

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

- | | |
|-------------------------------|-----------------------|
| - Trade name | AUGEO SL191 |
| - CAS-No. | 100-79-8 |
| - REACH : Registration number | 01-2120066005-66-0000 |

1.2 Relevant identified uses of the substance or mixture and uses advised against**Uses of the Substance/Mixture**

- Uses in Coatings
- Clear coating
- Paint
- Use as solvent for electronics

1.3 Details of the supplier of the safety data sheet**Company**

RHODIA Opérations
40 Rue de la Haie Coq
93306 Aubervilliers Cedex - France
Tel : +33 (0)1.53.56.50.00

E-mail address

manager.sds@solvay.com

1.4 Emergency telephone number

+44(0)1235 239 670 [CareChem 24]

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.

2.2 Label elements**Regulation (EC) No 1272/2008****Hazardous products which must be listed on the label**

- | | |
|--------------------|--|
| • CAS-No. 100-79-8 | 2,2-dimethyl-1,3-dioxolan-4-ylmethanol |
|--------------------|--|

Pictogram**Signal word**

- Warning

Hazard statements

- H319 Causes serious eye irritation.

Precautionary statementsPrevention

- P264 Wash skin thoroughly after handling.
- P280 Wear 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.

2.3 Other hazards which do not result in classification**Results of PBT and vPvB assessment**

- This substance is not considered to be persistent, bioaccumulating and toxic (PBT).
- This substance is not considered to be very persistent and very bioaccumulating (vPvB).

SECTION 3: Composition/information on ingredients**3.1 Substance**

- Formula C₆H₁₂O₃

Information on Components and Impurities

Chemical name	Identification number	Classification Regulation (EC) No 1272/2008	Concentration [%]
2,2-dimethyl-1,3-dioxolan-4-ylmethanol	CAS-No. : 100-79-8 EINECS-No. : 202-888-7	Eye irritation, Category 2 ; H319	>= 99 - <= 100
	Registration number: 01-2120066005-66-xxxx		
	self classification		

For the full text of the H-Statements mentioned in this Section, see Section 16.

3.2 Mixture

- Not applicable, this product is a substance.

SECTION 4: First aid measures**4.1 Description of first aid measures****General advice**

- Show this safety data sheet to the doctor in attendance.
- First aider needs to protect himself.
- Place affected clothing in a sealed bag for subsequent decontamination.

In case of inhalation

- Move to fresh air.
- Keep at rest.
- Consult a physician if necessary.

In case of skin contact

- Take off contaminated clothing and shoes immediately.
- Wash off with soap and plenty of water.

- If skin irritation occurs, seek medical advice/attention.

In case of eye contact

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- If eye irritation persists, consult a physician

In case of ingestion

- Do NOT induce vomiting.
- Rinse mouth with water.
- Do not give anything to drink.
- Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

- no data available

4.3 Indication of any immediate medical attention and special treatment needed**Notes to physician**

- Treat symptomatically.
- There is no specific antidote available.

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

- Foam
- Dry powder
- Water mist
- Carbon dioxide (CO₂)
- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

- High volume water jet

5.2 Special hazards arising from the substance or mixture

- Combustible liquid.
- Heating increases the inner pressure of the bottle, risk of explosion.

5.3 Advice for firefighters**Special protective equipment for firefighters**

- Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing
- Wear self-contained breathing apparatus for firefighting if necessary.

Further information

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Cool containers/tanks with water spray.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

- Mark the contaminated area with signs and prevent access to unauthorized personnel.
- Evacuate personnel to safe areas.
- Avoid contact with the skin and the eyes.
- Use personal protective equipment.

- Keep away from flames and sparks.
- Store away from heat.
- Stop the leak. Turn leaking containers leak-side up to prevent the escape of liquid.
- Remove all incompatible materials as quickly as possible

6.2 Environmental precautions

- Dam up.
- Prevent product from entering sewage system.
- Try to prevent the material from entering drains or water courses.
- Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Recovery

- Collect spillage.
- Pick up and transfer to properly labelled containers.
- Keep in suitable, closed containers for disposal.

Neutralization

- Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

Decontamination/cleaning

- Pick up contaminated soil.
- Clean contaminated floors and objects thoroughly while observing environmental regulations.
- Pick up and transfer to properly labelled containers.
- Keep in suitable, closed containers for disposal.
- Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

Disposal

- Dispose of contents/ container to an approved waste disposal plant.
- The product should not be allowed to enter drains, water courses or the soil.
- Dispose of in accordance with local regulations.

Additional advice

- Remove all incompatible materials as quickly as possible

6.4 Reference to other sections

- 7. HANDLING AND STORAGE
- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
- 13. DISPOSAL CONSIDERATIONS

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Provide adequate ventilation.
- Provide sufficient air exchange and/or exhaust in work rooms.
- Handle in accordance with good industrial hygiene and safety practice.
- Wear personal protective equipment.
- Avoid inhalation, ingestion and contact with skin and eyes.
- For personal protection see section 8.

Hygiene measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- Use clean, well-maintained personal protection equipment.
- Wash hands before breaks and at the end of workday.
- When using do not eat, drink or smoke.

7.2 Conditions for safe storage, including any incompatibilities**Technical measures/Storage conditions**

- The floor of the depot should be impermeable and designed to form a water-tight basin.
- Keep only in the original container.
- Keep in a dry, cool and well-ventilated place.
- Keep away from open flames, hot surfaces and sources of ignition.
- Keep away from incompatible materials to be indicated by the manufacturer
- Note: To ensure the product's validity period, it is recommended to inert with nitrogen (N₂) in storage.

Packaging material**Suitable material**

- Unlined steel
- Plastic container of HDPE

Requirements for storage rooms and vessels

- Protect from frost, heat and sunlight.

7.3 Specific end use(s)

- no data available

SECTION 8: Exposure controls/personal protection**8.1 Control parameters**

- Contains no substances with occupational exposure limit values above their regulatory reporting threshold.

8.2 Exposure controls**Control measures****Engineering measures**

- Provide adequate ventilation.

Individual protection measures**Respiratory protection**

- Use a respirator with an approved filter if a risk assessment indicates this is necessary.

Hand protection

- Where there is a risk of contact with hands, use appropriate gloves
- The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.
- Gloves must be inspected prior to use.

Eye protection

- Safety glasses with side-shields

Skin and body protection

- Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Remove and wash contaminated clothing.

Hygiene measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- Use clean, well-maintained personal protection equipment.
- Wash hands before breaks and at the end of workday.
- When using do not eat, drink or smoke.

Protective measures

- The protective equipment must be selected in accordance with current CEN standards and in cooperation with the supplier of the protective equipment.
- Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the potential hazards and/or risks that may occur during use.

