

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**Jungbunzlauer**

## Citric Acid Monohydrate

Version 2.0    Revision Date:  
AT / EN        06.05.2022

SDS Number:  
100000000013

Date of last issue: 05.05.2022  
Date of first issue: 04.05.2022

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

#### 1.1 Product identifier

Trade name : Citric Acid Monohydrate

Substance name : Citric acid

Molecular formula : C<sub>6</sub>H<sub>8</sub>O<sub>7</sub>·H<sub>2</sub>O

Chemical identity : 2-hydroxypropane-1,2,3-tricarboxylic acid hydrate

CAS-No. : 5949-29-1

EC-No. : 201-069-1

REACH Registration Number : 01-2119457026-42-0000

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

Use of the Sub-  
stance/Mixture : Manufacture of substances  
Formulation of preparations  
Formulation into solid matrix  
Industrial use  
Manufacture of chemical products, Chemical intermediate  
Products such as pH-regulators, flocculants, precipitants, neu-  
tralization agents  
Washing and cleaning products  
Air care products, Perfumes, fragrances  
Cosmetics, personal care products  
Paper and board treatment products, Manufacture of pulp,  
paper and paper products  
Building and construction work, Use in cement retardation  
products  
Polymer preparations and compounds, Plastic articles, Adhe-  
sives, sealants, Manufacture of rubber products  
Extraction of crude petroleum  
Manufacture of textiles, leather, fur, Textile dyes and impreg-  
nating products, Leather treatment products, Polishes and  
wax blends  
Coatings and paints, thinners, paint removers  
Photo-chemicals  
Water treatment chemicals, Water softeners  
Metal surface treatment products, Base metals and alloys,  
Cleaning of metal surfaces  
Laboratory chemicals  
Fertilizers  
Manufacture of basic pharmaceutical products  
Food/ feedstuff additives  
For further information see eSDS.

Recommended restrictions  
on use : None known.

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### 1.3 Details of the supplier of the safety data sheet

Company : Jungbunzlauer Austria AG  
Werk Pernhofen  
2064 Wulzeshofen  
Austria  
www.jungbunzlauer.com

Telephone : +43 2527 200-0  
Telefax : +43 2527 200-80  
Responsible/issuing person : msds@jungbunzlauer.com

### 1.4 Emergency telephone number

National Chemical Emergency Centre (NCEC)  
+44 1865 407 333

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification (REGULATION (EC) No 1272/2008)

Eye irritation, Category 2

H319: Causes serious eye irritation.

Specific target organ toxicity - single exposure, Category 3, Respiratory system

H335: May cause respiratory irritation.

### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.

Hazard statements : H335 May cause respiratory irritation.

Precautionary statements : **Prevention:**

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

#### **Response:**

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

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Precautionary statements : **P261 Avoid breathing dust.**  
**P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.**  
**P312 Call a POISON CENTER/ doctor if you feel unwell.**

### 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.

May form explosible dust-air mixture if dispersed.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Substance name : Citric acid  
CAS-No. : 5949-29-1  
EC-No. : 201-069-1  
Chemical nature : Solid  
REACH Registration Number : 01-2119457026-42-0000

## 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.  
Do not leave the victim unattended.  
Protection of first-aiders : Wear personal protective equipment.  
If inhaled : If breathed in, move person into fresh air.  
If symptoms persist, call a physician.  
If unconscious, place in recovery position and seek medical

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- advice.  
If symptoms persist, call a physician.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water.  
Get medical attention if symptoms occur.
- In case of eye contact : Immediately flush eye(s) with plenty of water.  
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 give milk or alcoholic beverages.  
Never give anything by mouth to an unconscious person.  
If symptoms persist, call a physician.

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

- Symptoms : irritant effects
- Risks : Causes serious eye irritation.  
May cause respiratory irritation.

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

- Treatment : Treat symptomatically.

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media : Water spray  
Dry powder  
Foam  
Carbon dioxide (CO<sub>2</sub>)
- Unsuitable extinguishing media : High volume water jet

### 5.2 Special hazards arising from the substance or mixture

- Specific hazards during fire-fighting : Exposure to decomposition products may be a hazard to health.
- Hazardous combustion products : Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

### 5.3 Advice for firefighters

- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

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Further information : Standard procedure for chemical fires.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.  
Avoid dust formation.  
Avoid breathing dust.  
Avoid contact with skin and eyes.

#### 6.2 Environmental precautions

Environmental precautions : 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 : Neutralize with chalk, alkali solution or ammonia.  
Keep in suitable, closed containers for disposal.

#### 6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

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### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Advice on safe handling : Avoid formation of respirable particles.  
Do not breathe vapours/dust.  
Avoid exposure - obtain special instructions before use.  
Avoid contact with skin and eyes.  
For personal protection see section 8.  
Smoking, eating and drinking should be prohibited in the application area.  
Provide sufficient air exchange and/or exhaust in work rooms.  
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.

Hygiene measures : When using do not eat or drink. When using do not smoke.  
Wash hands before breaks and at the end of workday.

Dust explosion class : St1

#### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage : Keep container tightly closed in a dry and well-ventilated

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areas and containers

place. Electrical installations / working materials must comply with the technological safety standards.

Advice on common storage : Incompatible with strong bases and oxidizing agents.

Further information on storage stability : Keep in a dry place.  
No decomposition if stored and applied as directed.

### 7.3 Specific end use(s)

Specific use(s) : For further information see eSDS.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Engineering measures

Provide adequate ventilation.

#### Personal protective equipment

Eye protection : Eye wash bottle with pure water  
Tightly fitting safety goggles  
Wear face-shield and protective suit for abnormal processing problems.

Hand protection

Remarks : Wear suitable gloves tested to EN374.

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

Skin and body protection

: Dust impervious protective suit  
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection

: No personal respiratory protective equipment normally required.

In the case of dust or aerosol formation use respirator with an approved filter.  
Half mask with a particle filter P2 (EN 143)

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state : crystalline

Colour : white

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Odour	:	odourless
Odour Threshold	:	Not relevant
Melting point/freezing point	:	ca. 135 - 152 °C
Boiling point/boiling range	:	Decomposes below the boiling point.
Flammability	:	does not ignite
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	Not applicable
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	Not applicable
pH	:	1,85 (25 °C) Concentration: 5 %
Viscosity		
Viscosity, kinematic	:	Not applicable
Solubility(ies)		
Water solubility	:	ca. 1.840 g/l (20 °C)
Partition coefficient: n-octanol/water	:	log Pow: -1,8 - -0,2 Calculation
Vapour pressure	:	0,0002 hPa (25 °C)
Relative density	:	1,665 (20 °C)
Density	:	No data available
Relative vapour density	:	Not applicable

### 9.2 Other information

Explosives	:	Not explosive
Oxidizing properties	:	No oxidising effect.
Dust explosion class	:	St1
Surface tension	:	not determined

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Molecular weight : 210,14 g/mol

### 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.

Dust may form explosive mixture in air.

#### 10.4 Conditions to avoid

Conditions to avoid : Avoid dust formation.

#### 10.5 Incompatible materials

Materials to avoid : Strong bases  
Oxidizing agents

#### 10.6 Hazardous decomposition products

Build-up of dangerous/toxic fumes possible in cases of fire/high temperature.  
Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

### SECTION 11: Toxicological information

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

##### Acute toxicity

Not classified based on available information.

##### Components:

##### **citric acid:**

Acute oral toxicity : LD50 Oral (Mouse): 5.400 mg/kg  
Method: OECD Test Guideline 401  
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : (Guinea pig): ca. 75 mg/l  
Exposure time: 3 min  
Test atmosphere: dust/mist  
Target Organs: Respiratory Tract  
Symptoms: Cough

Acute dermal toxicity : LD50 Dermal (Rat): > 2.000 mg/kg



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Assessment: The substance or mixture has no acute dermal toxicity

### Skin corrosion/irritation

Not classified based on available information.

#### Components:

##### **citric acid:**

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

### Serious eye damage/eye irritation

Causes serious eye irritation.

#### Components:

##### **citric acid:**

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : Eye irritation

### Respiratory or skin sensitisation

#### **Skin sensitisation**

Not classified based on available information.

#### **Respiratory sensitisation**

Not classified based on available information.

#### Components:

##### **citric acid:**

Remarks : No known sensitising effect.

### Germ cell mutagenicity

Not classified based on available information.

#### Components:

##### **citric acid:**

Genotoxicity in vitro : Test Type: reverse mutation assay  
Test system: Salmonella typhimurium  
Concentration: 0 - 5000 µg/plate  
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)  
Result: negative

Test Type: Micronucleus test  
Test system: Human lymphocytes  
Concentration: 50, 100, 200, 3000 µg/ml

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Method: Mutagenicity (in vitro mammalian cytogenetic test)  
Result: positive

Genotoxicity in vivo : Test Type: Chromosomal aberration  
Species: Rat  
Cell type: Bone marrow  
Application Route: Oral  
Dose: 0,3 mg/kg bw  
Method: OECD Test Guideline 475  
Result: negative

### Carcinogenicity

Not classified based on available information.

### Components:

#### citric acid:

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

### Reproductive toxicity

Not classified based on available information.

### Components:

#### citric acid:

Reproductive toxicity - Assessment : No toxicity to reproduction

### STOT - single exposure

May cause respiratory irritation.

### Components:

#### citric acid:

Exposure routes : Inhalation  
Target Organs : Respiratory Tract  
Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

### STOT - repeated exposure

Not classified based on available information.

### Components:

#### citric acid:

Remarks : No data available

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### Repeated dose toxicity

#### Components:

##### **citric acid:**

Species	: Rat
NOAEL	: 4.000 mg/kg
LOAEL	: 8.000 mg/kg
Application Route	: Oral
Exposure time	: 10 d
Dose	: 2, 4, 8, 16 g/kg bw/day

### Aspiration toxicity

Not classified based on available information.

