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SIBUR-NEFTEKHIM JSC

SAFETY DATA SHEET

According to Regulations (EC) 1907/2006 (REACH), (EC) 1272/2008 (CLP) & (EU) 2015/830

DIETHYLENE GLYCOL

Version: 3.2

Date created: 13/03/2020

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

1.1.Product identifier

Product form: Substance

Substance name: 2,2'-oxydiethanol Chemical name: 2,2'-oxydiethanol EC index No.: 603-140-00-6 EC No.: 203-872-2 CAS-No.: 111-46-6

REACH registration No: 01-2119457857-21-0022

Formula: $C_4H_{10}O_3$

Synonyms: 2-(2-hydroxyethoxy)ethan-1-ol6 2,2'-oxybisethanol, ethylene diglycol,

diethylene glycol

Trade names: Diethylene glycol, DEG

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

1.2.1. Relevant identified uses

Use of the Use as Intermediate substance/mixture: Use as Process chemical

Distribution of substance

Formulation & (re)packing of substance and mixtures

Production of Polymers

Use in Paints/Coatings/Adhesives/ Sealants/ Foams/ Polymers/ filled

Polymers

Use in Paints/Coatings /Surface treatment products

Use in Cleaning agents
Use in Biocidal products

Use in Lubricants

Use in Metal-working fluids Use in/as Functional fluids

Use in Heat transfer and Hydraulic fluids

Use in/as De-icing/Anti-icing applications/agents

Use in laboratories

Use in Adhesives and Sealants

Production of Polymers, filled polymers, Foams, Coatings, Adhesives,

Sealants

Production of rigid foam

Use in Water-treatment chemicals

See Section 16 for a complete list of uses for which an ES is provided as

an Annex

1.2.2. Uses advised against

Restrictions on use: PC 29: Pharmaceuticals

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Uses other than those given in section 1.2.1 are not recommended unless an assessment is completed, prior to commencement of that use, which demonstrates that the use will be controlled

1.3. Details of the supplier of the safety data sheet

Only representative

Company name: Gazprom Marketing and Trading France

Address: 68 avenue des Champs-Elysées, 75008, Paris, France

Contact Telephone: +33 1 42 99 73 50 +33 1 42 99 73 99 Fax:

Email Address: didier.lebout@gazprom-mt.com

Manufacturer

Company name: SIBUR-NEFTEKHIM JSC

Address: Building 390, Eastern Industrial Zone, Dzerzhinsk,

Nizhniy Novgorod region, 606000, Russian Federation

+7 8313 27-59-09 Contact phone: Fax: +7 8313 27-59-09 **Email Address:** infosnh@snh.sibur.ru

Emergency Telephone: +7 8313 27-59-09 (round the clock)

Emergency telephone number

112 (Please note that emergency numbers may vary depending upon the **Emergency phone in the** country of delivery

country of delivery though 112 remains valid as universal number

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 4 H302

Full text of hazard classes and H-statements: see section 16

Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms

(CLP):

GHS07

Signal word (CLP): Warning

Hazard statements (CLP): H302: Harmful if swallowed.

Precautionary statements P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash with plenty of water and soap thoroughly after handling. (CLP):

P270 Do not eat, drink or smoke when using this product

P301 + P312 IF SWALLOWED: Call a POISON CENTRE/doctor/...if

you feel unwell. ...

P501 Dispose of contents/container to hazardous or special waste

collection point

Not available. **EUH-statements**:

Other hazards 2.3.

Other hazards not Not available.

contributing to the classification:

Assessment PBT / vPvB:

According to Annex XIII of Regulation (EC) No.1907/2006 (REACH):

- not fulfilling PBT (persistent/bioaccumulative/toxic) criteria;

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- not fulfilling vPvB (very persistent/very bioaccummulative) criteria.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Name	Product identifier	%	Classification [CLP]
2,2'-oxydiethanol	(CAS-No.) 111-46-6	99.5 - 100	H302
	(EC No.) 203-872-2		
	(EC index No.) 603-140-00-6		
	(REACH-no) 01-2119457857-21-0022		

The product does not contain impurities or additives that could affect product's labelling and classification according to Regulation (EC) No 67/548/EEC and Regulation (EC) No 1272/2008 (CLP).

3.2. Mixtures

Not applicable.

SECTION 4. FIRST-AID MEASURES

4.1. Description of first aid measures

Product-specific hazards and other issues

The product is harmful if swallowed. Symptoms of poisoning may occur even after several hours; therefore medical observation is suggested for at least 48 hours after the accident.

First-aid measures general

Remove contaminated clothing.

First-aid measures after inhalation

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

In case of adverse exposure to vapours and/or aerosols formed at elevated temperatures, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Keep at rest.

First-aid measures after skin contact

Wash thoroughly with soap and water.

First-aid measures after eve contact

Wash affected eyes for at least 15 minutes under running water with eyelids held open.