Environmental exposure controls

- Dam up.
- Prevent product from entering sewage system.
- Try to prevent the material from entering drains or water courses.
- Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties****Appearance****Physical state:** liquid**Odour****Colour:** colourless
slight**Odour Threshold**

No data available

Molecular weight

132,16 g/mol

pH

Not applicable

Melting point/freezing point**Freezing point:** -99 °C**Initial boiling point and boiling range****Boiling point/boiling range:** 191 °C (1.013,25 hPa)**Flash point**

91 °C closed cup

100 °C open cup

Evaporation rate (Butylacetate = 1)

0,03

Flammability (solid, gas)

No data available

Flammability (liquids)

No data available

Flammability/Explosive limit

No data available

Auto-ignition temperature390 °C (1.013 hPa)
Method: EU Test Guideline A15**Vapour pressure**

0,05 hPa (20 °C)

Vapour density

2,6

Density**Relative density**

1,069 (20 °C)

SolubilityWater solubility:
(20 °C)completely solubleSolubility in other solvents:
Alcohol : miscible

Esters : miscible

Ether : miscible

Aromatic hydrocarbons : miscible

petroleum ether. : miscible

petrol : miscible

Partition coefficient: n-octanol/water

No data available

Decomposition temperature

No data available

ViscosityViscosity, dynamic : 11 mPa.s (20 °C)**Explosive properties**

No data available

Oxidizing properties

No data available

9.2 Other information**Surface tension**

33,5 mN/m (20 °C)

SECTION 10: Stability and reactivity**10.1 Reactivity**

- no data available

10.2 Chemical stability

- Stable at room temperature.
- Stable under normal conditions.

10.3 Possibility of hazardous reactions

- Vapours may form explosive mixture with air.

10.4 Conditions to avoid

- Heat, flames and sparks.

10.5 Incompatible materials

- Strong oxidizing agents
- Strong acids
- Strong reducing agents
- Strong bases

10.6 Hazardous decomposition products

Hazardous decomposition products

- On combustion or on thermal decomposition (pyrolysis) releases:
(Carbon oxides (CO + CO₂)).
- Acetic acid
- Ethanol

SECTION 11: Toxicological information**11.1 Information on toxicological effects****Acute toxicity****Acute oral toxicity**

2,2-dimethyl-1,3-dioxolan-4-ylmethanol LD50 : 7.000 mg/kg - Rat
Not classified as hazardous for acute oral toxicity according to GHS.
Published data

Acute inhalation toxicity

2,2-dimethyl-1,3-dioxolan-4-ylmethanol LC50 (dust/mist) : > 5,11 mg/l - Rat , male and female
Method: OECD Test Guideline 403
Not classified as hazardous for acute inhalation toxicity according to GHS.
Aerosol
No mortality observed at this concentration.
Unpublished internal reports

Acute dermal toxicity

2,2-dimethyl-1,3-dioxolan-4-ylmethanol LD50 : 2.000 mg/kg - Rat , male and female
Method: OECD Test Guideline 402
Not classified as hazardous for acute dermal toxicity according to GHS.
Unpublished internal reports

Acute toxicity (other routes of administration)

No data available

Skin corrosion/irritation

2,2-dimethyl-1,3-dioxolan-4-ylmethanol Rabbit
No skin irritation
Method: OECD Test Guideline 404
Unpublished internal reports

Serious eye damage/eye irritation

2,2-dimethyl-1,3-dioxolan-4-ylmethanol Rabbit
irritating
Method: OECD Test Guideline 405
Unpublished internal reports

Respiratory or skin sensitisation

2,2-dimethyl-1,3-dioxolan-4-ylmethanol Maximisation Test - Guinea pig
Does not cause skin sensitisation.
Method: OECD Test Guideline 406
Unpublished internal reports

Mutagenicity**Genotoxicity in vitro**

2,2-dimethyl-1,3-dioxolan-4-ylmethanol Ames test
with and without metabolic activation

negative
Method: OECD Test Guideline 471
Unpublished internal reports

Genotoxicity in vivo

2,2-dimethyl-1,3-dioxolan-4-ylmethanol In vivo micronucleus test - Mouse
male
Intraperitoneal route
Method: OECD Test Guideline 474

negative
Unpublished internal reports

Carcinogenicity

No data available

Toxicity for reproduction and development

Toxicity to reproduction/Fertility

2,2-dimethyl-1,3-dioxolan-4-ylmethanol Reproduction/developmental toxicity screening test - Rat, male and female, Oral
Fertility NOAEL Parent: 1.000 mg/kg bw/day
Method: OECD Test Guideline 422
Highest dose tested, no impairment of fertility has been observed, Unpublished
internal reports

Developmental Toxicity/Teratogenicity

2,2-dimethyl-1,3-dioxolan-4-ylmethanol Rat, male and female, Oral
General Toxicity Maternal NOAEL: 1.000 mg/kg bw/day

Teratogenicity NOAEL F1: 1.000 mg/kg bw/day
Embryo-foetal toxicity NOAEL F1: 1.000 mg/kg bw/day

Method: OECD Test Guideline 414
Highest dose tested, no embryotoxic or teratogenic effects have been observed,
Unpublished internal reports

STOT

STOT - single exposure

2,2-dimethyl-1,3-dioxolan-4-ylmethanol Exposure routes: Ingestion, Skin contact, Inhalation
The substance or mixture is not classified as specific target organ toxicant, single
exposure according to GHS criteria.
internal evaluation

STOT - repeated exposure

2,2-dimethyl-1,3-dioxolan-4-ylmethanol Exposure routes: Ingestion, Inhalation
The substance or mixture is not classified as specific target organ toxicant,
repeated exposure according to GHS criteria.
internal evaluation

2,2-dimethyl-1,3-dioxolan-4-ylmethanol Oral - Rat , male and female
NOAEL: 1000 mg/kg
Method: OECD Test Guideline 422
Highest dose tested
No significant adverse effects were reported
A testing proposal has been submitted to ECHA.
Unpublished internal reports

Inhalation (aerosol) 90-day - Rat , male and female
 NOAEC: > 5 mg/l
 Method: OECD Test Guideline 413
 Highest dose tested
 No significant adverse effects were reported
 Unpublished internal reports

Experience with human exposure No data available

Aspiration toxicity No data available

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish

2,2-dimethyl-1,3-dioxolan-4-ylmethanol LC50 - 96 h : 16,7 g/l - Pimephales promelas (fathead minnow)
 flow-through test
 Analytical monitoring: yes

 Method: according to a standardised method
 Published data
 Not harmful to fish (LC/LL50 > 100 mg/L)

Acute toxicity to daphnia and other aquatic invertebrates

2,2-dimethyl-1,3-dioxolan-4-ylmethanol EC50 - 48 h : > 96 mg/l - Daphnia similis (water flea)
 static test
 Analytical monitoring: yes
 Method: OECD Test Guideline 202
 Not harmful to aquatic invertebrates. (EC/EL50 > 100 mg/L)
 Unpublished internal reports

Toxicity to aquatic plants

2,2-dimethyl-1,3-dioxolan-4-ylmethanol ErC50 - 72 h : > 92 mg/l - Pseudokirchneriella subcapitata (green algae)
 static test
 Analytical monitoring: yes
 Method: OECD Test Guideline 201
 Not harmful to algae (EC/EL50 > 100 mg/L)
 Unpublished internal reports

 NOEC - 72 h : 92 mg/l - Pseudokirchneriella subcapitata (green algae)
 static test
 Analytical monitoring: yes
 Method: OECD Test Guideline 201
 No adverse chronic effect observed up to and including the threshold of 1 mg/L.
 Unpublished internal reports

Toxicity to microorganisms

2,2-dimethyl-1,3-dioxolan-4-ylmethanol EC50 - 3 h : > 1.000 mg/l - activated sludge
 static test
 Analytical monitoring: no
 Method: OECD Test Guideline 209
 Unpublished internal reports

Chronic toxicity to fish No data available

Chronic toxicity to daphnia and other aquatic invertebrates

2,2-dimethyl-1,3-dioxolan-4-ylmethanol semi-static test

NOEC: 10 mg/l - 21 Days - Daphnia magna (Water flea)
 flow-through test
 Analytical monitoring: yes
 End point: Reproduction
 Method: OECD Test Guideline 211
 No adverse chronic effect observed up to and including the threshold of 1 mg/L.