#### Components:

##### **citric acid:**

No aspiration toxicity classification

## 11.2 Information on other hazards

### 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.
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### Further information

#### Product:

Remarks	: No data available
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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Components:

##### **citric acid:**

Toxicity to fish	: LC50 (Leuciscus idus (Golden orfe)): 440 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	: LC50 (Daphnia magna (Water flea)): 1.535 mg/l Exposure time: 24 h

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Test Type: static test  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : NOEC (Scenedesmus quadricauda (Green algae)): 425 mg/l  
Exposure time: 8 d  
Test Type: static test

Toxicity to microorganisms : TT (Pseudomonas putida): > 10.000 mg/l  
Exposure time: 16 h

### 12.2 Persistence and degradability

#### Components:

##### **citric acid:**

Biodegradability : Biodegradation: 97 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B  
Readily biodegradable.

Biodegradation: 100 %  
Exposure time: 19 d  
Method: OECD Test Guideline 301E  
Readily biodegradable.

Physico-chemical removability : Readily biodegradable.

Stability in water : Not applicable

### 12.3 Bioaccumulative potential

#### Components:

##### **citric acid:**

Bioaccumulation : The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.

Partition coefficient: n-octanol/water : log Pow: -1,8 - -0,2

### 12.4 Mobility in soil

#### Components:

##### **citric acid:**

Stability in soil : Readily biodegradable.

### 12.5 Results of PBT and vPvB assessment

#### Product:

Assessment : This substance/mixture contains no components considered

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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 : No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : In accordance with local and national regulations.  
  
Do not dispose of waste into sewer.  
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.

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## SECTION 14: Transport information

### 14.1 UN number or ID number

Not regulated as a dangerous good

### 14.2 UN proper shipping name

Not regulated as a dangerous good

### 14.3 Transport hazard class(es)

Not regulated as a dangerous good

### 14.4 Packing group

Not regulated as a dangerous good

### 14.5 Environmental hazards

Not regulated as a dangerous good

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### 14.6 Special precautions for user

Not applicable

### 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) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Fire Hazard Class : 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. : Not applicable

Water hazard class (Germany) : WGK 1 slightly hazardous to water  
Code Number: 8.248  
Classification according to AwSV, Annex 1 (4)

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)  
Not applicable

### The components of this product are reported in the following inventories:

REACH : This substance has been registered according to Regulation (EC) No. 1907/2006 (REACH).

TSCA : All substances listed as active on the TSCA inventory

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AIIC	: On the inventory, or in compliance with the inventory
DSL	: All components of this product are on the Canadian DSL
ENCS	: On the inventory, or in compliance with the inventory
ISHL	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory

### 15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

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## SECTION 16: Other information

### Full text of other abbreviations

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; 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 Harmonized 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 Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; 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); 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 - Organization 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

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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

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.



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## Annex

### Exposure Scenario

Number	Title
ES1	Manufacture
ES2	Formulation or re-packing; Various products (PC1, PC3, PC9a, PC12, PC30, PC31, PC35, PC39).
ES3	Use at industrial sites; Other (PC0); Various sectors (SU8, SU9).
ES4	Use at industrial sites; Various products (PC3, PC28, PC31, PC35, PC36).
ES5	Widespread use by professional workers; Various products (PC3, PC31, PC35, PC36).
ES6	Consumer use; Various products (PC3, PC31, PC35, PC36).
ES7	Widespread use by professional workers; Cosmetics, personal care products (PC39).
ES8	Consumer use; Cosmetics, personal care products (PC39).
ES9	Use at industrial sites; Paper and board treatment products (PC26); Manufacture of pulp, paper and paper products (SU6b).
ES10	Use at industrial sites; Other: building and construction preparations (PC0).
ES11	Widespread use by professional workers; Other: building and construction preparations (PC0).
ES12	Consumer use; Other: building and construction preparations (PC0).
ES13	Service life - workers; Other (AC0).
ES14	Service life - workers; Other (AC0).
ES15	Service life - consumers; Other (AC0).
ES16	Use at industrial sites; Polymer preparations and compounds (PC32); Various sectors (SU11, SU12).
ES17	Use at industrial sites; Various products (PC35, PC37); Various sectors (SU2a, SU2b).
ES18	Use at industrial sites; Various products (PC20, PC23, PC34); Manufacture of textiles, leather, fur (SU5).
ES19	Use at industrial sites; Coatings and paints, thinners, paint removers (PC9a).
ES20	Widespread use by professional workers; Coatings and paints, thinners, paint removers (PC9a); Various sectors (SU18, SU19).
ES21	Consumer use; Coatings and paints, thinners, paint removers (PC9a).
ES22	Service life - workers; Other (AC0).
ES23	Service life - workers; Other (AC0).
ES24	Service life - consumers; Other (AC0).
ES25	Use at industrial sites; Photo-chemicals (PC30).

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<b>ES26</b>	Consumer use; Photo-chemicals (PC30).
<b>ES27</b>	Use at industrial sites; Various products (PC20, PC36, PC37).
<b>ES28</b>	Use at industrial sites; Various products (PC7, PC14).
<b>ES29</b>	Service life - workers; Other (AC0).
<b>ES30</b>	Use at industrial sites; Washing and cleaning products (PC35).
<b>ES31</b>	Use at industrial sites; Fertilizers (PC12).
<b>ES32</b>	Widespread use by professional workers; Fertilizers (PC12).
<b>ES33</b>	Consumer use; Fertilizers (PC12).
<b>ES34</b>	Use at industrial sites; Laboratory chemicals (PC21).

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### ES1: Manufacture

#### 1.1. Title section

Exposure Scenario name	: Manufacture
Structured Short Title	: Manufacture

Environment		
CS1	Manufacture of the substance	ERC1
Worker		
CS2	General measures applicable to all activities	PROC0
CS3	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS4	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions	PROC2
CS5	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition	PROC3
CS6	Chemical production where opportunity for exposure arises	PROC4
CS7	Transfer of substance or mixture (charging/discharging) at dedicated facilities	PROC8b

#### 1.2. Conditions of use affecting exposure

##### 1.2.1. Control of environmental exposure: Manufacture of the substance (ERC1)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

##### 1.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes.

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Clear spills immediately.  
Avoid contact with contaminated tools and objects.  
Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

### 1.2.3. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

#### Technical and organisational conditions and measures

Use in closed process  
Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
For further specification, refer to section 8 of the SDS.

#### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 1.2.4. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

#### Product (article) characteristics

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Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Use in closed process With occasional controlled exposure Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 1.2.5. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Use in closed process Batch process With occasional controlled exposure Provide a basic standard of general ventilation (1 to 3 air changes per hour).	

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Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 1.2.6. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 1.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

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Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 1.3. Exposure estimation and reference to its source

#### 1.3.1. Environmental release and exposure: Manufacture of the substance (ERC1)

Additional information on exposure estimation
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

#### 1.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to	

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			conclude safe use.	
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### 1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Not relevant



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**ES2: Formulation or re-packing; Various products (PC1, PC3, PC9a, PC12, PC30, PC31, PC35, PC39).**

### 2.1. Title section

<b>Exposure Scenario name</b>	: Formulation or re-packing, Formulation into preparations
<b>Structured Short Title</b>	: Formulation or re-packing; Various products (PC1, PC3, PC9a, PC12, PC30, PC31, PC35, PC39).

Environment		
CS1	Formulation into mixture, Formulation into solid matrix	ERC2, ERC3
Worker		
CS2	General measures applicable to all activities	PROC0
CS3	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions, liquid	PROC1
CS4	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, liquid	PROC2
CS5	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, liquid	PROC3
CS6	Chemical production where opportunity for exposure arises, liquid	PROC4
CS7	Mixing or blending in batch processes, liquid	PROC5
CS8	Industrial spraying, liquid	PROC7
CS9	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, liquid	PROC8a
CS10	Transfer of substance or mixture (charging/discharging) at dedicated facilities, liquid	PROC8b
CS11	Transfer of substance or mixture into small containers (dedicated filling line, including weighing), liquid	PROC9
CS12	Treatment of articles by dipping and pouring, liquid	PROC13
CS13	Use as laboratory reagent, liquid	PROC15
CS14	Manual activities involving hand contact, liquid	PROC19
CS15	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions, solid	PROC1
CS16	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, solid	PROC2

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CS17	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, solid	PROC3
CS18	Chemical production where opportunity for exposure arises, solid	PROC4
CS19	Mixing or blending in batch processes, solid	PROC5
CS20	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, solid	PROC8a
CS21	Transfer of substance or mixture (charging/discharging) at dedicated facilities, solid	PROC8b
CS22	Transfer of substance or mixture into small containers (dedicated filling line, including weighing), solid	PROC9
CS23	Use as laboratory reagent, solid	PROC15
CS24	Manual activities involving hand contact, solid	PROC19

## 2.2. Conditions of use affecting exposure

### 2.2.1. Control of environmental exposure: Formulation into mixture (ERC2) / Formulation into solid matrix (ERC3)

<b>Product (article) characteristics</b>
Covers percentage substance in the product up to 100 %.

### 2.2.2. Control of worker exposure: Other (PROC0)

<b>Technical and organisational conditions and measures</b>
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects. Regular cleaning of work area Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Training of staff on good practice Assumes a good basic standard of occupational hygiene is implemented
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>
Use suitable eye protection. Unless otherwise stated.

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### 2.2.3. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Use in closed process Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection. For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.4. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Use in closed process	

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With occasional controlled exposure  
Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.

