushing, Treatment of articles by dipping and pouring, Use as laboratory reagent**	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13, PROC15

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid
Vapour pressure	:	< 0,5 kPa
Temperature	:	20 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Annual amount per site	:	43000 kg/day
Maximum allowable site tonnage (MSafe)	:	270.000 kg

Release type	:	Continuous release
Emission days	:	100
Conditions and measures related to sewage treatment plant		
STP type	:	Municipal Sewage Treatment Plant
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100

2.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1) / Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2) / Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3) / Chemical production where opportunity for exposure arises (PROC4) / Mixing or blending in batch processes (PROC5) / Industrial spraying (PROC7) / Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a) / Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b) / Roller application or brushing (PROC10) / Treatment of articles by dipping and pouring (PROC13) / Use as laboratory reagent (PROC15)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid
Vapour pressure	:	< 0,5 kPa
Temperature	:	20 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	8 h
Use frequency	:	5 days per week
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Additional information on exposure estimation
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.

ES 3: Use in coatings; Professional uses (SU22).

3.1. Title section

Exposure Scenario name	:	Use in coatings
Structured Short Title	:	Use in coatings; Professional uses (SU22).

Environment		
CS 1	**Use in coatings**	ERC8a, ERC8d
Worker		
CS 2	**Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions, Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, Chemical production where opportunity for exposure arises, Mixing or blending in batch processes, Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, Transfer of substance or mixture (charging/discharging) at dedicated facilities, Roller application or brushing, Non-industrial spraying, Treatment of articles by dipping and pouring, Use as laboratory reagent, Manual activities involving hand contact**	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19

3.2. Conditions of use affecting exposure

3.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	2,3 kg
Maximum allowable site tonnage (MSafe)	:	1.900 kg

Release type	:	Continuous release
Emission days	:	365
Conditions and measures related to sewage treatment plant		
STP type	:	Municipal Sewage Treatment Plant
STP sludge treatment	:	Sewage sludge should be incinerated, contained or reclaimed. No application of sewage sludge to soil
STP effluent	:	2.000 m3/d
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Waste treatment	:	External recovery and recycling of waste should comply with applicable local and/or national regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100

3.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1) / Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2) / Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3) / Chemical production where opportunity for exposure arises (PROC4) / Mixing or blending in batch processes (PROC5) / Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a) / Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b) / Roller application or brushing (PROC10) / Non-industrial spraying (PROC11) / Treatment of articles by dipping and pouring (PROC13) / Use as laboratory reagent (PROC15) / Manual activities involving hand contact (PROC19)

Product (article) characteristics		
Covers concentrations up to 100 %		
Vapour pressure	:	< 0,5 kPa
Temperature	:	20 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	8 h
Use frequency	:	5 days per week

Technical and organisational conditions and measures		
Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Use in closed process		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear a respirator conforming to EN140.		
Other conditions affecting workers exposure		
Indoor or outdoor use	:	Covers indoor and outdoor use.
Professional or industrial settings	:	Professional use
Temperature	:	Assumes use at not more than 20°C above ambient temperature.

3.3. Exposure estimation and reference to its source

3.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Additional information on exposure estimation
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.

ES 4: Use in coatings; Consumer uses (SU21).

4.1. Title section

Exposure Scenario name	:	Use in coatings
Structured Short Title	:	Use in coatings; Consumer uses (SU21).

Consumer		
CS 1	Adhesives, sealants, Glues DIY-use (carpet glue, tile glue, wood parquet glue)	PC1, PC1_2
CS 2	Coatings and paints, thinners, paint removers, Waterborne latex wall paint	PC9a, PC9a_1, PC15_1
CS 3	Coatings and paints, thinners, paint removers, Aerosol spray can	PC9a, PC9a_3, PC15_3
CS 4	Ink and toners	PC18

4.2. Conditions of use affecting exposure

4.2.1. Control of consumer exposure: Adhesives, sealants (PC1) / Glues DIY-use (carpet glue, tile glue, wood parquet glue) (PC1_2)

Product (article) characteristics		
Covers concentrations up to 30 %		
Physical form of product	:	Liquid, vapour pressure > 10 Pa (Standard Temperature and Pressure)
Amount used (or contained in articles), frequency and duration of use/exposure		
For each use event, covers use amounts up to	:	6390 g/event
Duration	:	360 min
Use frequency	:	1 days per year
Other conditions affecting consumers exposure		
Room size	:	20 m3
Ventilation rate	:	Covers use under typical household ventilation.