Terrestrial Compartment

Toxicity to soil dwelling organisms

2,2-dimethyl-1,3-dioxolan-4-ylmethanol

NOEC: 250 mg/kg - 56 Days - Eisenia fetida (earthworms)
 End point: Reproduction
 Method: OECD Test Guideline 222
 Unpublished internal reports

NOEC: 12,5 mg/kg - 28 Days - soil micro-organisms
 End point: Nitrogen transformation
 Method: OECD Test Guideline 216
 Unpublished internal reports

12.2 Persistence and degradability

Abiotic degradation

Stability in water

2,2-dimethyl-1,3-dioxolan-4-ylmethanol

pH: 4,0
 Temperature of hydrolysis: 25 °C
 Degree of hydrolysis: 50 %
 Hydrolysis time: 0,959 Days
 Method: OECD Test Guideline 111
 Unpublished internal reports

Physical- and photo-chemical elimination

No data available

Biodegradation

Biodegradability

Zahn-Wellens Test
 Inherently biodegradable.

Degradability assessment

2,2-dimethyl-1,3-dioxolan-4-ylmethanol

The product is not considered to be rapidly degradable in the environment

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

Not potentially bioaccumulable

Bioconcentration factor (BCF)

Bioconcentration factor (BCF): 1,3

12.4 Mobility in soil

Adsorption potential (Koc)

2,2-dimethyl-1,3-dioxolan-4-ylmethanol

Adsorption/Soil
 Log Koc: < 1,25
 Method: OECD Test Guideline 121
 Unpublished internal reports

Known distribution to environmental compartments

No data available

12.5 Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).
This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects**Ecotoxicity assessment****Short-term (acute) aquatic hazard**

2,2-dimethyl-1,3-dioxolan-4-ylmethanol

The product does not have any known adverse effects on the aquatic organisms tested

Long-term (chronic) aquatic hazard

2,2-dimethyl-1,3-dioxolan-4-ylmethanol

No adverse chronic effect observed up to and including the threshold of 1 mg/L.

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Product Disposal**

- Do not dispose of with domestic refuse.
- Dispose of in accordance with local regulations.
- The product should not be allowed to enter drains, water courses or the soil.
- Dispose of contents/ container to an approved waste disposal plant.
- Send to a licensed waste management company.

Advice on cleaning and disposal of packaging

- Do not re-use empty containers.
- Clean container with water.
- Dispose of contents/ container to an approved incineration plant.
- Dispose of in accordance with local regulations.

SECTION 14: Transport information**ADN/ADNR**

not regulated

ADR

not regulated

RID

not regulated

IMDG

not regulated

IATA

not regulated

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transport regulations for hazardous materials, it would be advisable to check their validity with your sales office.

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****REACH - Restrictions on the**

Requirements of Annex XVII to Regulation (EC) 1907/2006 apply to this

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manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)

product. The precise list of restricted uses is available in the corresponding entry of this annex.
Number on list: 3

Shall not be used in: - ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays, - tricks and jokes, - games for one or more participants, or any article intended to be used as such, even with ornamental aspects.

Notification status

Inventory Information	Status
United States TSCA Inventory	- All substances listed as active on the TSCA inventory
Canadian Domestic Substances List (DSL)	- All components of this product are on the Canadian DSL
Australia Inventory of Chemical Substances (AICS)	- On the inventory, or in compliance with the inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	- On the inventory, or in compliance with the inventory
Korea. Korean Existing Chemicals Inventory (KECI)	- On the inventory, or in compliance with the inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	- On the inventory, or in compliance with the inventory
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	- Listed on Inventory
EU. European Registration, Evaluation, Authorisation and Restriction of Chemical (REACH)	- "When purchased from a Solvay legal entity based in the EEA ("European Economic Area"), this product is compliant with the registration provisions of the REACH Regulation (EC) No. 1907/2006 as all its components are either excluded, exempt, and/or registered. When purchased from a legal entity outside of the EEA, please contact your local representative for additional information.
New Zealand. Inventory of Chemical Substances	- On the inventory, or in compliance with the inventory

15.2 Chemical safety assessment

- no data available

SECTION 16: Other information**Full text of H-Statements referred to under sections 2 and 3.**

- H319 Causes serious eye irritation.

Key or legend to abbreviations and acronyms used in the safety data sheet

- ADR: European Agreement on International Carriage of Dangerous Goods by Road.
- ADN: European Agreement on the International Carriage of Dangerous Goods by Inland Waterways.

- RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
- IATA: International Air Transport Association.
- ICAO-TI: Technical Instructions for Safe Transport of Dangerous Goods by Air.
- IMDG: International Maritime Dangerous Goods.
- TWA: Time weighted average
- ATE: Estimated value of acute toxicity
- EC: European Community number
- CAS: Chemical Abstracts Service.
- LD50: Substance that causes 50% (half) death in the test animals group (Median Fatal Dose).
- LC50: Substance concentration causing 50% (half) death in the test animals group.
- EC50: Effective Concentration of the substance causing the maximum of 50%.
- PBT: Persistent, Bioaccumulative and Toxic substance.
- vPvB: Very Persistent and Very Bioaccumulative.
- GHS/CLP/SEA: Classification, labeling, packaging regulation
- DNEL: Derived No Effect Level
- PNEC: Predicted No Effect Concentration
- STOT: Specific Target Organ Toxicity

Not all acronyms listed above are referenced in this SDS.

Further information

- This sheet was updated (refer to the date at the top of this page). Subheadings and text which have been modified since the previous version are indicated with two vertical bars.
- Distribute new edition to clients

NB: In this document the numerical separator of the thousands is the "." (point), the decimal separator is "," (comma).

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. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.

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1. ES1 : Formulation, On site

1.1. Scenario description

Main User Groups	:	SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	PROC3 PROC8b PROC15 PROC5	Use in closed batch process (synthesis or formulation) Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities Use as laboratory reagent Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

1.2. Conditions of use affecting exposure

1.2.1 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), < 8h, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Use suitable eye protection.

1.2.2 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, <15 min, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 15 min
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Temperature	: <= 40 °C

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

1.2.3 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, < 8h**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: Liquid
Remarks	: Low vapour pressure

Frequency and duration of use

Duration of the activity	: <= 8 h
--------------------------	----------

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Temperature	: <= 40 °C

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid splashing.
Assumes a good basic standard of occupational hygiene is implemented.