For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 2.2.5. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

### Technical and organisational conditions and measures

Use in closed process  
Batch process  
With occasional controlled exposure  
Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.

For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

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### 2.2.6. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.7. Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	

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Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.8. Control of worker exposure: Industrial spraying (PROC7)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.9. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid

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Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.10. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	

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### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 2.2.11. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 4 h

#### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

#### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

#### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 2.2.12. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)



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Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.13. Control of worker exposure: Use as laboratory reagent (PROC15)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

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### 2.2.14. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands and forearms.
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.15. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	

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Use in closed process  
Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use  
Temperature : Assumes process temperature up to 40 °C

### 2.2.16. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.  
Physical form of product : Solid, medium dustiness  
Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 4 h

### Technical and organisational conditions and measures

Use in closed process  
Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Wear suitable respiratory protection.  
Inhalation - minimum efficiency of 90 %  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use  
Temperature : Assumes process temperature up to 40 °C

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### 2.2.17. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Use in closed process Batch process With occasional controlled exposure Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.18. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h

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Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.19. Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

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### 2.2.20. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.21. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour).	

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Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.22. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.23. Control of worker exposure: Use as laboratory reagent (PROC15)

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Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 2.2.24. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	



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Wear suitable respiratory protection.  
Inhalation - minimum efficiency of 90 %  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Body parts exposed	:	Assumes that potential dermal contact is limited to hands and forearms.
Indoor or outdoor use	:	Indoor use
Temperature	:	Assumes process temperature up to 40 °C

## 2.3. Exposure estimation and reference to its source

### 2.3.1. Environmental release and exposure: Formulation into mixture (ERC2) / Formulation into solid matrix (ERC3)

#### Additional information on exposure estimation

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

### 2.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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**ES3: Use at industrial sites; Other (PC0); Various sectors (SU8, SU9).**

### 3.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Intermediate
<b>Structured Short Title</b>	: Use at industrial sites; Other (PC0); Various sectors (SU8, SU9).

Environment		
<b>CS1</b>	<b>Use of intermediate</b>	ERC6a
Worker		
<b>CS2</b>	<b>General measures applicable to all activities</b>	PROC0
<b>CS3</b>	<b>Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions, solid</b>	PROC1
<b>CS4</b>	<b>Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, solid</b>	PROC2
<b>CS5</b>	<b>Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, solid</b>	PROC3
<b>CS6</b>	<b>Chemical production where opportunity for exposure arises, solid</b>	PROC4
<b>CS7</b>	<b>Transfer of substance or mixture (charging/discharging) at dedicated facilities, solid</b>	PROC8b

### 3.2. Conditions of use affecting exposure

#### 3.2.1. Control of environmental exposure: Use of intermediate (ERC6a)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

#### 3.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases

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Avoid splashes.  
Clear spills immediately.  
Avoid contact with contaminated tools and objects.  
Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

### 3.2.3. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

#### Technical and organisational conditions and measures

Use in closed process  
Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
For further specification, refer to section 8 of the SDS.

#### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 3.2.4. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

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Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Use in closed process With occasional controlled exposure Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

**3.2.5. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Use in closed process	

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Batch process  
With occasional controlled exposure  
Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Wear suitable respiratory protection.  
Inhalation - minimum efficiency of 90 %  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use  
Temperature : Assumes process temperature up to 40 °C

### 3.2.6. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.  
Physical form of product : Solid, medium dustiness  
Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 4 h

### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced  
Local exhaust ventilation  
Inhalation - minimum efficiency of 90 %

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Wear suitable respiratory protection.  
Inhalation - minimum efficiency of 90 %  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use  
Temperature : Assumes process temperature up to 40 °C

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### 3.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 3.3. Exposure estimation and reference to its source

#### 3.3.1. Environmental release and exposure: Use of intermediate (ERC6a)

Additional information on exposure estimation
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

#### 3.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative ap-	

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			proach used to conclude safe use.	
inhalative	local	short-term	Qualitative ap- proach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.



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**ES4: Use at industrial sites; Various products (PC3, PC28, PC31, PC35, PC36).**

### 4.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use in cleaning products
<b>Structured Short Title</b>	: Use at industrial sites; Various products (PC3, PC28, PC31, PC35, PC36).

Environment		
<b>CS1</b>	Use of non-reactive processing aid at industrial site (no inclusion into or ERC4 onto article)	
Worker		
<b>CS2</b>	General measures applicable to all activities	PROC0
<b>CS3</b>	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, liquid	PROC2
<b>CS4</b>	Chemical production where opportunity for exposure arises, liquid	PROC4
<b>CS5</b>	Industrial spraying, liquid	PROC7
<b>CS6</b>	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, liquid	PROC8a
<b>CS7</b>	Transfer of substance or mixture (charging/discharging) at dedicated facilities, liquid	PROC8b
<b>CS8</b>	Transfer of substance or mixture into small containers (dedicated filling line, including weighing), liquid	PROC9
<b>CS9</b>	Roller application or brushing, liquid	PROC10
<b>CS10</b>	Treatment of articles by dipping and pouring, liquid	PROC13
<b>CS11</b>	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, solid	PROC2
<b>CS12</b>	Chemical production where opportunity for exposure arises, solid	PROC4
<b>CS13</b>	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, solid	PROC8a
<b>CS14</b>	Transfer of substance or mixture (charging/discharging) at dedicated facilities, solid	PROC8b
<b>CS15</b>	Transfer of substance or mixture into small containers (dedicated filling line, including weighing), solid	PROC9

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### 4.2. Conditions of use affecting exposure

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

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

#### 4.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects. Regular cleaning of work area Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Training of staff on good practice Assumes a good basic standard of occupational hygiene is implemented
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection. Unless otherwise stated.

#### 4.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid
Vapour pressure : < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)
Duration : Exposure duration <= 8 h
Technical and organisational conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic

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Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.2.4. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.2.5. Control of worker exposure: Industrial spraying (PROC7)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa

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<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	

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Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.2.8. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h

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Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.2.9. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.2.10. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

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Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.2.11. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, low dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	

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Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.2.12. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, low dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.2.13. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)



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Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, low dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.2.14. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, low dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	

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Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.2.15. Control of worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, low dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 4.3. Exposure estimation and reference to its source

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

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### Additional information on exposure estimation

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

#### 4.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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**ES5: Widespread use by professional workers; Various products (PC3, PC31, PC35, PC36).**

### 5.1. Title section

<b>Exposure Scenario name</b>	: Professional use, Use in cleaning products
<b>Structured Short Title</b>	: Widespread use by professional workers; Various products (PC3, PC31, PC35, PC36).

Environment		
<b>CS1</b>	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), Widespread use of functional fluid (indoor), Widespread use of functional fluid (outdoor)	ERC8a, ERC8d, ERC9a, ERC9b
Worker		
<b>CS2</b>	General measures applicable to all activities	PROC0
<b>CS3</b>	Roller application or brushing, liquid, Indoor	PROC10
<b>CS4</b>	Roller application or brushing, liquid, Outdoor	PROC10
<b>CS5</b>	Non-industrial spraying, liquid, Indoor	PROC11
<b>CS6</b>	Non-industrial spraying, liquid, Outdoor	PROC11
<b>CS7</b>	Treatment of articles by dipping and pouring, liquid, Indoor	PROC13
<b>CS8</b>	Treatment of articles by dipping and pouring, liquid, Outdoor	PROC13
<b>CS9</b>	Manual activities involving hand contact, liquid, Indoor	PROC19
<b>CS10</b>	Manual activities involving hand contact, liquid, Outdoor	PROC19
<b>CS11</b>	Manual activities involving hand contact, solid, Indoor	PROC19
<b>CS12</b>	Manual activities involving hand contact, solid, Outdoor	PROC19

### 5.2. Conditions of use affecting exposure

**5.2.1. 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) / Widespread use of functional fluid (indoor) (ERC9a) / Widespread use of functional fluid (outdoor) (ERC9b)**

<b>Product (article) characteristics</b>
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Covers percentage substance in the product up to 100 %.

### 5.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects. Regular cleaning of work area Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Training of staff on good practice Assumes a good basic standard of occupational hygiene is implemented
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection. Unless otherwise stated.

### 5.2.3. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.
Physical form of product : Liquid
Vapour pressure : < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)
Duration : Exposure duration <= 8 h
Technical and organisational conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection. For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor or outdoor use : Indoor use
Temperature : Assumes process temperature up to 40 °C

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### 5.2.4. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 5.2.5. Control of worker exposure: Non-industrial spraying (PROC11)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	

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Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 5.2.6. Control of worker exposure: Non-industrial spraying (PROC11)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 5.2.7. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa

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Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 5.2.8. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor use



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Temperature	: Assumes process temperature up to 40 °C
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### 5.2.9. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 5.2.10. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	

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Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 5.2.11. Control of worker exposure: Manual activities involving hand contact (PROC19)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, low dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 5.2.12. Control of worker exposure: Manual activities involving hand contact (PROC19)

<b>Product (article) characteristics</b>
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Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, low dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 5.3. Exposure estimation and reference to its source

**5.3.1. 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) / Widespread use of functional fluid (indoor) (ERC9a) / Widespread use of functional fluid (outdoor) (ERC9b)**

<b>Additional information on exposure estimation</b>
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

### 5.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES6: Consumer use; Various products (PC3, PC31, PC35, PC36).

#### 6.1. Title section

<b>Exposure Scenario name</b>		: Consumer use, Use in cleaning products
<b>Structured Short Title</b>		: Consumer use; Various products (PC3, PC31, PC35, PC36).
<b>Environment</b>		
<b>CS1</b>	<b>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)</b>	ERC8a, ERC8d
<b>Consumer</b>		
<b>CS2</b>	<b>Various products</b>	PC3, PC31, PC35, PC36

#### 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)**

<b>Other conditions affecting environmental exposure</b>	
Indoor or outdoor use	: Covers indoor and outdoor use.