First-aid measures after ingestion

Immediately rinse mouth and then drink 200-300 ml of water. Seek immediate medical attention. If medical attention will be delayed, contact a Regional Poison Centre or emergency medical professional regarding the induction of vomiting or use of activated charcoal/syrup of ipecac. Do not induce vomiting or give anything by mouth to a groggy or unconscious person.

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

Symptoms/effects:

Symptoms/effects after inhalation: Headache, dizziness, weakness.

Symptoms/effects after skin contact: Mild skin irritation, redness, edema

Mild eye irritation, lacrimation, pain

Symptoms/effects after ingestion: Headache, dizziness, weakness, vomiting, nausea, diarrhea. In

case of severe poisoning: fainting, convulsions.

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

Advice to physician

Treatment: Treat according to symptoms (decontamination, vital functions).

This product contains ethylene glycol and/or diethylene glycol which, if ingested, are metabolized to toxic metabolites by the enzyme alcohol dehydrogenase, for which ethanol and 4-methylpyrazole {U.S. drug name Fomepizole, trade name Antizol} are antagonists. Administration of oral or intravenous ethanol or intravenous 4-methylpyrazole may arrest further metabolism of this material and thereby

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ameliorate the toxicity. Use of ethanol or 4-methylpyrazole does not affect toxic metabolites that are already present and is not a substitute for hemodialysis.

SECTION 5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing

media

>

Unsuitable extinguishing

Do not use water jet as an extinguisher, as this will spread the fire.

Water spray, dry powder, alcohol-resistant foam, carbon dioxide.

media

5.2. Special hazards arising from the substance or mixture

Fire hazard: Combustible liquid.

Explosion hazard: Container may rupture from gas generation in a fire situation. Violent

steam generation or eruption may occur upon application of direct water

stream to hot liquids.

Hazardous decomposition products in case of fire:

During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to:

Carbon monoxide. Carbon dioxide.

5.3. Advice for firefighters

Firefighting instructions: Keep people away. Isolate fire and deny unnecessary entry. Use water

spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing

with water to protect personnel and minimize property damage.

Protection during firefighting:

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat,

trousers, boots, and gloves).

Further information: The degree of risk is governed by the burning substance and the fire

conditions. Contaminated extinguishing water must be disposed of in

accordance with official regulations.

SECTION 6. ACCIDENTAL RELEASE MEASURE

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures Evacuate non-essential personnel. Do not touch or walk through spilled

material.

6.1.2. For emergency responders

and unprotected personnel from entering the area. Use appropriate safety equipment. Avoid contact with spilled or released material. Use personal

protective clothing.

6.2. Environmental precautions

Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.

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Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Use appropriate containment to avoid environmental contamination. Ventilate contaminated area thoroughly.

Inform authorities if product enters waterways or municipal sewers.

6.3. Methods and material for containment and cleaning up

Contain spilled material if possible and dispose of properly.

Collect in suitable and properly labeled containers.

For small amounts: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr).

For large amounts: Dike area to contain spill. Pump into suitable and properly labeled containers.

6.4. Reference to other sections

SECTION 8: Exposure controls/personal protection. SECTION 13: Disposal considerations.

SECTION 7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Precautions for safe Protection against fire and explosion:

handling Take precautionary measures against static discharges.

Electrical devices must meet the specified temperature class. Temperature class: T2 (Autoignition temperature >300 °C).

Avoid breathing of or contact with material. Only use in well ventilated

areas. Wash thoroughly after handling.

Use local exhaust extraction over processing area. Handle and open container with care in a well-ventilated area. Do not empty into drains. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Handling temperature is

ambient up to 60 °C maximum.

Hygiene measures Take off contaminated clothing and wash before reuse. Handle in

accordance with good industrial hygiene and safety practice. Wash hands

before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

Incompatible materials Oxidizing agents, acids, alkalis.

Storage area Keep container tightly closed and dry; store in a cool place. Must be

stored in a diked (bunded) well-ventilated area, away from sunlight, ignition sources and other sources of heat. Drums should be stacked to a

maximum of 3 high. Do not pressurize drum containers to empty. Protect from air. Protect from atmospheric humidity. Protect contents

from the effects of light.

Storage temperature: < 40 °C. The stated storage temperature should be

noted. Storage duration: 12 Months

Packaging materials Suitable materials for containers: aluminum, Stainless steel 1.4439, High

density polyethylene(HDPE), light-impervious

7.3. Specific end use(s)

Not applicable.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. Occupational Exposure Limits

2,2'-Oxydiethanol (CAS 111-46-6)



	LTEL TWA ppm	LTEL TWA mg/m ³	STE L	STEL mg/m ³	Note
			ppm		
Austria	10	44	40	176	
Belgium					
Denmark	2,5	11	5	22	
France					
Germany (AGS)	10 ⁽¹⁾	44 (1)	40	176	(1) Inhalable aerosol and vapour
-			(1)(2)	(1)(2)	(2) 15 minutes reference period
Germany (DFG)	10	44	40	176	
Ireland	23	100			
Latvia		10			
Sweden	10	45	20 (1)	90 (1)	(1) Inhalable aerosol and vapour
Switzerland	10	44	40	176	
United Kingdom	23	101			