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

Avoid direct eye contact with product, also via contamination on hands.
Use suitable eye protection.
General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

1.2.4 Contributing scenario controlling worker exposure for: PROC15 Use as laboratory reagent**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 1 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Temperature	: <= 40 °C

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

1.2.5 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : liquid
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Temperature : ≤ 40 °C

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

1.3. Exposure estimation and reference to its source

Human Health

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

1.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.
 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

2. ES2 : Formulation, coating materials

2.1. Scenario description

Main User Groups	:	SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	PROC1 PROC2	Use in closed process, no likelihood of exposure Use in closed, continuous process with occasional controlled exposure
		PROC3 PROC5	Use in closed batch process (synthesis or formulation) Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
		PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
		PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC15	Use as laboratory reagent

2.2. Conditions of use affecting exposure

2.2.1 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Outdoor
Remarks	:	Semi-closed system, With occasional controlled exposure.

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

2.2.2 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), OC9 Outdoor, Without gloves, Eye protection

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C

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Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor
Remarks : Use in closed process

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented., Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

2.2.3 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), OC8 Indoor, Without gloves, Eye protection

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : liquid
Process Temperature : <= 40 °C
Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
Remarks : Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

2.2.4 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : liquid
Process Temperature : <= 40 °C
Remarks : Low vapour pressure

Frequency and duration of use

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Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
Remarks : Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

2.2.5 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC3 Use in closed batch process (synthesis or formulation), OC9 Outdoor, Without gloves

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : liquid
Process Temperature : <= 40 °C
Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor
Remarks : Use in closed process

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

2.2.6 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : liquid
Process Temperature : <= 40 °C
Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation (Effectiveness (of a measure): 95 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

2.2.7 Contributing scenario controlling worker exposure for: PROC2 Use in closed, continuous process with occasional controlled exposure, PROC3 Use in closed batch process (synthesis or formulation), OC8 Indoor, Gloves

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

2.2.8 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

2.2.9 Contributing scenario controlling worker exposure for: PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing), PROC15 Use as laboratory reagent**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

2.2.10 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities**Product characteristics**

Concentration of the Substance in	Covers the percentage of the substance in the product up to 100 %
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Mixture/Article (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : <= 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
 with local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

2.2.11 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), Gloves

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : <= 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor
 Remarks : Use in closed process

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

2.3. Exposure estimation and reference to its source

Human Health

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

2.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

3. ES3 : Use at industrial site, Uses in Coatings

3.1. Scenario description

Main User Groups	:	SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC3	Use in closed batch process (synthesis or formulation)
		PROC1	Use in closed process, no likelihood of exposure
		PROC2	Use in closed, continuous process with occasional controlled exposure
		PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
		PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
		PROC10	Roller application or brushing
		PROC7	Industrial spraying
		PROC13	Treatment of articles by dipping and pouring
		PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC15	Use as laboratory reagent

3.2. Conditions of use affecting exposure

3.2.1 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Outdoor
Remarks	:	Semi-closed system, With occasional controlled exposure.

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

3.2.2 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), OC9 Outdoor

Product characteristics

Concentration of the Substance in		Covers the percentage of the substance in the product up to 100 %
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Mixture/Article (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : <= 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor
 Remarks : Use in closed process

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

3.2.3 Contributing scenario controlling worker exposure for: PROC2 Use in closed, continuous process with occasional controlled exposure, PROC3 Use in closed batch process (synthesis or formulation), OC8 Indoor, Without gloves, Without respiratory protection

Product characteristics

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : <= 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
 with local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

3.2.4 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure

Product characteristics

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : <= 40 °C
 Remarks : Low vapour pressure

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Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposureOutdoor / Indoor : Indoor
Remarks : Use in closed process**Technical conditions and measures**

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposureAssumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.**Conditions and measures related to personal protection, hygiene and health evaluation**

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

3.2.5 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), PROC13 Treatment of articles by dipping and pouring, OC8 Indoor**Product characteristics**Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : liquid
Process Temperature : <= 40 °C
Remarks : Low vapour pressure**Frequency and duration of use**

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measuresProvide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation (Effectiveness (of a measure): 90 %)**Organisational measures to prevent /limit releases, dispersion and exposure**Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.**Conditions and measures related to personal protection, hygiene and health evaluation**Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)**3.2.6 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Gloves****Product characteristics**

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Physical Form (at time of use) : liquid
 Process Temperature : ≤ 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
 with local exhaust ventilation (Effectiveness (of a measure): 95 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

3.2.7 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), Gloves, Without respiratory protection

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : ≤ 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
 with local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

3.2.8 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Without gloves

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation (Effectiveness (of a measure): 95 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

3.2.9 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

3.2.10 Contributing scenario controlling worker exposure for: PROC10 Roller application or brushing**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

3.2.11 Contributing scenario controlling worker exposure for: PROC7 Industrial spraying**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation (Effectiveness (of a measure): 95 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

3.2.12 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

3.2.13 Contributing scenario controlling worker exposure for: PROC2 Use in closed, continuous process with occasional controlled exposure, CS111 elevated temperature, CS109 with local exhaust ventilation

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 90 °C
Remarks	: During use, aerosols may be formed.

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

3.2.14 Contributing scenario controlling worker exposure for: PROC2 Use in closed, continuous process with occasional controlled exposure, CS111 elevated temperature, CS110 without local exhaust ventilation**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 90 °C
Remarks	: During use, aerosols may be formed.

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

3.2.15 Contributing scenario controlling worker exposure for: PROC2 Use in closed, continuous process with occasional controlled exposure, Eye protection**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection., (for UV/EB protection)

3.2.16 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

3.2.17 Contributing scenario controlling worker exposure for: PROC15 Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

3.3. Exposure estimation and reference to its source**Human Health**

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

3.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

4. ES4 : Professional use, Uses in Coatings

4.1. Scenario description

Main User Groups	: SU 22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	: PROC1 PROC2	Use in closed process, no likelihood of exposure Use in closed, continuous process with occasional controlled exposure
	PROC3 PROC5	Use in closed batch process (synthesis or formulation) Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
	PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
	PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
	PROC10 PROC4	Roller application or brushing Use in batch and other process (synthesis) where opportunity for exposure arises
	PROC11	Non industrial spraying
	PROC13	Treatment of articles by dipping and pouring
	PROC15	Use as laboratory reagent
	PROC19	Hand-mixing with intimate contact and only PPE available

4.2. Conditions of use affecting exposure

4.2.1 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

4.2.2 Contributing scenario controlling worker exposure for: PROC2 Use in closed, continuous process with occasional controlled exposure

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 80 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

4.2.3 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)
 Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.4 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), OC8 Indoor, CS109 with local exhaust ventilation

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
 with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 80 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)
 Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.5 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), OC8 Indoor, CS110 without local exhaust ventilation

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.6 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: ≤ 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 4 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.7 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, OC8 Indoor, CS109 with local exhaust ventilation

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: ≤ 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 80 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.8 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities, OC8 Indoor, CS110 without local exhaust ventilation**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.9 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities, OC9 Outdoor**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.10 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measuresProvide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 90 %)**Organisational measures to prevent /limit releases, dispersion and exposure**