**6.2.2. Control of consumer exposure: Air care products (PC3) / Polishes and wax blends (PC31) / Washing and cleaning products (PC35) / Water softeners (PC36)**

<b>Product (article) characteristics</b>
Covers percentage substance in the product up to 5%.

#### 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)**

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### Additional information on exposure estimation

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

### 6.3.2. Consumer exposure: Air care products (PC3) / Polishes and wax blends (PC31) / Washing and cleaning products (PC35) / Water softeners (PC36)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye			Qualitative approach used to conclude safe use.	
inhalative			Qualitative approach used to conclude safe use.	

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

Not applicable

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**ES7: Widespread use by professional workers; Cosmetics, personal care products (PC39).**

### 7.1. Title section

<b>Exposure Scenario name</b>	: Professional use, Cosmetics, personal care products
<b>Structured Short Title</b>	: Widespread use by professional workers; Cosmetics, personal care products (PC39).

Environment		
<b>CS1</b>	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)	ERC8a
Worker		
<b>CS2</b>	Cosmetics, personal care products	PROC0

### 7.2. Conditions of use affecting exposure

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

Other conditions affecting environmental exposure	
Indoor or outdoor use	: Indoor use

**7.2.2. Control of worker exposure: Other (PROC0)**

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use

### 7.3. Exposure estimation and reference to its source

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

Additional information on exposure estimation
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As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

### 7.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative			Qualitative approach used to conclude safe use.	
Eye			Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.  
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.



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**ES8: Consumer use; Cosmetics, personal care products (PC39).**

### 8.1. Title section

<b>Exposure Scenario name</b>	: Consumer use, Cosmetics, personal care products
<b>Structured Short Title</b>	: Consumer use; Cosmetics, personal care products (PC39).

<b>Environment</b>		
<b>CS1</b>	<b>Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)</b>	<b>ERC8a</b>
<b>Consumer</b>		
<b>CS2</b>	<b>Cosmetics, personal care products</b>	<b>PC39</b>

### 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)**

<b>Other conditions affecting environmental exposure</b>	
Indoor or outdoor use	: Indoor use

**8.2.2. Control of consumer exposure: Cosmetics, personal care products (PC39)**

<b>Other conditions affecting consumers exposure</b>	
Indoor or outdoor use	: Indoor use

### 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)**

<b>Additional information on exposure estimation</b>
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

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### 8.3.2. Consumer exposure: Cosmetics, personal care products (PC39)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye			Qualitative approach used to conclude safe use.	
inhalative			Qualitative approach used to conclude safe use.	

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

Not applicable

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**ES9: Use at industrial sites; Paper and board treatment products (PC26); Manufacture of pulp, paper and paper products (SU6b).**

### 9.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use in paper industry
<b>Structured Short Title</b>	: Use at industrial sites; Paper and board treatment products (PC26); Manufacture of pulp, paper and paper products (SU6b).

Environment		
<b>CS1</b>	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)	
Worker		
<b>CS2</b>	General measures applicable to all activities	PROC0
<b>CS3</b>	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, liquid	PROC2
<b>CS4</b>	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, liquid	PROC3
<b>CS5</b>	Mixing or blending in batch processes, liquid	PROC5
<b>CS6</b>	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, solid	PROC8a
<b>CS7</b>	Transfer of substance or mixture (charging/discharging) at dedicated facilities, solid	PROC8b

### 9.2. Conditions of use affecting exposure

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

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

**9.2.2. Control of worker exposure: Other (PROC0)**

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### Technical and organisational conditions and measures

Minimisation of manual phases  
Avoid splashes.  
Clear spills immediately.  
Avoid contact with contaminated tools and objects.  
Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

### 9.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

### Technical and organisational conditions and measures

Use in closed process  
With occasional controlled exposure

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

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### 9.2.4. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Use in closed process Batch process With occasional controlled exposure	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 9.2.5. Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h

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Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 9.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

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### 9.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 9.3. Exposure estimation and reference to its source

#### 9.3.1. 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
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

#### 9.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative ap-	

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			proach used to conclude safe use.	
inhalative	local	short-term	Qualitative ap- proach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.



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**ES10: Use at industrial sites; Other: building and construction preparations (PC0).**

### 10.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use in cement retardation products
<b>Structured Short Title</b>	: Use at industrial sites; Other: building and construction preparations (PC0).

Environment		
<b>CS1</b>	Use at industrial site leading to inclusion into/onto article	ERC5
Worker		
<b>CS2</b>	General measures applicable to all activities	PROC0
<b>CS3</b>	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, liquid	PROC2
<b>CS4</b>	Chemical production where opportunity for exposure arises, liquid	PROC4
<b>CS5</b>	Industrial spraying, liquid	PROC7
<b>CS6</b>	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, liquid	PROC8a
<b>CS7</b>	Transfer of substance or mixture (charging/discharging) at dedicated facilities, liquid	PROC8b
<b>CS8</b>	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions, solid	PROC2
<b>CS9</b>	Chemical production where opportunity for exposure arises, solid	PROC4
<b>CS10</b>	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, solid	PROC8a
<b>CS11</b>	Transfer of substance or mixture (charging/discharging) at dedicated facilities, solid	PROC8b

### 10.2. Conditions of use affecting exposure

**10.2.1. Control of environmental exposure: Use at industrial site leading to inclusion into/onto article (ERC5)**

<b>Product (article) characteristics</b>
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Covers percentage substance in the product up to 1 %.

### 10.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects. Regular cleaning of work area Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Training of staff on good practice Assumes a good basic standard of occupational hygiene is implemented
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection. Unless otherwise stated.

### 10.2.3. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristics
Covers percentage substance in the product up to 1 %.
Physical form of product : Liquid
Vapour pressure : < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)
Duration : Exposure duration <= 8 h
Technical and organisational conditions and measures
Use in closed process With occasional controlled exposure
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced
Conditions and measures related to personal protection, hygiene and health evaluation
For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure

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Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 10.2.4. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 10.2.5. Control of worker exposure: Industrial spraying (PROC7)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour).	

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Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 10.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 10.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid

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Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 10.2.8. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, high dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Use in closed process With occasional controlled exposure	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use

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Temperature	: Assumes process temperature up to 40 °C
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### 10.2.9. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, high dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 % For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 10.2.10. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, high dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	

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Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable respiratory protection.  
Inhalation - minimum efficiency of 90 %  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use  
Temperature : Assumes process temperature up to 40 °C

### 10.2.11. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

### Product (article) characteristics

Covers percentage substance in the product up to 1 %.  
Physical form of product : Solid, high dustiness  
Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 4 h

### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable respiratory protection.  
Inhalation - minimum efficiency of 90 %  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use  
Temperature : Assumes process temperature up to 40 °C

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### 10.3. Exposure estimation and reference to its source

#### 10.3.1. Environmental release and exposure: Use at industrial site leading to inclusion in- to/onto article (ERC5)

##### Additional information on exposure estimation

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

#### 10.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.



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**ES11: Widespread use by professional workers; Other: building and construction preparations (PC0).**

### 11.1. Title section

<b>Exposure Scenario name</b>	: Professional use, Use in cement retardation products
<b>Structured Short Title</b>	: Widespread use by professional workers; Other: building and construction preparations (PC0).

Environment		
<b>CS1</b>	<b>Widespread use leading to inclusion into/onto article (indoor), Widespread use leading to inclusion into/onto article (outdoor)</b>	ERC8c, ERC8f
Worker		
<b>CS2</b>	<b>General measures applicable to all activities</b>	PROC0
<b>CS3</b>	<b>Roller application or brushing, liquid, Indoor</b>	PROC10
<b>CS4</b>	<b>Roller application or brushing, liquid, Outdoor</b>	PROC10
<b>CS5</b>	<b>Non-industrial spraying, liquid, Indoor</b>	PROC11
<b>CS6</b>	<b>Non-industrial spraying, liquid, Outdoor</b>	PROC11
<b>CS7</b>	<b>Treatment of articles by dipping and pouring, liquid, Indoor</b>	PROC13
<b>CS8</b>	<b>Treatment of articles by dipping and pouring, liquid, Outdoor</b>	PROC13
<b>CS9</b>	<b>Manual activities involving hand contact, liquid, Indoor</b>	PROC19
<b>CS10</b>	<b>Manual activities involving hand contact, liquid, Outdoor</b>	PROC19
<b>CS11</b>	<b>Tabletting, compression, extrusion, pelettisation, granulation, solid, Indoor</b>	PROC14
<b>CS12</b>	<b>Tabletting, compression, extrusion, pelettisation, granulation, solid, Outdoor</b>	PROC14
<b>CS13</b>	<b>Manual activities involving hand contact, solid, Indoor</b>	PROC19
<b>CS14</b>	<b>Manual activities involving hand contact, solid, Outdoor</b>	PROC19
<b>CS15</b>	<b>Low energy manipulation and handling of substances bound in/on materials and/or articles, solid, Indoor</b>	PROC21
<b>CS16</b>	<b>Low energy manipulation and handling of substances bound in/on materials and/or articles, solid, Outdoor</b>	PROC21

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### 11.2. Conditions of use affecting exposure

**11.2.1. Control of environmental exposure: Widespread use leading to inclusion into/onto article (indoor) (ERC8c) / Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)**

Product (article) characteristics
Covers percentage substance in the product up to 1 %.

### 11.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects. Regular cleaning of work area Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Training of staff on good practice Assumes a good basic standard of occupational hygiene is implemented
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection. Unless otherwise stated.