812 DNFL/PNFC values

8.1.2. DNEL/ PNEC values	
2,2'-Oxydiethanol (CAS 111-46-6)	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	No hazard identified
Acute - systemic effects, inhalation	No hazard identified
Acute - local effects, dermal	No hazard identified
Acute - local effects, inhalation	No hazard identified
Long-term - systemic effects, dermal	43 mg/kg bw/day
Long-term - systemic effects, inhalation	44 mg/m³
Long-term - local effects, dermal	No hazard identified
Long-term - local effects, inhalation	60 mg/m ³
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	No hazard identified
Acute - systemic effects, inhalation	No hazard identified
Acute - systemic effects, oral	No hazard identified
Acute - local effects, dermal	No hazard identified
Acute - local effects, inhalation	No hazard identified
Long-term - systemic effects, dermal	21 mg/kg bw/day
Long-term - systemic effects, inhalation	12 mg/m ³
Long-term - systemic effects,oral	No hazard identified
Long-term - local effects, dermal	No hazard identified
Long-term - local effects, inhalation	12 mg/m³
PNEC (water)	
PNEC aqua (freshwater)	10 mg/L
PNEC aqua (marine water)	1 mg/L
PNEC aqua (intermittent, freshwater)	-
PNEC (Sediment)	
PNEC sediment (freshwater)	20.9 mg/kg sediment dw
PNEC sediment (marine water)	2.09 mg/kg sediment dw
PNEC (Soil)	
PNEC soil	1.53 mg/kg soil dw
PNEC (Oral)	
PNEC oral (secondary poisoning)	No potential for bioaccumulation



PNEC (STP)	
PNEC sewage treatment plant	199.5mg/L

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8.2. Exposure controls

Appropriate engineering controls:

Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of vapours.

Hand protection:

Suitable chemical resistant safety gloves (EN 374) also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374): E.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), butyl rubber (0.7 mm) etc.

Manufacturer's directions for use should be observed because of great diversity of types.

Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing.

Eve protection:

Safety glasses with side-shields (frame goggles) (e.g. EN 166).

Skin and body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical

Respiratory protection:

Wear respiratory protection if ventilation is inadequate. Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A) Consider the risk management measures as outlined in the exposure scenario.

Environmental exposure controls:

Avoid release to the environment. Do not allow to enter drains or water courses. Assure that emissions are compliant with all applicable air pollution control regulations.

Other information:

Self-ignition temperature

Handle in accordance with good industrial hygiene and safety practice.

For more information please see the relevant exposure scenario in Annex of this SDS.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES 9.1. Information on basic physical and chemical properties Liquid Physical state at 20 °C and 101.3 kpa Form: viscous Colour: colourless Odour: nearly odourless Melting / freezing point -6.5 °C 244.9 °C at 1013 hpa Boiling point 1.118 g/cm³ at 20 °C Relative density 0.008 hpa at 25 °C Vapour pressure Surface tension Not surface active Water solubility Miscible in any proportion Partition coefficient n-octanol/water (log -1.98value) 138 °C Flash point Flammability Non flammable upon ignition. The substance has no pyrophoric properties and does not liberate flammable gases on contact with water. Explosive properties Non explosive

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Oxidising properties	No oxidising properties
Granulometry	Not applicable
Stability in organic solvents and identity of	Not applicable
relevant degradation products	
Dissociation constant	Not applicable
Viscosity	30 mPas at 25 °C

9.2. Other information

Not available.

SECTION 10. STABILITY AND REACTIVITY

10.1. Reactivity

Corrosion to metals: No corrosive effect on metal.

Formation of flammable gases: Forms no flammable gases in the presence of water.

Hygroscopic (absorbs moisture from the air).

10.2. Chemical stability

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

10.3. Possibility of hazardous reactions

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

10.4. Conditions to avoid

> 40 °C

Avoid humidity. Avoid daylight. Disregard of the conditions mentioned may result in undesirable decomposition reactions.

10.5. Incompatible materials

Substances to avoid: Strong acids. Strong alkalis. Strong oxidizing agents.

10.6. Hazardous decomposition products

Carbonyl compounds, Dioxolan derivatives.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

The available experimental animal data are reliable and suitable for classification purposes under Regulation (EC) No 1272/2008. As a result the substance is not considered to be classified for acute toxicity under Regulation (EC) No 1272/2008.

However, as the substance is classified as Acute Tox 4, H302 according to Annex VI under Regulation (EC) No 1272/2008 this classification is

followed.