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

4.2.11 Contributing scenario controlling worker exposure for: PROC10 Roller application or brushing, OC8 Indoor**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.12 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 80 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.13 Contributing scenario controlling worker exposure for: PROC10 Roller application or brushing, OC9 Outdoor

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Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: ≤ 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.14 Contributing scenario controlling worker exposure for: PROC11 Non industrial spraying, PROC13 Treatment of articles by dipping and pouring, OC8 Indoor**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: ≤ 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 80 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.15 Contributing scenario controlling worker exposure for: PROC11 Non industrial spraying, OC9 Outdoor

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Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 4 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.16 Contributing scenario controlling worker exposure for: PROC13 Treatment of articles by dipping and pouring, OC9 Outdoor**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.17 Contributing scenario controlling worker exposure for: PROC15 Use as laboratory reagent**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

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Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 80 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

4.2.18 Contributing scenario controlling worker exposure for: PROC19 Hand-mixing with intimate contact and only PPE available, <1 hr., OC8 Indoor**Product characteristics**

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use) : liquid
Process Temperature : <= 40 °C
Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a good standard of controlled ventilation (5 to 10 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.2.19 Contributing scenario controlling worker exposure for: PROC19 Hand-mixing with intimate contact and only PPE available, <15 min, OC9 Outdoor**Product characteristics**

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.

Physical Form (at time of use) : liquid
 Process Temperature : ≤ 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 15 min

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)
 Respirator, APF 10 (Effectiveness (of a measure): 90 %)

4.3. Exposure estimation and reference to its source**Human Health**

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

4.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.
 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

5. ES5 : Consumer use

5.1. Scenario description

Main User Groups	:	SU 21	Consumer uses: Private households (= general public = consumers)
Product category	:	PC9a PC9b PC9c	Coatings and paints, thinners, paint removers Fillers, putties, plasters, modelling clay Finger paints

5.2. Conditions of use affecting exposure

5.2.1 Contributing scenario controlling consumer exposure for: PC9a Coatings and paints, thinners, paint removers PC9a_2 Solvent rich, high solid, water borne paint,

Product characteristics

Physical Form (at time of use)	:	liquid
Remarks	:	Low vapour pressure

Amount

Percentage of risk driving substance contained in product	:	0,5 %
Amount per Application	:	1,3 kg

Frequency and duration of use

Exposure duration	:	2,2 h
Frequency of use	:	1 events/day

Human factors not influenced by risk management

Dermal exposure	:	Palm of one hand
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Other given operational conditions affecting consumers exposure

Outdoor / Indoor	:	Indoor/Outdoor use.
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Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures	:	Avoid splashing., General measures (eye irritants), Use suitable eye protection., Avoid direct eye contact with product, also via contamination on hands.
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5.2.2 Contributing scenario controlling consumer exposure for: PC9a Coatings and paints, thinners, paint removers PC9a_3, PC15_3 Aerosol spray can,

Product characteristics

Physical Form (at time of use)	:	liquid
Remarks	:	Low vapour pressure

Amount

Percentage of risk driving substance contained in product	:	0,5 %
Amount per Application	:	300 g

Frequency and duration of use

Exposure duration	:	0,33 h
Frequency of use	:	1 events/day

Other given operational conditions affecting consumers exposure

Outdoor / Indoor	:	Indoor/Outdoor use.
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Remarks : Aerosol spray can

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures : Avoid splashing., General measures (eye irritants), Use suitable eye protection., Avoid direct eye contact with product, also via contamination on hands.

5.2.3 Contributing scenario controlling consumer exposure for: PC9a Coatings and paints, thinners, paint removers PC9a_4 Removers (paint-, glue-, wall paper-, sealant-remover),
Product characteristics

Physical Form (at time of use) : liquid
Remarks : Low vapour pressure

Amount

Percentage of risk driving substance : 0,9 %
contained in product
Amount per Application : 2,3 kg

Frequency and duration of use

Exposure duration : 4 h
Frequency of use : 1 events/day

Human factors not influenced by risk management

Dermal exposure : Both hands

Other given operational conditions affecting consumers exposure

Outdoor / Indoor : Indoor/Outdoor use.

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures : Avoid splashing., General measures (eye irritants), Use suitable eye protection., Avoid direct eye contact with product, also via contamination on hands.

5.2.4 Contributing scenario controlling consumer exposure for: PC9b Fillers, putties, plasters, modelling clay PC9b_1 Fillers and putty,
Product characteristics

Physical Form (at time of use) : liquid
Remarks : Low vapour pressure

Amount

Percentage of risk driving substance : 1 %
contained in product
Amount per Application : 1,3 kg

Frequency and duration of use

Exposure duration : 4 h
Frequency of use : 1 events/day

Human factors not influenced by risk management

Dermal exposure : Assumes that potential dermal contact is limited to fingertips.

Other given operational conditions affecting consumers exposure

Outdoor / Indoor : Indoor/Outdoor use.

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

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Consumer Measures : Avoid splashing., General measures (eye irritants), Use suitable eye protection., Avoid direct eye contact with product, also via contamination on hands.

5.2.5 Contributing scenario controlling consumer exposure for: PC9b Fillers, putties, plasters, modelling clay PC9b_2 Plasters and floor equalizers,

Product characteristics

Physical Form (at time of use) : liquid
Remarks : Low vapour pressure

Amount

Percentage of risk driving substance : 1 %
contained in product
Amount per Application : 25 kg

Frequency and duration of use

Exposure duration : 2 h
Frequency of use : 1 events/day

Human factors not influenced by risk management

Dermal exposure : Both hands

Other given operational conditions affecting consumers exposure

Outdoor / Indoor : Indoor/Outdoor use.

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures : Avoid splashing., General measures (eye irritants), Use suitable eye protection., Avoid direct eye contact with product, also via contamination on hands.

5.2.6 Contributing scenario controlling consumer exposure for: PC9b Fillers, putties, plasters, modelling clay PC9b_3 Modelling clay,

Product characteristics

Physical Form (at time of use) : paste

Amount

Percentage of risk driving substance : 0,1 %
contained in product

Human factors not influenced by risk management

Dermal exposure : Both hands

Other given operational conditions affecting consumers exposure

Outdoor / Indoor : Indoor/Outdoor use.

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures : Avoid splashing., General measures (eye irritants), Use suitable eye protection., Avoid direct eye contact with product, also via contamination on hands.

5.2.7 Contributing scenario controlling consumer exposure for: PC9c Finger paints ,

Product characteristics

Physical Form (at time of use) : liquid
Remarks : Low vapour pressure

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Amount

Percentage of risk driving substance : 0,5 %
contained in product

Human factors not influenced by risk management

Dermal exposure : Both hands

Other given operational conditions affecting consumers exposure

Outdoor / Indoor : Indoor/Outdoor use.

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Consumer Measures : Avoid splashing., General measures (eye irritants), Use suitable eye protection., Avoid direct eye contact with product, also via contamination on hands.

5.3. Exposure estimation and reference to its source**Human Health**

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PC Exposure Assessment Method : Qualitative approach used to conclude safe use.