### 11.2.3. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics
Covers percentage substance in the product up to 1 %.
Physical form of product : Liquid
Vapour pressure : < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)
Duration : Exposure duration <= 8 h
Technical and organisational conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic

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Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.2.4. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.2.5. Control of worker exposure: Non-industrial spraying (PROC11)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h

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Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.2.6. Control of worker exposure: Non-industrial spraying (PROC11)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.2.7. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid

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Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.2.8. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.2.9. Control of worker exposure: Manual activities involving hand contact (PROC19)

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Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.2.10. Control of worker exposure: Manual activities involving hand contact (PROC19)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor use

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Temperature	: Assumes process temperature up to 40 °C
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### 11.2.11. Control of worker exposure: Tableting, compression, extrusion, pelettisation, granulation (PROC14)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, high dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable respiratory protection. Inhalation - minimum efficiency of 90 % For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.2.12. Control of worker exposure: Tableting, compression, extrusion, pelettisation, granulation (PROC14)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, high dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	

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Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.2.13. Control of worker exposure: Manual activities involving hand contact (PROC19)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, high dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.2.14. Control of worker exposure: Manual activities involving hand contact (PROC19)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, high dustiness
Vapour pressure	: < 0,000006 Pa



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Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.2.15. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, high dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.2.16. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

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Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, high dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 11.3. Exposure estimation and reference to its source

**11.3.1. Environmental release and exposure: Widespread use leading to inclusion into/onto article (indoor) (ERC8c) / Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)**

Additional information on exposure estimation
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

### 11.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.  
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES12: Consumer use; Other: building and construction preparations (PC0).

#### 12.1. Title section

<b>Exposure Scenario name</b>	: Consumer use, Use in cement retardation products
<b>Structured Short Title</b>	: Consumer use; Other: building and construction preparations (PC0).

Environment		
<b>CS1</b>	<b>Widespread use leading to inclusion into/onto article (indoor), Widespread use leading to inclusion into/onto article (outdoor)</b>	ERC8c, ERC8f
Consumer		
<b>CS2</b>	Other: building and construction preparations	PC0

#### 12.2. Conditions of use affecting exposure

##### 12.2.1. Control of environmental exposure: Widespread use leading to inclusion into/onto article (indoor) (ERC8c) / Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)

Product (article) characteristics
Covers percentage substance in the product up to 1 %.

##### 12.2.2. Control of consumer exposure: Other: building and construction preparations (PC0)

Product (article) characteristics
Covers percentage substance in the product up to 1 %.
Other conditions affecting consumers exposure
Indoor or outdoor use : Covers indoor and outdoor use.

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### 12.3. Exposure estimation and reference to its source

**12.3.1. Environmental release and exposure: Widespread use leading to inclusion into/onto article (indoor) (ERC8c) / Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)**

Additional information on exposure estimation
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

### 12.3.2. Consumer exposure: Other: building and construction preparations (PC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye			Qualitative approach used to conclude safe use.	
inhalative			Qualitative approach used to conclude safe use.	

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

Not applicable

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### ES13: Service life - workers; Other (AC0).

#### 13.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use in cement retardation products
<b>Structured Short Title</b>	: Service life - workers; Other (AC0).

Environment		
<b>CS1</b>	<b>Processing of articles at industrial sites with low release, Processing of articles at industrial sites with high release</b>	ERC12a, ERC12b
Worker		
<b>CS2</b>	<b>General measures applicable to all activities</b>	PROC0
<b>CS3</b>	<b>Low energy manipulation and handling of substances bound in/on materials and/or articles, Indoor</b>	PROC21
<b>CS4</b>	<b>Low energy manipulation and handling of substances bound in/on materials and/or articles, Outdoor</b>	PROC21
<b>CS5</b>	<b>High (mechanical) energy work-up of substances bound in/on materials and/or articles, Indoor</b>	PROC24
<b>CS6</b>	<b>High (mechanical) energy work-up of substances bound in/on materials and/or articles, Outdoor</b>	PROC24

#### 13.2. Conditions of use affecting exposure

##### 13.2.1. Control of environmental exposure: Processing of articles at industrial sites with low release (ERC12a) / Processing of articles at industrial sites with high release (ERC12b)

Product (article) characteristics
Covers percentage substance in the product up to 1 %.

##### 13.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects.

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Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

### 13.2.3. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

#### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Solid, low dustiness

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

#### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

For further specification, refer to section 8 of the SDS.

#### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 13.2.4. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

#### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Solid, low dustiness

Vapour pressure : < 0,000006 Pa

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Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 13.2.5. Control of worker exposure: High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, low dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 13.2.6. Control of worker exposure: High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)



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Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, low dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 13.3. Exposure estimation and reference to its source

#### 13.3.1. Environmental release and exposure: Processing of articles at industrial sites with low release (ERC12a) / Processing of articles at industrial sites with high release (ERC12b)

Additional information on exposure estimation
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

#### 13.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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### **13.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES14: Service life - workers; Other (AC0).

#### 14.1. Title section

<b>Exposure Scenario name</b>	: Professional use, Use in cement retardation products
<b>Structured Short Title</b>	: Service life - workers; Other (AC0).

Environment		
<b>CS1</b>	<b>Widespread use of articles with low release (outdoor), Widespread use of articles with low release (indoor)</b>	ERC10a, ERC11a
Worker		
<b>CS2</b>	<b>General measures applicable to all activities</b>	PROC0
<b>CS3</b>	<b>Low energy manipulation and handling of substances bound in/on materials and/or articles, Indoor</b>	PROC21
<b>CS4</b>	<b>Low energy manipulation and handling of substances bound in/on materials and/or articles, Outdoor</b>	PROC21
<b>CS5</b>	<b>High (mechanical) energy work-up of substances bound in/on materials and/or articles, Indoor</b>	PROC24
<b>CS6</b>	<b>High (mechanical) energy work-up of substances bound in/on materials and/or articles, Outdoor</b>	PROC24

#### 14.2. Conditions of use affecting exposure

**14.2.1. Control of environmental exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)**

Product (article) characteristics
Covers percentage substance in the product up to 1 %.

#### 14.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects.

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Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

#### 14.2.3. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

##### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Solid, low dustiness

Vapour pressure : < 0,000006 Pa

##### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

##### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Basic

### Conditions and measures related to personal protection, hygiene and health evaluation

For further specification, refer to section 8 of the SDS.

##### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

#### 14.2.4. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21)

##### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Solid, low dustiness

Vapour pressure : < 0,000006 Pa

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Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 14.2.5. Control of worker exposure: High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, low dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 14.2.6. Control of worker exposure: High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)

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Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, low dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 14.3. Exposure estimation and reference to its source

#### 14.3.1. Environmental release and exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)

Additional information on exposure estimation
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

#### 14.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES15: Service life - consumers; Other (AC0).

#### 15.1. Title section

<b>Exposure Scenario name</b>	: Consumer use, Use in cement retardation products
<b>Structured Short Title</b>	: Service life - consumers; Other (AC0).

<b>Environment</b>		
<b>CS1</b>	<b>Widespread use of articles with low release (outdoor), Widespread use of articles with low release (indoor)</b>	ERC10a, ERC11a
<b>Consumer</b>		
<b>CS2</b>	Other	AC0

#### 15.2. Conditions of use affecting exposure

##### 15.2.1. Control of environmental exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)

<b>Product (article) characteristics</b>
Covers percentage substance in the product up to 1 %.

##### 15.2.2. Control of consumer exposure: Other (AC0)

<b>Product (article) characteristics</b>
Covers percentage substance in the product up to 1 %.
<b>Other conditions affecting consumers exposure</b>
Indoor or outdoor use : Covers indoor and outdoor use.

#### 15.3. Exposure estimation and reference to its source

##### 15.3.1. Environmental release and exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)



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### Additional information on exposure estimation

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

### 15.3.2. Consumer exposure: Other (AC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye			Qualitative approach used to conclude safe use.	
inhalative			Qualitative approach used to conclude safe use.	

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

Not applicable

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**ES16: Use at industrial sites; Polymer preparations and compounds (PC32); Various sectors (SU11, SU12).**

### 16.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use in polymers and plastics
<b>Structured Short Title</b>	: Use at industrial sites; Polymer preparations and compounds (PC32); Various sectors (SU11, SU12).

Environment		
<b>CS1</b>	Use of non-reactive processing aid at industrial site (no inclusion into or ERC4 onto article)	
Worker		
<b>CS2</b>	General measures applicable to all activities	PROC0
<b>CS3</b>	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, liquid	PROC3
<b>CS4</b>	Mixing or blending in batch processes, liquid	PROC5
<b>CS5</b>	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, solid	PROC8a
<b>CS6</b>	Transfer of substance or mixture (charging/discharging) at dedicated facilities, solid	PROC8b

### 16.2. Conditions of use affecting exposure

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

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

### 16.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes.

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Clear spills immediately.  
Avoid contact with contaminated tools and objects.  
Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

### 16.2.3. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

#### Technical and organisational conditions and measures

Use in closed process  
With occasional controlled exposure  
Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
For further specification, refer to section 8 of the SDS.

#### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 16.2.4. Control of worker exposure: Mixing or blending in batch processes (PROC5)

#### Product (article) characteristics

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Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 16.2.5. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	

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Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 16.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 16.3. Exposure estimation and reference to its source

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

<b>Additional information on exposure estimation</b>
As no environmental hazard was identified no environmental-related exposure assessment and risk

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characterization was performed.

### 16.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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**ES17: Use at industrial sites; Various products (PC35, PC37); Various sectors (SU2a, SU2b).**

### 17.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use in scale inhibition in oilfield water systems
<b>Structured Short Title</b>	: Use at industrial sites; Various products (PC35, PC37); Various sectors (SU2a, SU2b).