2,2'-Oxydiethanol (CAS 111-46-6)		
LD50, oral, rats	19600 mg/kg bw	
LC50, inhalation, rats	>4.6 mg/L	
LD50, dermal, rabbits	13300 mg/kg bw	
Oral lethal dose for human	From 0.014 to 0.170 mg DEG/kg body weight	
Skin corrosion/irritation	No adverse effect observed (not irritating)	
1 1 11 1 1 1 0	D. 1 11 1 1 1 (DDT)	

Additional information Primary dermal irritation index (PDII): 0 (Time point: 6 weeks)(10% solution) Mean maximum cutaneous index:

0.04 (Time point: no data)(undiluted DEG) 0.47 (Time point: 6 weeks)(undiluted DEG)

Serious eye damage/irritation

No adverse effect observed (not irritating)

Additional information

Readings of the treated eyes revealed no signs of ocular irritation due to the treatment with 0.5 mL of undiluted test item.

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Respiratory or skin DEG is not considered to be sensitizing to the skin.

sensitisation

Additional information For intradermal induction a 5% diethylene glycol (DEG)

formulation in NaCl and for epidermal induction a 75% DEG formulation in water were used. A 50% DEG formulation in water was applied for challenge. No skin reactions could be observed.

Germ cell mutagenicity Genetic toxicity: no adverse effect observed (negative)

Additional information Data of a whole battery of robust high quality in vitro studies as

well as an in vivo test show that the test item does not possess any

mutagenic or genotoxic properties.

In vivo micronucleus test with mouse according to the OECD TG

474 under GLP conditions was also negative.

Carcinogenicity The substance is not considered to be classified for carcinogenicity

under Regulation (EC) No 1272/2008.

Toxicity for reproduction

The substance does not affect the reproductive performance and fertility, and neither possesses an embryo/fetotoxic nor a teratogenic potential. Therefore, no classification is warranted according to Regulation (EC) No. 1272/2008.

2,2'-Oxydiethanol (CAS 111-46-6)

NOAEL (effects on fertility),
subacute, oral, mouse

NOAEL (effects on fertility),
subacute, oral, rats

2200 mg/kg bw/day

STOT-single exposure Not available.

Repeated dose toxicity No adverse effect observed.

2,2'-Oxydiethanol (CAS 111-46-6)	
NOAEL, subchronic, oral, rat, male	300 mg/kg bw/day(98 days)(System: urinary. Organ: kidney)
NOAEL, subacute, dermal, dog	2220 mg/kg bw/day(21/28 days)(OECD Guideline 410)
NOAEC, subacute, inhalation, human	120 mg/m³

Aspiration hazard Not available.

SECTION 12. ECOLOGICAL INFORMATION

12.1. Toxicity 2,2'-Oxydiethanol (CAS 111-46-6) Fish (Short-term toxicity) LC50 (96h) 75200 mg/L (Pimephales promelas) Fish (Long-term toxicity) NOEC (28 d) > 1500 mg/L (Pimephales promelas) (ASTM E-47.01, Draft No. 3, 1980) NOEC (7 d) 15380 mg/L (Pimephales promelas) (EPA 600/4-89/001) **Aquatic invertebrates (Short-term toxicity)** >10000 mg/L (Daphnia magna)(basic method for the implementation of EC50 (24 h) DIN 38412/11) **Aquatic invertebrates (Long-term toxicity)** 8590 mg/L (Ceriodaphnia dubia) (EPA 600/4-89/001) NOEC (7 d) NOEC (21 d): 7500 - 15000 mg/L (Daphnia magna)(ASTM E-47.01 and E 35.21, Draft No. 1 and 4) Algae and aquatic plants

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NOEC (72h)	>100 mg/L (Pseudokirchneriella subcapitata)(OECD Guideline 201)	
LD50 (7d)	6 238 mg/L (Echinodorus cordifolius)	
Toxicity to aquatic micro-	-organisms	
EC20 (30min)	> 1 995 mg/L (activated sludge, domestic)(ISO 8192)	
12.2. Persistence and de	gradability	
Abiotic degradation:	After evaporation or exposure to the air, the product will be rapidly degraded by photochemical processes. No data on hydrolysis are available. However, glycols are generally regarded as stable towards hydrolysis. Phototransformation in air: Half-life (DT50):17.2 h. After evaporation or exposure to the air, the product will be rapidly degraded by photochemical processes	
Biodegradation	Readily biodegradable (according to OECD criteria). Diethylene glycol was shown to meet the ready biodegradability criteria in a carbon dioxide evolution test according to OECD 301B. % Degradation of test substance: 90 – 100% after 28d	
Persistence and degradability	Not P / vP based on ready biodegradability: The substance is readily biodegradable according to OECD criteria.	
12.3. Bioaccumulative p		
Aquatic bioaccumulation:	The substance has a log Kow value of ca1.5. Therefore, accumulation in organisms is not to be expected. Absence of bioaccumulation was also shown in a 3 -day BCF study with fish (L. Idus) in which a BCF of 100 was observed (Freitag et al., 1985).	
Secondary poisoning:	Based on the available information, there is no indication of a bioaccumulation potential and, hence, secondary poisoning is not considered relevant.	
12.4. Mobility in soil		
Biodegradation in soil:	The study does not need to be conducted because the substance is readily biodegradable.	