5.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

6. ES6 : Use at industrial site, Industrial use, Use in Oil and Gas field drilling and production operations

6.1. Scenario description

Main User Groups	:	SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC3	Use in closed batch process (synthesis or formulation)
		PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
		PROC1	Use in closed process, no likelihood of exposure
		PROC2	Use in closed, continuous process with occasional controlled exposure

6.2. Conditions of use affecting exposure

6.2.1 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 1 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Outdoor
Remarks	:	Semi-closed system, With occasional controlled exposure.

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.2 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.3 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), CS115 Drilling mud (re-)formulation**Product characteristics**

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Physical Form (at time of use) : liquid

Process Temperature : <= 40 °C

Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 4 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Remarks : Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.4 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, CS116 Drill floor operations**Product characteristics**

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

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Physical Form (at time of use) : liquid
 Process Temperature : ≤ 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 4 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor
 Remarks : Semi-closed system, With occasional controlled exposure.

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.5 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, CS118 Operation of solids filtering equipment - vapour exposures, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : ≤ 60 °C
 Remarks : During use, aerosols may be formed.

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
 with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.6 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, CS119 Operation of solids filtering equipment - aerosol exposures

Product characteristics

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Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: ≤ 60 °C
Remarks	: During use, aerosols may be formed.

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.7 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, <1 hr:

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: ≤ 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.8 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), CS121 Treatment and disposal of filtered solids, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 4 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
Remarks	: Use in closed process

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.9 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), CS121 Treatment and disposal of filtered solids, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 5%.
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 4 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.10 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), CS56 with sample collection, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 15 min
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.11 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), CS56 with sample collection, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 15 min
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
Remarks	: Use in closed process

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.12 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, In-line injection by fixed dosing pumps

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
Remarks	: Use in closed process

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.13 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, <15 min, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 15 min
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.14 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities, <15 min, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 15 min
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.15 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, Scale squeeze operations, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.16 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, Scale squeeze operations, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 90 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

6.2.17 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC2 Use in closed, continuous process with occasional controlled exposure, <1 hr., OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 1 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

6.3. Exposure estimation and reference to its source**Human Health**

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

6.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

7. ES7 : Professional use, Use in Oil and Gas field drilling and production operations

7.1. Scenario description

Main User Groups	:	SU 22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	:	PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC3	Use in closed batch process (synthesis or formulation)
		PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
		PROC1	Use in closed process, no likelihood of exposure
		PROC2	Use in closed, continuous process with occasional controlled exposure

7.2. Conditions of use affecting exposure

7.2.1 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 1 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Outdoor
Remarks	:	Semi-closed system, With occasional controlled exposure.

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.2 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

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Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
Remarks : Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.3 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), CS115 Drilling mud (re-)formulation

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : liquid
Process Temperature : <= 40 °C
Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 4 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
Remarks : Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.4 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, CS116 Drill floor operations

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : liquid

Process Temperature : $\leq 40\text{ }^{\circ}\text{C}$
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : $< 4\text{ h}$

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor
 Remarks : Semi-closed system, With occasional controlled exposure.

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.5 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, CS118 Operation of solids filtering equipment - vapour exposures, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : $\leq 60\text{ }^{\circ}\text{C}$
 Remarks : During use, aerosols may be formed.

Frequency and duration of use

Exposure duration : $< 8\text{ h}$

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
 with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 80 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.6 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, $<1\text{ hr}$:

Product characteristics

Concentration of the Substance in : Covers the percentage of the substance in the product up to 100 %

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Mixture/Article (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : ≤ 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
 with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 80 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.7 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), CS121 Treatment and disposal of filtered solids, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 5%.
 Physical Form (at time of use) : liquid
 Process Temperature : ≤ 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 4 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor
 Remarks : Use in closed process

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.8 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), CS121 Treatment and disposal of filtered solids, OC8 Indoor

Product characteristics

Concentration of the Substance in : Covers the percentage of the substance in the product up to 5%.

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Mixture/Article
 Physical Form (at time of use) : liquid
 Process Temperature : ≤ 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 4 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .
 with local exhaust ventilation, Inhalation exposure (Effectiveness (of a measure): 80 %)

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.9 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), CS56 with sample collection, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : ≤ 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 15 min

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.10 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), CS56 with sample collection, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.11 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, In-line injection by fixed dosing pumps

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
Remarks	: Use in closed process

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.12 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, <15 min, OC8 Indoor

Product characteristics

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Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 15 min

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.13 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, Scale squeeze operations, OC9 Outdoor**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor

Remarks : Semi-closed system, With occasional controlled exposure.

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.14 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, Scale squeeze operations, OC8 Indoor**Product characteristics**

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Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 80 %)

7.2.15 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC2 Use in closed, continuous process with occasional controlled exposure, <1 hr.; OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

7.3. Exposure estimation and reference to its source

Human Health

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

7.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

8. ES8 : Formulation, Fuel additives, Fuel blends

8.1. Scenario description

Main User Groups	:	SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	PROC1	Use in closed process, no likelihood of exposure
		PROC2	Use in closed, continuous process with occasional controlled exposure
		PROC3	Use in closed batch process (synthesis or formulation)
		PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
		PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
		PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC15	Use as laboratory reagent

8.2. Conditions of use affecting exposure

8.2.1 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC2 Use in closed, continuous process with occasional controlled exposure, PROC3 Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

8.2.2 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Eye protection

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Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

8.2.3 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

8.2.4 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, CS56 with sample collection, PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing), CS6 Drum and small package filling

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

8.2.5 Contributing scenario controlling worker exposure for: PROC15 Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

8.3. Exposure estimation and reference to its source

Human Health

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

8.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

9. ES9 : Formulation & (re)packing of substances and mixtures

9.1. Scenario description

Main User Groups	:	SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	PROC1	Use in closed process, no likelihood of exposure
		PROC2	Use in closed, continuous process with occasional controlled exposure
		PROC3	Use in closed batch process (synthesis or formulation)
		PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
		PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
		PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC14	Production of preparations or articles by tableting, compression, extrusion, pelletisation
		PROC15	Use as laboratory reagent

9.2. Conditions of use affecting exposure

9.2.1 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC2 Use in closed, continuous process with occasional controlled exposure, PROC3 Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: ≤ 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

9.2.2 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

9.2.3 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use

suitable eye protection.