Environment		
<b>CS1</b>	Use of non-reactive processing aid at industrial site (no inclusion into or ERC4 onto article)	
Worker		
<b>CS2</b>	General measures applicable to all activities	PROC0
<b>CS3</b>	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, liquid	PROC3
<b>CS4</b>	Chemical production where opportunity for exposure arises, liquid	PROC4
<b>CS5</b>	Mixing or blending in batch processes, liquid	PROC5
<b>CS6</b>	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, liquid	PROC8a
<b>CS7</b>	Transfer of substance or mixture (charging/discharging) at dedicated facilities, liquid	PROC8b

### 17.2. Conditions of use affecting exposure

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

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

**17.2.2. Control of worker exposure: Other (PROC0)**

Technical and organisational conditions and measures
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Minimisation of manual phases  
Avoid splashes.  
Clear spills immediately.  
Avoid contact with contaminated tools and objects.  
Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

### 17.2.3. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

#### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
For further specification, refer to section 8 of the SDS.

#### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 17.2.4. Control of worker exposure: Chemical production where opportunity for exposure arises (PROC4)



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Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 17.2.5. Control of worker exposure: Mixing or blending in batch processes (PROC5)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	

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For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 17.2.6. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 4 h

#### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

#### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 17.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

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<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 17.3. Exposure estimation and reference to its source

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

<b>Additional information on exposure estimation</b>
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

#### 17.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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### **17.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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**ES18: Use at industrial sites; Various products (PC20, PC23, PC34); Manufacture of textiles, leather, fur (SU5).**

### 18.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use in textile industry
<b>Structured Short Title</b>	: Use at industrial sites; Various products (PC20, PC23, PC34); Manufacture of textiles, leather, fur (SU5).

Environment		
CS1	Use of non-reactive processing aid at industrial site (no inclusion into or ERC4 onto article)	
Worker		
CS2	General measures applicable to all activities	PROC0
CS3	Industrial spraying, liquid	PROC7
CS4	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, solid	PROC8a
CS5	Transfer of substance or mixture (charging/discharging) at dedicated facilities, solid	PROC8b
CS6	Roller application or brushing, liquid	PROC10
CS7	Treatment of articles by dipping and pouring, liquid	PROC13

### 18.2. Conditions of use affecting exposure

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

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

**18.2.2. Control of worker exposure: Other (PROC0)**

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes.

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Clear spills immediately.  
Avoid contact with contaminated tools and objects.  
Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

### 18.2.3. Control of worker exposure: Industrial spraying (PROC7)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 4 h

#### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

#### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 18.2.4. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

#### Product (article) characteristics

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Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 18.2.5. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	

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Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 18.2.6. Control of worker exposure: Roller application or brushing (PROC10)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 18.2.7. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	



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Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 18.3. Exposure estimation and reference to its source

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

<b>Additional information on exposure estimation</b>
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

#### 18.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES19: Use at industrial sites; Coatings and paints, thinners, paint removers (PC9a).

#### 19.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use in paints and coatings
<b>Structured Short Title</b>	: Use at industrial sites; Coatings and paints, thinners, paint removers (PC9a).

Environment		
<b>CS1</b>	Use at industrial site leading to inclusion into/onto article	ERC5
Worker		
<b>CS2</b>	General measures applicable to all activities	PROC0
<b>CS3</b>	Industrial spraying, liquid	PROC7
<b>CS4</b>	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, liquid	PROC8a
<b>CS5</b>	Transfer of substance or mixture (charging/discharging) at dedicated facilities, liquid	PROC8b
<b>CS6</b>	Roller application or brushing, liquid	PROC10
<b>CS7</b>	Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, solid	PROC8a
<b>CS8</b>	Transfer of substance or mixture (charging/discharging) at dedicated facilities, solid	PROC8b

#### 19.2. Conditions of use affecting exposure

##### 19.2.1. Control of environmental exposure: Use at industrial site leading to inclusion into/onto article (ERC5)

Product (article) characteristics
Covers percentage substance in the product up to 1 %.

##### 19.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases

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Avoid splashes.  
Clear spills immediately.  
Avoid contact with contaminated tools and objects.  
Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

### 19.2.3. Control of worker exposure: Industrial spraying (PROC7)

#### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

#### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

For further specification, refer to section 8 of the SDS.

#### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 19.2.4. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

#### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

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Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 19.2.5. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

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### 19.2.6. Control of worker exposure: Roller application or brushing (PROC10)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 19.2.7. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	

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### Conditions and measures related to personal protection, hygiene and health evaluation

For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 19.2.8. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)

### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Solid, medium dustiness

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 19.3. Exposure estimation and reference to its source

#### 19.3.1. Environmental release and exposure: Use at industrial site leading to inclusion in-to/onto article (ERC5)

### Additional information on exposure estimation

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

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### 19.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.  
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.



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**ES20: Widespread use by professional workers; Coatings and paints, thinners, paint removers (PC9a); Various sectors (SU18, SU19).**

### 20.1. Title section

<b>Exposure Scenario name</b>	: Professional use
<b>Structured Short Title</b>	: Widespread use by professional workers; Coatings and paints, thinners, paint removers (PC9a); Various sectors (SU18, SU19).

Environment		
<b>CS1</b>	<b>Widespread use leading to inclusion into/onto article (indoor), Widespread use leading to inclusion into/onto article (outdoor)</b>	ERC8c, ERC8f
Worker		
<b>CS2</b>	<b>General measures applicable to all activities</b>	PROC0
<b>CS3</b>	<b>Roller application or brushing, liquid</b>	PROC10
<b>CS4</b>	<b>Non-industrial spraying, liquid</b>	PROC11
<b>CS5</b>	<b>Manual activities involving hand contact, liquid</b>	PROC19
<b>CS6</b>	<b>Manual activities involving hand contact, solid</b>	PROC19

### 20.2. Conditions of use affecting exposure

**20.2.1. Control of environmental exposure: Widespread use leading to inclusion into/onto article (indoor) (ERC8c) / Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)**

Product (article) characteristics
Covers percentage substance in the product up to 1 %.

### 20.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects. Regular cleaning of work area

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Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

#### 20.2.3. Control of worker exposure: Roller application or brushing (PROC10)

##### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

##### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

##### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Basic

### Conditions and measures related to personal protection, hygiene and health evaluation

For further specification, refer to section 8 of the SDS.

##### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

#### 20.2.4. Control of worker exposure: Non-industrial spraying (PROC11)

##### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

##### Amount used, frequency and duration of use (or from service life)

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Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 20.2.5. Control of worker exposure: Manual activities involving hand contact (PROC19)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 20.2.6. Control of worker exposure: Manual activities involving hand contact (PROC19)

<b>Product (article) characteristics</b>
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Covers percentage substance in the product up to 1 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 20.3. Exposure estimation and reference to its source

**20.3.1. Environmental release and exposure: Widespread use leading to inclusion into/onto article (indoor) (ERC8c) / Widespread use leading to inclusion into/onto article (outdoor) (ERC8f)**

<b>Additional information on exposure estimation</b>
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

### 20.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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### **20.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.  
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES21: Consumer use; Coatings and paints, thinners, paint removers (PC9a).

#### 21.1. Title section

<b>Exposure Scenario name</b>	: Consumer use, Use in paints and coatings
<b>Structured Short Title</b>	: Consumer use; Coatings and paints, thinners, paint removers (PC9a).

Environment		
<b>CS1</b>	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
Consumer		
<b>CS2</b>	Use in paints and coatings	PC9a

#### 21.2. Conditions of use affecting exposure

**21.2.1. 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 percentage substance in the product up to 1 %.

#### 21.2.2. Control of consumer exposure: Coatings and paints, thinners, paint removers (PC9a)

Product (article) characteristics	
Covers percentage substance in the product up to 1 %.	
Physical form of product	: Liquid Solid, medium dustiness

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### 21.3. Exposure estimation and reference to its source

**21.3.1. 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
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

### 21.3.2. Consumer exposure: Coatings and paints, thinners, paint removers (PC9a)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye			Qualitative approach used to conclude safe use.	
inhalative			Qualitative approach used to conclude safe use.	

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

Not applicable

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### ES22: Service life - workers; Other (AC0).

#### 22.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use in paints and coatings
<b>Structured Short Title</b>	: Service life - workers; Other (AC0).

Environment		
<b>CS1</b>	<b>Processing of articles at industrial sites with low release, Processing of articles at industrial sites with high release</b>	ERC12a, ERC12b
Worker		
<b>CS2</b>	<b>General measures applicable to all activities</b>	PROC0
<b>CS3</b>	<b>various processes, Indoor</b>	PROC21, PROC24
<b>CS4</b>	<b>various processes, Outdoor</b>	PROC21, PROC24

#### 22.2. Conditions of use affecting exposure

##### 22.2.1. Control of environmental exposure: Processing of articles at industrial sites with low release (ERC12a) / Processing of articles at industrial sites with high release (ERC12b)

Product (article) characteristics
Covers percentage substance in the product up to 1 %.

##### 22.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects. Regular cleaning of work area Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Training of staff on good practice Assumes a good basic standard of occupational hygiene is implemented



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### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

**22.2.3. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21) / High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)**

### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Solid, low dustiness

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

**22.2.4. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21) / High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)**

### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Solid, low dustiness

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

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Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 22.3. Exposure estimation and reference to its source

**22.3.1. Environmental release and exposure: Processing of articles at industrial sites with low release (ERC12a) / Processing of articles at industrial sites with high release (ERC12b)**

<b>Additional information on exposure estimation</b>
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

### 22.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

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If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES23: Service life - workers; Other (AC0).

#### 23.1. Title section

<b>Exposure Scenario name</b>	: Professional use, Use in paints and coatings
<b>Structured Short Title</b>	: Service life - workers; Other (AC0).