12.5. Results of PBT and vPvB assessment

Regarding all available data on biotic and abiotic degradation, bioaccumulation and toxicity it can be stated that the substance does not fulfil the PBT criteria (not PBT) and not the vPvB criteria (not vPvB).

12.6. Other adverse effects

Not available.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste disposal Was

Waste must be disposed of in accordance with federal, state and local environmental control regulations. Dispose of material through a licensed

waste contractor. Normally suitable for incineration by an approved

agent.

European List of Waste

Not available.

(LoW) code

recommendations

SECTION 14. TRANSPORT INFORMATION

14.1. Land transport (ADR/ RID)

Not regulated.

14.2. Inland waterway transport (ADN)

Not regulated.

14.3. Sea transport (IMDG)

Not regulated.

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14.4. Air transport (IATA/ICAO)

Not regulated.

14.5. Special precautions for user

Always transport in closed containers. Ensure that persons transporting the product know what to do in the event of an accident or spillage. For information regarding Exposure Controls/Personal Protection see Section 8 of the SDS.

14.6. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

SECTION 15. REGULATORY INFORMATION

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

15.1.1. EU-Regulations

Authorisations and/or restrictions on use (Annex XVII): Not applicable.

2,2'-Oxydiethanol (CAS 111-46-6) is not on the REACH Candidate List.

2,2'-Oxydiethanol (CAS 111-46-6)is not on the REACH Annex XIV List.

Other information,

restriction and prohibition

regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and Regulation (EC) No. 1005/2009 on substances that

deplete the ozone layer. Annex II - Not listed.

Directive 2012/18/EU on the control of major-accident hazards involving

dangerous substances- (SEVESO III): Not listed.

Directive 2013/39/EU priority substances in the field of water policy (amending Directive 2006/60/EC – Water Framework Directive and Directive 2008/105/EC on environmental quality standards in the field of

water policy): Not listed.

Regulation (EC) No 850/2004 on persistent organic pollutants:

Annex III – Not listed.

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous

chemicals: Not listed.

15.1.2. National regulations

Germany AwSV Stoffname: Diethylenglykol (Verordnung über CAS-Nummer: 111-46-6 Anlagen zum Umgang mit EG-Nummer: 203-872-2

wassergefährdenden Kennummer: 79

Stoffen) WGK: 1

15.2. Chemical safety assessment

Chemical Safety Report has been performed for 2,2'-Oxydiethanol (CAS 111-46-6).

SECTION 16. OTHER INFORMATION

16.1. Indication of changes

Version	Date of	Section	Description of changes
	change		
1.0	08/12/2010	1-16, Annex	Initial SDS
2.0	08/02/2011	1-16	Data updated
3.0	19/03/2018	1-16, Annex	SDS has been corrected in according to new contact
			information, data of Registration dossier and
			Chemical Safety Report
3.1	18/03/2019	2, 3, 11, 15, 16	The following hazard class was removed:

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3.2	13/03/2020	1, 9	STOT RE 2, H373 (May cause damage to organs through prolonged or repeated exposure. Affected organs: kidney. Route of exposure: Oral) Justification: SUBSTANCE EVALUATION CONCLUSION as required by REACH Article 48 and EVALUATION REPORT for 2,2'-oxydiethanol (EC No 203-872-2; CAS No 111-46-6); Evaluating Member State: Hungary; Dated: 07 September 2016 Manufacturee's contact details and the value of Relative density were modified
16.2. Abbr	eviations and	acronyms	Relative delisity were inodified
ADR			the International Carriage of Dangerous Goods by
	Road		, the international curriage of Bungerous Goods by
AGS	The German	Committee on Haza	urdous Substances (Ausschuss für Gefahrstoffe – AGS)
BCF	Bioconcentra	tion factor	
DFG	Germany Res	search Foundation	
DNEL	Derived No E	Effect Level	
IMDG		Maritime Dangerou	
ICAO-TI			fe Transport of Dangerous Goods by Air
Koc	Adsorption co		
Kow	octanol-water partition coefficient		
LC50	Lethal Concentration to 50 % of a test population		
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)		
LOAEC	Lowest Observable Adverse Effect Concentration		
LTEL	Long Term Exposure Limit		
NIOSH	National Institute for Occupational Safety and Health (USA CDC)		
NOEC	No Observed Effect Concentration		
NOAEL	No Observed Adverse Effect Level		
OECD	Organization for Economic Co-operation and Development		
OSHA	Occupational Safety & Health Administration (USA)		
PNEC	Predicted No Effect Concentration		
PBT	Persistent, bioaccumulative, toxic chemical		
vPvB	Very Persistent, Very Bioaccumulative		
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail		
SCOEL	Scientific Committee on Occupational Exposure Limits		
STEL	Short Term Exposure Limit		
STP	sewage treatment plant		
STOT		get Organ Toxicity	
(STOT) RE	Repeated Exp		
(STOT) SE	Single Exposure		
TWA	Time Weighted Average		
UN	United Nations		
WGK	Wassergefähi	rdungsklasse (Gern	nan: Water Hazard Class)