4.2.2. Control of consumer exposure: Coatings and paints, thinners, paint removers (PC9a) / Waterborne latex wall paint (PC9a_1, PC15_1)

Product (article) characteristics		
Covers concentrations up to 1,5 %		
Physical form of product	:	Liquid, vapour pressure > 10 Pa (Standard Temperature and Pressure)
Amount used (or contained in articles), frequency and duration of use/exposure		
Amount per use	:	2760 g/event
Duration	:	132 min
Use frequency	:	4 days per year
Other conditions affecting consumers exposure		
Room size	:	20 m3
Ventilation rate	:	Covers use under typical household ventilation.

4.2.3. Control of consumer exposure: Coatings and paints, thinners, paint removers (PC9a) / Aerosol spray can (PC9a_3, PC15_3)

Product (article) characteristics		
Covers concentrations up to 50 %		
Physical form of product	:	Liquid, vapour pressure > 10 Pa (Standard Temperature and Pressure)
Amount used (or contained in articles), frequency and duration of use/exposure		
Amount per use	:	250 g/event
Duration	:	19,8 min
Use frequency	:	2 days per year
Other conditions affecting consumers exposure		
Room size	:	34 m3
Ventilation rate	:	Covers use under typical household ventilation.

4.2.4. Control of consumer exposure: Ink and toners (PC18)

Product (article) characteristics		
Covers concentrations up to 10 %		
Physical form of product	:	Liquid, vapour pressure > 10 Pa (Standard Temperature and Pressure)
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	132 min
Use frequency	:	365 days per year
Other conditions affecting consumers exposure		
Room size	:	20 m3

4.3. Exposure estimation and reference to its source

4.3.1. Consumer exposure: Adhesives, sealants (PC1) / Glues DIY-use (carpet glue, tile glue, wood parquet glue) (PC1_2)

Additional information on exposure estimation
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

4.3.2. Consumer exposure: Coatings and paints, thinners, paint removers (PC9a) / Waterborne latex wall paint (PC9a_1, PC15_1)

Additional information on exposure estimation
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

4.3.3. Consumer exposure: Coatings and paints, thinners, paint removers (PC9a) / Aerosol spray can (PC9a_3, PC15_3)

Additional information on exposure estimation
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

4.3.4. Consumer exposure: Ink and toners (PC18)

Additional information on exposure estimation
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

4.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Not applicable

ES 5: Cleaning; Industrial uses (SU3).

5.1. Title section

Exposure Scenario name	:	Cleaning
Structured Short Title	:	Cleaning; Industrial uses (SU3).

Environment		
CS 1	**Use of non-reactive processing aid at industrial site (no inclusion into or onto article)**	ERC4
Worker		
CS 2	**Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions, Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, Chemical production where opportunity for exposure arises, Industrial spraying, Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, Transfer of substance or mixture (charging/discharging) at dedicated facilities, Roller application or brushing, Treatment of articles by dipping and pouring**	PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13

5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid
Vapour pressure	:	1,9 hPa
Temperature	:	20 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	5000 kg/day
Release type	:	Continuous release
Emission days	:	20

Conditions and measures related to sewage treatment plant		
STP type	:	Municipal Sewage Treatment Plant
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations. External recovery and recycling of waste should comply with applicable local and/or national regulations.
Other conditions affecting environmental exposure		
Receiving surface water flow	:	2.000 m3/d
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100

5.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1) / Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2) / Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3) / Chemical production where opportunity for exposure arises (PROC4) / Industrial spraying (PROC7) / Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a) / Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b) / Roller application or brushing (PROC10) / Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid
Vapour pressure	:	< 0,5 kPa
Temperature	:	20 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	480 min
Use frequency	:	5 days per week
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
Assumes a good basic standard of occupational hygiene is implemented

5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Additional information on exposure estimation
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.

ES 6: Cleaning; Professional uses (SU22).

6.1. Title section

Exposure Scenario name	:	Cleaning
Structured Short Title	:	Cleaning; Professional uses (SU22).