Environment		
<b>CS1</b>	<b>Widespread use of articles with low release (outdoor), Widespread use of articles with low release (indoor)</b>	ERC10a, ERC11a
Worker		
<b>CS2</b>	<b>General measures applicable to all activities</b>	PROC0
<b>CS3</b>	<b>various processes, Indoor</b>	PROC21, PROC24
<b>CS4</b>	<b>various processes, Outdoor</b>	PROC21, PROC24

#### 23.2. Conditions of use affecting exposure

##### 23.2.1. Control of environmental exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)

Product (article) characteristics
Covers percentage substance in the product up to 1 %.

##### 23.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects. Regular cleaning of work area Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Training of staff on good practice Assumes a good basic standard of occupational hygiene is implemented

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### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

**23.2.3. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21) / High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)**

### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Solid, low dustiness

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Basic

### Conditions and measures related to personal protection, hygiene and health evaluation

For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

**23.2.4. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21) / High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)**

### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Solid, low dustiness

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

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Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 23.3. Exposure estimation and reference to its source

**23.3.1. Environmental release and exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)**

<b>Additional information on exposure estimation</b>
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

### 23.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

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### ES24: Service life - consumers; Other (AC0).

#### 24.1. Title section

<b>Exposure Scenario name</b>	: Consumer use, Use in paints and coatings
<b>Structured Short Title</b>	: Service life - consumers; Other (AC0).

<b>Environment</b>		
<b>CS1</b>	<b>Widespread use of articles with low release (outdoor), Widespread use of articles with low release (indoor)</b>	ERC10a, ERC11a
<b>Consumer</b>		
<b>CS2</b>	<b>Use in paints and coatings</b>	AC0

#### 24.2. Conditions of use affecting exposure

##### 24.2.1. Control of environmental exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)

<b>Product (article) characteristics</b>
Covers percentage substance in the product up to 1 %.

##### 24.2.2. Control of consumer exposure: Other (AC0)

<b>Product (article) characteristics</b>
Covers percentage substance in the product up to 1 %.

#### 24.3. Exposure estimation and reference to its source

##### 24.3.1. Environmental release and exposure: Widespread use of articles with low release (outdoor) (ERC10a) / Widespread use of articles with low release (indoor) (ERC11a)

<b>Additional information on exposure estimation</b>
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.



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### 24.3.2. Consumer exposure: Other (AC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye			Qualitative approach used to conclude safe use.	
inhalative			Qualitative approach used to conclude safe use.	

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

Not applicable

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### ES25: Use at industrial sites; Photo-chemicals (PC30).

#### 25.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Photochemical
<b>Structured Short Title</b>	: Use at industrial sites; Photo-chemicals (PC30).

Environment		
<b>CS1</b>	Use of reactive processing aid at industrial site (no inclusion into or onto article)	ERC6b
Worker		
<b>CS2</b>	General measures applicable to all activities	PROC0
<b>CS3</b>	various processes, liquid	PROC5, PROC13
<b>CS4</b>	various processes, solid	PROC5, PROC13

#### 25.2. Conditions of use affecting exposure

##### 25.2.1. Control of environmental exposure: Use of reactive processing aid at industrial site (no inclusion into or onto article) (ERC6b)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

##### 25.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects. Regular cleaning of work area Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Training of staff on good practice Assumes a good basic standard of occupational hygiene is implemented

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### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

### 25.2.3. Control of worker exposure: Mixing or blending in batch processes (PROC5) / Treatment of articles by dipping and pouring (PROC13)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 4 h

#### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Wear suitable respiratory protection.  
Inhalation - minimum efficiency of 90 %  
For further specification, refer to section 8 of the SDS.

#### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 25.2.4. Control of worker exposure: Mixing or blending in batch processes (PROC5) / Treatment of articles by dipping and pouring (PROC13)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

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Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 25.3. Exposure estimation and reference to its source

#### 25.3.1. Environmental release and exposure: Use of reactive processing aid at industrial site (no inclusion into or onto article) (ERC6b)

<b>Additional information on exposure estimation</b>
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

#### 25.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES26: Consumer use; Photo-chemicals (PC30).

#### 26.1. Title section

Exposure Scenario name	: Consumer use, Photochemical
Structured Short Title	: Consumer use; Photo-chemicals (PC30).

Environment		
CS1	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)	ERC8a
Consumer		
CS2	Photochemical	PC30

#### 26.2. Conditions of use affecting exposure

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

Product (article) characteristics
Covers percentage substance in the product up to 5%.

##### 26.2.2. Control of consumer exposure: Photo-chemicals (PC30)

Product (article) characteristics
Covers percentage substance in the product up to 5%.

#### 26.3. Exposure estimation and reference to its source

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

Additional information on exposure estimation
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

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### 26.3.2. Consumer exposure: Photo-chemicals (PC30)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye			Qualitative approach used to conclude safe use.	
inhalative			Qualitative approach used to conclude safe use.	

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

Not applicable

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### ES27: Use at industrial sites; Various products (PC20, PC36, PC37).

#### 27.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use as an anti-scalant, complexing agent in water treatment systems
<b>Structured Short Title</b>	: Use at industrial sites; Various products (PC20, PC36, PC37).

Environment		
CS1	Use of non-reactive processing aid at industrial site (no inclusion into or ERC4, ERC7 onto article), Use of functional fluid at industrial site	
Worker		
CS2	General measures applicable to all activities	PROC0
CS3	various processes, liquid	PROC1, PROC2, PROC4
CS4	various processes, liquid	PROC7, PROC9
CS5	various processes, solid	PROC8a, PROC8b

#### 27.2. Conditions of use affecting exposure

**27.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4) / Use of functional fluid at industrial site (ERC7)**

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

#### 27.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects.



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Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

**27.2.3. 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) / Chemical production where opportunity for exposure arises (PROC4)**

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

**27.2.4. Control of worker exposure: Industrial spraying (PROC7) / Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)**

### Product (article) characteristics

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Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

**27.2.5. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a) / Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)**

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	

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Wear suitable respiratory protection.  
Inhalation - minimum efficiency of 90 %  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 27.3. Exposure estimation and reference to its source

**27.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4) / Use of functional fluid at industrial site (ERC7)**

#### Additional information on exposure estimation

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

### 27.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.  
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES28: Use at industrial sites; Various products (PC7, PC14).

#### 28.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use in metal surface treatment
<b>Structured Short Title</b>	: Use at industrial sites; Various products (PC7, PC14).

Environment		
<b>CS1</b>	<b>Use at industrial site leading to inclusion into/onto article</b>	ERC5
Worker		
<b>CS2</b>	<b>General measures applicable to all activities</b>	PROC0
<b>CS3</b>	<b>various processes, liquid</b>	PROC2, PROC3, PROC4, PROC10
<b>CS4</b>	<b>various processes, liquid</b>	PROC7, PROC9, PROC13
<b>CS5</b>	<b>various processes, solid</b>	PROC8a, PROC8b

#### 28.2. Conditions of use affecting exposure

##### 28.2.1. Control of environmental exposure: Use at industrial site leading to inclusion into/onto article (ERC5)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

##### 28.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects.

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Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

**28.2.3. Control of worker exposure: 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) / Roller application or brushing (PROC10)**

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

**28.2.4. Control of worker exposure: Industrial spraying (PROC7) / Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9) / Treatment of articles by dipping and pouring (PROC13)**

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Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

**28.2.5. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a) / Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)**

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	

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### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

## 28.3. Exposure estimation and reference to its source

### 28.3.1. Environmental release and exposure: Use at industrial site leading to inclusion in- to/onto article (ERC5)

#### Additional information on exposure estimation

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

### 28.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES29: Service life - workers; Other (AC0).

#### 29.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use in metal surface treatment
<b>Structured Short Title</b>	: Service life - workers; Other (AC0).

Environment		
<b>CS1</b>	<b>Processing of articles at industrial sites with low release, Processing of articles at industrial sites with high release</b>	ERC12a, ERC12b
Worker		
<b>CS2</b>	<b>General measures applicable to all activities</b>	PROC0
<b>CS3</b>	<b>various processes, Indoor</b>	PROC21, PROC24
<b>CS4</b>	<b>various processes, Outdoor</b>	PROC21, PROC24

#### 29.2. Conditions of use affecting exposure

##### 29.2.1. Control of environmental exposure: Processing of articles at industrial sites with low release (ERC12a) / Processing of articles at industrial sites with high release (ERC12b)

Product (article) characteristics
Covers percentage substance in the product up to 1 %.

##### 29.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects. Regular cleaning of work area Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed. Training of staff on good practice Assumes a good basic standard of occupational hygiene is implemented



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### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

**29.2.3. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21) / High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)**

### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Solid, low dustiness

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

**29.2.4. Control of worker exposure: Low energy manipulation and handling of substances bound in/on materials and/or articles (PROC21) / High (mechanical) energy work-up of substances bound in/on materials and/or articles (PROC24)**

### Product (article) characteristics

Covers percentage substance in the product up to 1 %.

Physical form of product : Solid, low dustiness

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

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Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Outdoor use
Temperature	: Assumes process temperature up to 40 °C

### 29.3. Exposure estimation and reference to its source

**29.3.1. Environmental release and exposure: Processing of articles at industrial sites with low release (ERC12a) / Processing of articles at industrial sites with high release (ERC12b)**

<b>Additional information on exposure estimation</b>
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

### 29.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

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If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES30: Use at industrial sites; Washing and cleaning products (PC35).

#### 30.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Cleaning of metal surfaces
<b>Structured Short Title</b>	: Use at industrial sites; Washing and cleaning products (PC35).