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16.3. F	full text of H- and EUH-statements:	
H302	Acute Tox. 4 H302: Harmful if swallowed.	
16.4. I	ist of ES (exposure scenario) given in Annex to the extended SDS	
ES1	Use as Intermediate p.16	
ES2	Use as Process chemical p.20	
ES3	Distribution of substance p.25	
ES4	Formulation & (re)packing of substance and mixtures p.29	
ES5	Production of Polymers p.33	
ES6	Use in Paints/Coatings (industrial) p.37	
ES7	Use in Paints/Coatings/Adhesives/ Sealants/ Foams/ Polymers/ filled Polymers	
	(professional) p.43	
ES8	Use in Paints/Coatings /Surface treatment products (Consumer use) p.50	
ES9	Use in Cleaning agents (industrial) p.57	
ES10	Use in Cleaning agents (professional) p.62	
ES11	Use in Cleaning agents (Consumer use) p.67	
ES12	Use in Biocidal products (Consumer use) p.73	
ES13	Use in Lubricants (industrial) p.75	
ES14	Use in Metal-working fluids (industrial) p.81	
ES15	Use in metal-working fluids (professional) p.87.	
ES16	Use in/as Functional fluids (industrial) p.93	
ES17	Use in/as Functional fluids (professional) p.96	
ES18	Use in Heat transfer and Hydraulic fluids (Consumer use) p.99	
ES19	Use in/as De-icing/Anti-icing applications/agents (professional) p.101	
ES20	Use in/as De-icing/Anti-icing applications/agents (Consumer use) p.105	
ES21	Use in laboratories (industrial) p.107	
ES22	Use in laboratories (professional) p.108	
ES23	Use in Adhesives and Sealants (Consumer use) p.109	
ES24	Production of Polymers, filled polymers, Foams, Coatings, Adhesives, Sealants p.111	
ES25	Production of rigid foam (Consumer use) p.117	
ES26	Use in Water-treatment chemicals (industrial) p.118	
ES27	Use in Water-treatment chemicals (professional) p.121	
16.5.	Key literature references and sources	

DOCUMENTS, PROVIDED BY FERC CONSORTIUM:

CHEMICAL SAFETY REPORT to 2,2'-Oxydiethanol (CAS 111-46-6).

EU REGULATIONS:

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

Regulation (EC) No 1272/2008 REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

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Training advice

Product handling instruction shall be included into the educational system about the safety work (initial training, training at the workplace, repeated training) according to specific conditions at the workplace.

DISCLAIMER

This information is based on our current level of knowledge. This information may be subject to revision as new knowledge and experience becomes available, and SIBUR makes no warranties and assumes no liability in connection with any use of this information. Since SIBUR cannot be aware of all aspects of your business and the impact the REACH Regulation has for your company, SIBUR strongly encourages you to get familiar with the REACH Regulation in order to comply with its requirements and timelines.

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ANNEX. EXPOSURE SCENARIOS

ES 1 (Exposure Scenario 1): Use as Intermediate

Free short title	Use as Intermediate (2)
Systematic title based on use descriptor	ERC 6A; PROC 1, 2, 3, 4, 5, 8A, 8B, 9, 15
Name of contributing environmental scenario and corresponding ERC	ERC 6a Industrial use of intermediates
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 15 - Use of laboratory reagents in small scale laboratories
Contributing Scenario (1) controlling env	ironmental exposure for ERC 6A
As no environmental hazard was identified in	no environmental-related exposure assessment and risk characterization was performed.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	low
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Contributing Scenario (2) controlling ind	ustrial worker exposure for PROC 1
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Scenario subtitle	Use in closed process, no likelihood of exposure
Human factors not influenced by risk ma	nagement
Exposed skin surface	240 cm^2
Other given operational conditions affect	ing workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to con	trol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to perso	nal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (3) controlling ind	lustrial worker exposure for PROC 2
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
	Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	The state of the s
Scenario subtitle Human factors not influenced by risk ma	