9.2.4 Contributing scenario controlling worker exposure for: PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: ≤ 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

9.2.5 Contributing scenario controlling worker exposure for: PROC14 Production of preparations or articles by tableting, compression, extrusion, pelletisation, PROC15 Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: ≤ 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

9.3. Exposure estimation and reference to its source

Human Health

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

9.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

10. ES10 : Use at industrial site, Fuel additives, Additised fuels**10.1. Scenario description**

Main User Groups	: SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	: PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
	: PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
	: PROC16	Using material as fuel sources, limited exposure to unburned product to be expected

10.2. Conditions of use affecting exposure**10.2.1 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities****Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

10.2.2 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

10.2.3 Contributing scenario controlling worker exposure for: PROC16 Using material as fuel sources, limited exposure to unburned product to be expected**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposureOutdoor / Indoor : Indoor
Remarks : Use in closed process**Technical conditions and measures**

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

10.3. Exposure estimation and reference to its source

Human Health

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

10.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

11. ES11 : Use at industrial site, Industrial use of fuels**11.1. Scenario description**

Main User Groups	:	SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	PROC1 PROC2	Use in closed process, no likelihood of exposure Use in closed, continuous process with occasional controlled exposure
		PROC3 PROC8a	Use in closed batch process (synthesis or formulation) Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
		PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC16	Using material as fuel sources, limited exposure to unburned product to be expected

11.2. Conditions of use affecting exposure**11.2.1 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC2 Use in closed, continuous process with occasional controlled exposure, PROC3 Use in closed batch process (synthesis or formulation)****Product characteristics**

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

11.2.2 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities**Product characteristics**

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposureAssumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.**Conditions and measures related to personal protection, hygiene and health evaluation**

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

11.2.3 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposureOutdoor / Indoor : Indoor
Remarks : Semi-closed system, With occasional controlled exposure.**Technical conditions and measures**

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposureAssumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.**Conditions and measures related to personal protection, hygiene and health evaluation**

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

11.2.4 Contributing scenario controlling worker exposure for: PROC16 Using material as fuel sources, limited exposure to unburned product to be expected**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

11.3. Exposure estimation and reference to its source**Human Health**

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

11.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.
 Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

12. ES12 : Use at industrial site, Rubber production and processing

12.1. Scenario description

Main User Groups	:	SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	PROC1	Use in closed process, no likelihood of exposure
		PROC2	Use in closed, continuous process with occasional controlled exposure
		PROC3	Use in closed batch process (synthesis or formulation)
		PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
		PROC6	Calendering operations
		PROC7	Industrial spraying
		PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
		PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC13	Treatment of articles by dipping and pouring
		PROC14	Production of preparations or articles by tableting, compression, extrusion, pelletisation
		PROC15	Use as laboratory reagent
		PROC21	Low energy manipulation of substances bound in materials and/ or articles

12.2. Conditions of use affecting exposure

12.2.1 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC2 Use in closed, continuous process with occasional controlled exposure, PROC3 Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

12.2.2 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

12.2.3 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, PROC11 Non industrial spraying

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

12.2.4 Contributing scenario controlling worker exposure for: PROC6 Calendering operations, PROC7 Industrial spraying, PROC14 Production of preparations or articles by tableting, compression, extrusion, pelletisation, PROC15 Use as laboratory reagent, PROC21 Low energy manipulation of substances bound in materials and/ or articles**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

12.2.5 Contributing scenario controlling worker exposure for: PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

12.3. Exposure estimation and reference to its source**Human Health**

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

12.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

13. ES13 : Use at industrial site, Distribution of substance

13.1. Scenario description

Main User Groups	:	SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	PROC1 PROC2	Use in closed process, no likelihood of exposure Use in closed, continuous process with occasional controlled exposure
		PROC3 PROC4	Use in closed batch process (synthesis or formulation) Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
		PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
		PROC15	Use as laboratory reagent

13.2. Conditions of use affecting exposure

13.2.1 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC2 Use in closed, continuous process with occasional controlled exposure, PROC3 Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

13.2.2 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics

Concentration of the Substance in		Covers the percentage of the substance in the product up to 100 %
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Revision Date 04.06.2020

Mixture/Article (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : <= 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

13.2.3 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : <= 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

13.2.4 Contributing scenario controlling worker exposure for: PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

Product characteristics

Concentration of the Substance in : Covers the percentage of the substance in the product up to 100 %

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Mixture/Article (unless stated differently).
Physical Form (at time of use) : liquid
Process Temperature : <= 40 °C
Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

13.2.5 Contributing scenario controlling worker exposure for: PROC15 Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 %
(unless stated differently).
Physical Form (at time of use) : liquid
Process Temperature : <= 40 °C
Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

13.3. Exposure estimation and reference to its source

Human Health

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

13.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

14. ES14 : Professional use, Fuel additives, Additised fuels**14.1. Scenario description**

Main User Groups	: SU 22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	: PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
	: PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
	: PROC16	Using material as fuel sources, limited exposure to unburned product to be expected

14.2. Conditions of use affecting exposure**14.2.1 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities****Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

14.2.2 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

14.2.3 Contributing scenario controlling worker exposure for: PROC16 Using material as fuel sources, limited exposure to unburned product to be expected**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposureOutdoor / Indoor : Indoor
Remarks : Use in closed process**Technical conditions and measures**

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

14.3. Exposure estimation and reference to its source

Human Health

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

14.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

15. ES15 : Professional use of fuels

15.1. Scenario description

Main User Groups	:	SU 22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	:	PROC1 PROC2	Use in closed process, no likelihood of exposure Use in closed, continuous process with occasional controlled exposure
		PROC3 PROC8a	Use in closed batch process (synthesis or formulation) Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
		PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC16	Using material as fuel sources, limited exposure to unburned product to be expected

15.2. Conditions of use affecting exposure

15.2.1 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC2 Use in closed, continuous process with occasional controlled exposure, PROC3 Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

15.2.2 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposureAssumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.**Conditions and measures related to personal protection, hygiene and health evaluation**

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

15.2.3 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposureOutdoor / Indoor : Indoor
Remarks : Semi-closed system, With occasional controlled exposure.**Technical conditions and measures**

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposureAssumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.**Conditions and measures related to personal protection, hygiene and health evaluation**

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

15.2.4 Contributing scenario controlling worker exposure for: PROC16 Using material as fuel sources, limited exposure to unburned product to be expected**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposureOutdoor / Indoor : Indoor
Remarks : Use in closed process**Technical conditions and measures**

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposureAssumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.**Conditions and measures related to personal protection, hygiene and health evaluation**

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

15.3. Exposure estimation and reference to its source**Human Health**

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

15.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure ScenarioRisk management measures are based on qualitative risk characterisation.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

16. ES16 : Professional use, Uses in Coatings

16.1. Scenario description

Main User Groups	:	SU 22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	:	PROC1	Use in closed process, no likelihood of exposure
		PROC2	Use in closed, continuous process with occasional controlled exposure
		PROC3	Use in closed batch process (synthesis or formulation)
		PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
		PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
		PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC10	Roller application or brushing
		PROC11	Non industrial spraying
		PROC13	Treatment of articles by dipping and pouring
		PROC15	Use as laboratory reagent
		PROC19	Hand-mixing with intimate contact and only PPE available

16.2. Conditions of use affecting exposure

16.2.1 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC2 Use in closed, continuous process with occasional controlled exposure, PROC3 Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: ≤ 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

16.2.2 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

16.2.3 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact), PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, PROC10 Roller application or brushing

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

16.2.4 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

16.2.5 Contributing scenario controlling worker exposure for: PROC11 Non industrial spraying, PROC15 Use as laboratory reagent, PROC19 Hand-mixing with intimate contact and only PPE available**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

16.2.6 Contributing scenario controlling worker exposure for: PROC13 Treatment of articles by dipping and pouring**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
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Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

16.3. Exposure estimation and reference to its source**Human Health**

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

16.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

17. ES17 : Use at industrial site, Use as an intermediate, Use as solvent**17.1. Scenario description**

Main User Groups	:	SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	PROC1 PROC2	Use in closed process, no likelihood of exposure Use in closed, continuous process with occasional controlled exposure
		PROC3 PROC4	Use in closed batch process (synthesis or formulation) Use in batch and other process (synthesis) where opportunity for exposure arises
		PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC15 PROC8a	Use as laboratory reagent Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

17.2. Conditions of use affecting exposure

17.2.1 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC2 Use in closed, continuous process with occasional controlled exposure, PROC3 Use in closed batch process (synthesis or formulation), General process exposures from enclosed processes, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 1 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Outdoor
Remarks	:	Use in closed process

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

17.2.2 Contributing scenario controlling worker exposure for: PROC3 Use in closed batch process (synthesis or formulation), OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 1 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

17.2.3 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, <1 hr., OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : <= 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

17.2.4 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises, PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
 Physical Form (at time of use) : liquid
 Process Temperature : <= 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor

Remarks : Semi-closed system, With occasional controlled exposure.