Environment		
CS1	Use of non-reactive processing aid at industrial site (no inclusion into or ERC4 onto article)	
Worker		
CS2	General measures applicable to all activities	PROC0
CS3	various processes, liquid	PROC7, PROC9, PROC13
CS4	various processes, solid	PROC8a, PROC8b
CS5	Roller application or brushing, liquid	PROC10

#### 30.2. Conditions of use affecting exposure

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

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

##### 30.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects. Regular cleaning of work area Supervision in place to check that the risk management measures in place are being used correctly and

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operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

**30.2.3. Control of worker exposure: Industrial spraying (PROC7) / Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9) / Treatment of articles by dipping and pouring (PROC13)**

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 4 h

### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.

Wear suitable respiratory protection.

Inhalation - minimum efficiency of 90 %

For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

**30.2.4. Control of worker exposure: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a) / Transfer of substance or mixture (charging/discharging) at dedicated facilities (PROC8b)**

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

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Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 30.2.5. Control of worker exposure: Roller application or brushing (PROC10)

<b>Product (article) characteristics</b>	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 8 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	

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Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 30.3. Exposure estimation and reference to its source

#### 30.3.1. 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
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

#### 30.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

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### ES31: Use at industrial sites; Fertilizers (PC12).

#### 31.1. Title section

Exposure Scenario name	: Industrial use, Use in agriculture
Structured Short Title	: Use at industrial sites; Fertilizers (PC12).

Environment		
CS1	Use of non-reactive processing aid at industrial site (no inclusion into or ERC4 onto article)	
Worker		
CS2	General measures applicable to all activities	PROC0
CS3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, liquid	PROC3
CS4	various processes, liquid	PROC5, PROC8a, PROC8b
CS5	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition, solid	PROC3
CS6	various processes, solid	PROC5, PROC8a, PROC8b

#### 31.2. Conditions of use affecting exposure

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

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

##### 31.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
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Minimisation of manual phases  
Avoid splashes.  
Clear spills immediately.  
Avoid contact with contaminated tools and objects.  
Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

**31.2.3. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

### Technical and organisational conditions and measures

Use in closed process  
Batch process  
With occasional controlled exposure  
Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

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**31.2.4. Control of worker exposure: 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)**

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

**31.2.5. Control of worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)**

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	

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Use in closed process  
Batch process  
With occasional controlled exposure  
Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Wear suitable respiratory protection.  
Inhalation - minimum efficiency of 90 %  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use  
Temperature : Assumes process temperature up to 40 °C

**31.2.6. Control of worker exposure: 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)**

### Product (article) characteristics

Covers percentage substance in the product up to 100 %.  
Physical form of product : Solid, medium dustiness  
Vapour pressure : < 0,000006 Pa

### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 4 h

### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Wear suitable respiratory protection.  
Inhalation - minimum efficiency of 90 %  
For further specification, refer to section 8 of the SDS.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use  
Temperature : Assumes process temperature up to 40 °C

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### 31.3. Exposure estimation and reference to its source

#### 31.3.1. 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
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

#### 31.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.  
If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES32: Widespread use by professional workers; Fertilizers (PC12).

#### 32.1. Title section

<b>Exposure Scenario name</b>	: Professional use, Use in agriculture
<b>Structured Short Title</b>	: Widespread use by professional workers; Fertilizers (PC12).

Environment		
<b>CS1</b>	Widespread use of reactive processing aid (no inclusion into or onto article, indoor), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)	ERC8b, ERC8d
Worker		
<b>CS2</b>	General measures applicable to all activities	PROC0
<b>CS3</b>	Roller application or brushing, liquid	PROC10
<b>CS4</b>	Non-industrial spraying, liquid	PROC11
<b>CS5</b>	Use as laboratory reagent, liquid	PROC15
<b>CS6</b>	various processes, solid	PROC14, PROC15, PROC19

#### 32.2. Conditions of use affecting exposure

**32.2.1. Control of environmental exposure: Widespread use of reactive processing aid (no inclusion into or onto article, indoor) (ERC8b) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)**

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

#### 32.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects.

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Regular cleaning of work area  
Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.  
Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

### 32.2.3. Control of worker exposure: Roller application or brushing (PROC10)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

#### Technical and organisational conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Basic

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
For further specification, refer to section 8 of the SDS.

#### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 32.2.4. Control of worker exposure: Non-industrial spraying (PROC11)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Liquid

Vapour pressure : < 0,000006 Pa

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Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 32.2.5. Control of worker exposure: Use as laboratory reagent (PROC15)

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Liquid
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 8 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

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**32.2.6. Control of worker exposure: Tableting, compression, extrusion, pelettisation, granulation (PROC14) / Use as laboratory reagent (PROC15) / Manual activities involving hand contact (PROC19)**

Product (article) characteristics	
Covers percentage substance in the product up to 100 %.	
Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
Amount used, frequency and duration of use (or from service life)	
Duration	: Exposure duration <= 4 h
Technical and organisational conditions and measures	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 32.3. Exposure estimation and reference to its source

**32.3.1. Environmental release and exposure: Widespread use of reactive processing aid (no inclusion into or onto article, indoor) (ERC8b) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)**

Additional information on exposure estimation
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

### 32.3.2. Worker exposure: Other (PROC0)



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Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.

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### ES33: Consumer use; Fertilizers (PC12).

#### 33.1. Title section

<b>Exposure Scenario name</b>	: Consumer use, Use in agriculture
<b>Structured Short Title</b>	: Consumer use; Fertilizers (PC12).
<b>Environment</b>	
<b>CS1</b>	Widespread use of reactive processing aid (no inclusion into or onto article, indoor), Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) ERC8b, ERC8d
<b>Consumer</b>	
<b>CS2</b>	Fertilizers PC12

#### 33.2. Conditions of use affecting exposure

**33.2.1. Control of environmental exposure: Widespread use of reactive processing aid (no inclusion into or onto article, indoor) (ERC8b) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)**

<b>Product (article) characteristics</b>
Covers percentage substance in the product up to 5%.

#### 33.2.2. Control of consumer exposure: Fertilizers (PC12)

<b>Product (article) characteristics</b>
Covers percentage substance in the product up to 5%.

#### 33.3. Exposure estimation and reference to its source

**33.3.1. Environmental release and exposure: Widespread use of reactive processing aid (no inclusion into or onto article, indoor) (ERC8b) / Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)**

<b>Additional information on exposure estimation</b>
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As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

### 33.3.2. Consumer exposure: Fertilizers (PC12)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye			Qualitative approach used to conclude safe use.	
inhalative			Qualitative approach used to conclude safe use.	

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

Not applicable

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### ES34: Use at industrial sites; Laboratory chemicals (PC21).

#### 34.1. Title section

<b>Exposure Scenario name</b>	: Industrial use, Use as laboratory reagent
<b>Structured Short Title</b>	: Use at industrial sites; Laboratory chemicals (PC21).

Environment		
CS1	Use of non-reactive processing aid at industrial site (no inclusion into or ERC4, ERC7 onto article), Use of functional fluid at industrial site	
Worker		
CS2	General measures applicable to all activities	PROC0
CS3	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions, solid	PROC1
CS4	various processes, solid	PROC2, PROC4, PROC8a, PROC15

#### 34.2. Conditions of use affecting exposure

##### 34.2.1. Control of environmental exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4) / Use of functional fluid at industrial site (ERC7)

Product (article) characteristics
Covers percentage substance in the product up to 100 %.

##### 34.2.2. Control of worker exposure: Other (PROC0)

Technical and organisational conditions and measures
Minimisation of manual phases Avoid splashes. Clear spills immediately. Avoid contact with contaminated tools and objects. Regular cleaning of work area Supervision in place to check that the risk management measures in place are being used correctly and operation conditions followed.

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Training of staff on good practice  
Assumes a good basic standard of occupational hygiene is implemented

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
Unless otherwise stated.

### 34.2.3. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Solid, medium dustiness

Vapour pressure : < 0,000006 Pa

#### Amount used, frequency and duration of use (or from service life)

Duration : Exposure duration <= 8 h

#### Technical and organisational conditions and measures

Use in closed process  
Provide a basic standard of general ventilation (1 to 3 air changes per hour).  
Occupational Health and Safety Management System: Advanced

### Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.  
For further specification, refer to section 8 of the SDS.

#### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor use

Temperature : Assumes process temperature up to 40 °C

### 34.2.4. Control of worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2) / Chemical production where opportunity for exposure arises (PROC4) / Transfer of substance or mixture (charging/discharging) at non dedicated-facilities (PROC8a) / Use as laboratory reagent (PROC15)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

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Physical form of product	: Solid, medium dustiness
Vapour pressure	: < 0,000006 Pa
<b>Amount used, frequency and duration of use (or from service life)</b>	
Duration	: Exposure duration <= 4 h
<b>Technical and organisational conditions and measures</b>	
Provide a basic standard of general ventilation (1 to 3 air changes per hour). Occupational Health and Safety Management System: Advanced	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Use suitable eye protection.	
Wear suitable respiratory protection.	
Inhalation - minimum efficiency of 90 %	
For further specification, refer to section 8 of the SDS.	
<b>Other conditions affecting workers exposure</b>	
Indoor or outdoor use	: Indoor use
Temperature	: Assumes process temperature up to 40 °C

### 34.3. Exposure estimation and reference to its source

**34.3.1. Environmental release and exposure: Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4) / Use of functional fluid at industrial site (ERC7)**

<b>Additional information on exposure estimation</b>
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.

### 34.3.2. Worker exposure: Other (PROC0)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Eye	local	short-term	Qualitative approach used to conclude safe use.	
inhalative	local	short-term	Qualitative approach used to conclude safe use.	

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### **34.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES**

The immediate downstream user is required to evaluate whether the operational conditions and risk management measures described in the exposure scenario fit to his use.

If other OC/RMM are adopted, the user should ensure that risks are managed to at least equivalent levels.