Domain midours mido				
Technical conditions and measures to control Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (4) controlling insustrial worker exposure for PROC 3 Name of contributing scenario 3 - Use in closed batch process (synthesis or formulation) Human factors not influenced by risk manuscrement Exposed skin surface Use in closed batch process (synthesis or formulation) Human factors not influenced by risk manuscrement Exposed skin surface 240 cm² Other given operational conditions affecting workers exposure Location indoors indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local conditions and measures to the process in the process (synthesis or formulation) Protective gloves indoors Respiratory protection indoors Respiratory protection industrial industrial industrial Respiratory protection industrial industrial industrial industrial Respiratory protection industrial industrial industrial industrial industrial Respiratory protection industrial industrial industrial industrial industrial Respiratory protection industrial industrial industrial industrial Respiratory protection industrial industrial industrial Respiratory industrial industrial industrial industrial industrial Respiratory industrial industrial industrial industrial Respiratory industrial in	Location	indoors		
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Respiratory protection o o o o o o o o o o o o o o o o o o	Conditions and measures related to perso	nal protection, hygiene and health evaluation		
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Ruman factors not influenced by risk marker Exposed skin surface 240 cm²	Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)		
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Name of contributing scenario 4 - Use in batch and other process (synthesis) where opportunity for exposure arises. Scenario subtitle Use in batch and other process (synthesis) where opportunity for exposure arises. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario 5 - Mixing or blending in batch processes (multistage and/or significant contact) Scenario subtitle Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure	Respiratory protection	no		
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Other given operational conditions affective workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personate protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (6) controlling intervial worker exposure for PROC 5 Name of contributing scenario Mixing or blending in batch processes (multistage and/or significant contact) Scenario subtitle Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk materials workers exposure Exposed skin surface 480 cm² Other given operational conditions affective workers exposure	Human factors not influenced by risk ma	nagement		
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Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario 5 - Mixing or blending in batch processes (multistage and/or significant contact) Scenario subtitle Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk material workers exposure Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure	Domain	industrial		
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Protective gloves No no Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario 5 - Mixing or blending in batch processes (multistage and/or significant contact) Scenario subtitle Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure	Local exhaust ventilation	no		
Respiratory protection no Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario 5 - Mixing or blending in batch processes (multistage and/or significant contact) Scenario subtitle Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure	Conditions and measures related to perso	nal protection, hygiene and health evaluation		
Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario 5 - Mixing or blending in batch processes (multistage and/or significant contact) Scenario subtitle Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm ² Other given operational conditions affecting workers exposure	Protective gloves	No		
Name of contributing scenario 5 - Mixing or blending in batch processes (multistage and/or significant contact) Scenario subtitle Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure	Respiratory protection	no		
Scenario subtitle Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm ² Other given operational conditions affecting workers exposure	Contributing Scenario (6) controlling ind	Contributing Scenario (6) controlling industrial worker exposure for PROC 5		
and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm ² Other given operational conditions affecting workers exposure	Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)		
Exposed skin surface 480 cm ² Other given operational conditions affecting workers exposure	Scenario subtitle	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).		
Other given operational conditions affecting workers exposure	Human factors not influenced by risk management			
	Exposed skin surface	480 cm ²		
Location indoors	Other given operational conditions affecting workers exposure			
	Location	indoors		

LANGUAGE: ENGLISH



Domain	industrial		
Technical conditions and measures to con	trol dispersion and exposure		
Local exhaust ventilation	no		
Conditions and measures related to personal protection, hygiene and health evaluation			
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		
Contributing Scenario (7) controlling inde	ustrial worker exposure for PROC 8A		
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities		
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities		
Qualitative Risk Assessment			
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).		
Human factors not influenced by risk man	nagement		
Exposed skin surface	960 cm ²		
Other given operational conditions affecti	ng workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to con	Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	yes (inhalation 90 %)		
Conditions and measures related to perso	nal protection, hygiene and health evaluation		
Protective gloves	No		
Respiratory protection	no		
Contributing Scenario (8) controlling inde	ustrial worker exposure for PROC 8B		
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities		
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities		
Human factors not influenced by risk man	nagement		
Exposed skin surface 960 cm ²			
Other given operational conditions affecti	ng workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to control dispersion and exposure			
Local exhaust ventilation	no		
Conditions and measures related to personal protection, hygiene and health evaluation			
Protective gloves	No		
Respiratory protection	no		
Contributing Scenario (9) controlling industrial worker exposure for PROC 9			
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)		
Scenario subtitle	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)		
Human factors not influenced by risk man	Human factors not influenced by risk management		

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LANGUAGE: ENGLISH



Exposed skin surface	480 cm^2		
Other given operational conditions affecti	Other given operational conditions affecting workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to con	trol dispersion and exposure		
Local exhaust ventilation	no		
Conditions and measures related to perso	nal protection, hygiene and health evaluation		
Protective gloves	No		
Respiratory protection	no		
Contributing Scenario (10) controlling ind	Contributing Scenario (10) controlling industrial worker exposure for PROC 15		
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories		
Scenario subtitle	Use as laboratory reagent		
Human factors not influenced by risk man	nagement		
Exposed skin surface	240 cm^2		
Other given operational conditions affecti	ng workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to control dispersion and exposure			
Local exhaust ventilation	no		
Conditions and measures related to personal protection, hygiene and health evaluation			
Protective gloves	No		
Respiratory protection	no		