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

17.2.5 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities, <15 min, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Physical Form (at time of use) : liquid

Process Temperature : <= 40 °C

Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 15 min

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

17.2.6 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at dedicated facilities, <15 min, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Physical Form (at time of use) : liquid

Process Temperature : <= 40 °C

Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 15 min

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor
Remarks : Semi-closed system, With occasional controlled exposure.

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

17.2.7 Contributing scenario controlling worker exposure for: PROC15 Use as laboratory reagent

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : liquid
Process Temperature : ≤ 40 °C
Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

17.2.8 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, OC8 Indoor

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) : liquid
Process Temperature : ≤ 40 °C
Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

17.2.9 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities, OC9 Outdoor**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 1 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Outdoor

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

17.2.10 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC2 Use in closed, continuous process with occasional controlled exposure, Storage, CS56 with sample collection, OC8 Indoor**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
Remarks : Use in closed process

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

17.2.11 Contributing scenario controlling worker exposure for: PROC1 Use in closed process, no likelihood of exposure, PROC2 Use in closed, continuous process with occasional controlled exposure, Storage, CS56 with sample collection, OC9 Outdoor

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
Remarks	: Use in closed process

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

17.3. Exposure estimation and reference to its source

Human Health

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

17.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

18. ES18 : Industrial use, Formulation, Blending with solid fertilizers**18.1. Scenario description**

Main User Groups	:	SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
		PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises

18.2. Conditions of use affecting exposure**18.2.1 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, <1 hr:****Product characteristics**

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 1 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

18.2.2 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, <15 min**Product characteristics**

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid
Process Temperature	:	<= 40 °C
Remarks	:	Low vapour pressure

Frequency and duration of use

Exposure duration	:	< 15 min
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Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

18.2.3 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises**Product characteristics**

Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 1 %.
 Physical Form (at time of use) : liquid
 Process Temperature : <= 40 °C
 Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
 Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
 Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

18.2.4 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, Respiratory protection**Product characteristics**

Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 1 %.
 Physical Form (at time of use) : liquid
 Process Temperature : <= 40 °C

Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 4 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

Respirator, APF 10 (Effectiveness (of a measure): 90 %)

18.3. Exposure estimation and reference to its source

Human Health

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

18.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

19. ES19 : Industrial use, Formulation, Blending of liquid concentrate with liquid fertilizers.**19.1. Scenario description**

Main User Groups	: SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	: PROC8b	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
	: PROC4	Use in batch and other process (synthesis) where opportunity for exposure arises
	: PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

19.2. Conditions of use affecting exposure**19.2.1 Contributing scenario controlling worker exposure for: PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities****Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 15 min
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

19.2.2 Contributing scenario controlling worker exposure for: PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

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Exposure duration : < 8 h

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor
Remarks : Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

19.2.3 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/discharging) from/ to vessels/ large containers at non-dedicated facilities

Product characteristics

Concentration of the Substance in Mixture/Article : Covers percentage substance in the product up to 1 %.
Physical Form (at time of use) : liquid
Process Temperature : <= 40 °C
Remarks : Low vapour pressure

Frequency and duration of use

Exposure duration : < 15 min

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour) .

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)
Respirator, APF 10 (Effectiveness (of a measure): 90 %)

19.3. Exposure estimation and reference to its source

Human Health

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

19.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

20. ES20 : Formulation, Industrial, Repacking of liquid concentrate into small pack sizes.**20.1. Scenario description**

Main User Groups	: SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	: PROC9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

20.2. Conditions of use affecting exposure**20.2.1 Contributing scenario controlling worker exposure for: PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)****Product characteristics**

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Indoor
Remarks	: Semi-closed system, With occasional controlled exposure.

Technical conditions and measures

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

20.3. Exposure estimation and reference to its source**Human Health**

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
PROC9	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

PROC9 Exposure Assessment Method : Qualitative approach used to conclude safe use.

20.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

21. ES21 : Professional use, Application of urea coated fertilizer.**21.1. Scenario description**

Main User Groups	: SU 22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	: PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities

21.2. Conditions of use affecting exposure**21.2.1 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, <1 hr:****Product characteristics**

Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 1 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

21.2.2 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities, < 8h**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.

Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

21.3. Exposure estimation and reference to its source**Human Health**

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
PROC8a	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

PROC8a Exposure Assessment Method : Qualitative approach used to conclude safe use.

21.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

22. ES22 : Professional use, Application of liquid fertilizers.**22.1. Scenario description**

Main User Groups	: SU 22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	: PROC8a	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
	PROC11	Non industrial spraying

22.2. Conditions of use affecting exposure**22.2.1 Contributing scenario controlling worker exposure for: PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities****Product characteristics**

Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 15 min
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

22.2.2 Contributing scenario controlling worker exposure for: PROC11 Non industrial spraying**Product characteristics**

Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

22.3. Exposure estimation and reference to its source**Human Health**

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

22.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

23. ES23 : Professional use, Application of the liquid formulated product to liquid fertilizer (small packs)

23.1. Scenario description

Main User Groups	: SU 22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process category	: PROC5 PROC11	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) Non industrial spraying

23.2. Conditions of use affecting exposure

23.2.1 Contributing scenario controlling worker exposure for: PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 15 min
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants), Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness (of a measure): 90 %)

23.2.2 Contributing scenario controlling worker exposure for: PROC11 Non industrial spraying

Product characteristics

Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 1 %.
Physical Form (at time of use)	: liquid
Process Temperature	: <= 40 °C
Remarks	: Low vapour pressure

Frequency and duration of use

Exposure duration	: < 8 h
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Other operational conditions affecting workers exposure

Outdoor / Indoor	: Outdoor
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Organisational measures to prevent /limit releases, dispersion and exposure

Assumes a good basic standard of occupational hygiene is implemented.
Avoid splashing.

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

Avoid direct eye contact with product, also via contamination on hands., General measures (eye irritants)

23.3. Exposure estimation and reference to its source**Human Health**

Contributing Scenario	Specific conditions	Value type	Level of Exposure	RCR
For all PROC	Qualitative approach used to conclude safe use.	All routes		

RCR = Risk characterisation ratio

For all PROC Exposure Assessment Method : Qualitative approach used to conclude safe use.

23.4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Risk management measures are based on qualitative risk characterisation.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.