Environment		
CS 1	**Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)**	ERC8a, ERC8d
Worker		
CS 2	**Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions, Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, Chemical production where opportunity for exposure arises, Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, Transfer of substance or mixture (charging/discharging) at dedicated facilities, Roller application or brushing, Non-industrial spraying, Treatment of articles by dipping and pouring**	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13

6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid
Vapour pressure	:	1,9 hPa
Temperature	:	20 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	0,47 kg/day
Release type	:	Continuous release

Emission days	:	365
Conditions and measures related to sewage treatment plant		
STP type	:	Municipal Sewage Treatment Plant
STP sludge treatment	:	Sludge is disposed or recovered. No application of sewage sludge to soil
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations. External recovery and recycling of waste should comply with applicable local and/or national regulations.
Other conditions affecting environmental exposure		
Receiving surface water flow	:	2.000 m3/d
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100

6.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1) / Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2) / Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3) / Chemical production where opportunity for exposure arises (PROC4) / Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a) / Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b) / Roller application or brushing (PROC10) / Non-industrial spraying (PROC11) / Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid
Vapour pressure	:	< 0,5 hPa
Temperature	:	20 °C
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		

Assumes a good basic standard of occupational hygiene is implemented

6.3. Exposure estimation and reference to its source

6.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)

Additional information on exposure estimation
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

6.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.

ES 7: Use in laboratories; Industrial uses (SU3).

7.1. Title section

Exposure Scenario name	:	Laboratory activities
Structured Short Title	:	Use in laboratories; Industrial uses (SU3).

Environment		
CS 1	**Laboratory activities**	ERC2, ERC4
Worker		
CS 2	**Laboratory activities**	PROC10, PROC15

7.2. Conditions of use affecting exposure

7.2.1. Control of environmental exposure: Formulation into mixture (ERC2) / Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid
Vapour pressure	:	< 0,5 kPa
Temperature	:	20 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	0,5 kg
Release type	:	Continuous release
Emission days	:	20
Conditions and measures related to sewage treatment plant		
STP type	:	Municipal Sewage Treatment Plant
STP sludge treatment	:	Sludge is disposed or recovered. No application of sewage sludge to soil Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to treatment of waste (including article waste)		

Waste treatment	:	External recovery and recycling of waste should comply with applicable local and/or national regulations. External treatment and disposal of waste should comply with applicable local and/or national regulations.
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100

7.2.2. Control of worker exposure: Roller application or brushing (PROC10) / Use as laboratory reagent (PROC15)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid
Vapour pressure	:	< 0,5 kPa
Temperature	:	20 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	480 min
Use frequency	:	5 days per week
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Assumes a good basic standard of occupational hygiene is implemented		

7.3. Exposure estimation and reference to its source

7.3.1. Environmental release and exposure: Formulation into mixture (ERC2) / Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Additional information on exposure estimation
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

7.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Further details on scaling and control technologies are provided in SPERC factsheet.

ES 8: Use in laboratories; Professional uses (SU22).

8.1. Title section

Exposure Scenario name	:	Laboratory activities
Structured Short Title	:	Use in laboratories; Professional uses (SU22).

Environment		
CS 1	**Laboratory activities**	ERC8a
Worker		
CS 2	**Laboratory activities**	PROC10, PROC15

8.2. Conditions of use affecting exposure

8.2.1. Control of environmental exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid
Amount used (or contained in articles), frequency and duration of use/exposure		
Daily amount per site	:	0,000014 kg
Release type	:	Continuous release
Emission days	:	365
Conditions and measures related to sewage treatment plant		
STP type	:	Municipal Sewage Treatment Plant
STP sludge treatment	:	Sewage sludge should be incinerated, contained or reclaimed. No application of sewage sludge to soil
STP effluent	:	2.000 m3/d
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Waste - minimum efficiency of	:	93,7 %
Other conditions affecting environmental exposure		
Local freshwater dilution factor	:	10
Local marine water dilution factor	:	100

8.2.2. Control of worker exposure: Roller application or brushing (PROC10) / Use as laboratory reagent (PROC15)

Product (article) characteristics		
Covers concentrations up to 100 %		
Physical form of product	:	Liquid
Vapour pressure	:	< 0,5 kPa
Temperature	:	20 °C
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	480 min
Use frequency	:	5 days per week
Other conditions affecting workers exposure		
Temperature	:	Assumes use at not more than 20°C above ambient temperature.
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply		
Assumes a good basic standard of occupational hygiene is implemented		

8.3. Exposure estimation and reference to its source

8.3.1. Environmental release and exposure: Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (ERC8a)

Additional information on exposure estimation
Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

8.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.
Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Further details on scaling and control technologies are provided in SPERC factsheet.