ES 2 (Exposure Scenario 2): Use as Process chemical

Free short title	Use as Process chemical (3)
Systematic title based on use descriptor	ERC 4; PROC 1, 2, 3, 4, 5, 8A, 8B, 9, 13, 14, 15
Name of contributing environmental scenario and corresponding ERC	ERC 4 Industrial use of processing aids
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 13 - Treatment of articles by dipping and pouring PROC 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 15 - Use of laboratory reagents in small scale laboratories
Contributing Scenario (1) controlling environmenta	l exposure for ERC 4



Product characteristics		
Physical state	liquid	
Concentration in substance	100 %	
Fugacity / Dustiness	low	
Frequency and duration of use		
Duration of activity	>4 hours (default)	
Frequency of use	5 days / week	
Contributing Scenario (2) controlling industrial work	ker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure	
Scenario subtitle	Use in closed process, no likelihood of exposure	
Human factors not influenced by risk management		
Exposed skin surface	240 cm^2	
Other given operational conditions affecting workers	s exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispers	sion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to personal protect	ion, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (3) controlling industrial work	ker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure	
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure	
Human factors not influenced by risk management		
Exposed skin surface	480 cm^2	
Other given operational conditions affecting workers	s exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispers	sion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to personal protect	ion, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (4) controlling industrial worker exposure for PROC 3		
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)	
Scenario subtitle	Use in closed batch process (synthesis or formulation).	
Human factors not influenced by risk management		
Exposed skin surface	240 cm ²	
Other given operational conditions affecting workers exposure		
Other given operational conditions affecting workers	s exposure	

LANGUAGE: ENGLISH



Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Contributing Scenario (5) controlling industrial worker exposure for PROC 4 Name of contributing scenario Seenario subtitle Use in batch and other process (synthesis) where opportunity for exposure arises. Scenario subtitle Use in batch and other process (synthesis) where opportunity for exposure arises. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario Seenario subtitle Windows and measures with a subtractive exposure for processes (multistage and/or significant contact) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure for PROC 5 Name of contributing scenario Seenario subtitle Windows and measures related to personal protection on the processes for formulation of preparations and warriets (multistage and/or significant contact) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure for PROC 5 Name of contributing scenario (6) controlling industrial workers exposure for processes for formulation of preparations and marines may be a surface of the processes for formulation of preparations and measures related to personal protection on the processes for formulation of preparation industrial moderns in modern processes for formulation of preparation industrial workers exposure	Domain	industrial		
Local exhaust ventilation no	Domain Technical conditions and measures to control disper	industrial		
Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Respiratory protection Domain Foregraphics surface Other given operational conditions affecting workers contributing and measures related to personal protection, hygiene and health evaluation Protective gloves Respiratory protection Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection Conditions and measures to control dispersion and exposure Exposed skin surface As a management Exposed skin surface Other given operational conditions affecting workers exposure Location Industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation Respiratory protection Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Respiratory protection Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario Scenario subtite Mixing or blending in batch processes (multistage and/or significant contact) Mixing or blending in batch processes (multistage and/or significant contact) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location Indoors Domain Indoors Other given operational conditions affecting workers to control dispersion and exposure Location Indoors Conditions and measures to control dispersion and exposure Location Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gives APF 10 90 % Respiratory protection Conditions and measures related to personal protection, hygiene and health evaluation Frotective gloves Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario (7) controlling indu				
Protective gloves No Respiratory protection no Contributing Scenario (5) controlling industrial worker exposure for PROC 4 **Name of contributing scenario** **Seenario subtitide Use in batch and other process (synthesis) where opportunity for exposure arises. **Seenario subtitide Use in batch and other process (synthesis) where opportunity for exposure arises. **Human factors not influenced by risk management Exposed skin surface 480 cm² **Other given operational conditions affecting workers exposure **Location industrial Technical conditions and measures to control dispersion and exposure **Location no Conditions and measures related to personal protection, hygiene and health evaluation **Protective gloves No Respiratory protection no Contributing Scenario (6) controlling industrial worker exposure for PROC 5 **Name of contributing scenario **Seenario subtitide Missing or blending in batch processes (multistage and/or significant contact) **Human factors not influenced by risk management **Exposed skin surface 480 cm² **Other given operational conditions affecting workers exposure **Location industrial **Technical conditions and measures to control dispersion and exposure **Location industrial **Technical conditions and measures to control dispersion and exposure **Location no **Conditions and measures related to personal protection, hygiene and health evaluation **Technical conditions and measures to control dispersion and exposure **Location no **Conditions and measures related to personal protection, hygiene and health evaluation **Technical conditions and measures to control dispersion and exposure **Location no **Conditions and measures related to personal protection, hygiene and health evaluation **Technical conditions and measures related to personal protection, hygiene and health evaluation **Technical conditions and measures related to personal protection, hygiene and health evaluation **Technical conditions and				
Respiratory protection no Contributing Scenario (5) controlling industrial worker exposure for PROC 4 Name of contributing scenario A - Use in batch and other process (synthesis) where opportunity for exposure arises. Scenario subtitle Use in hatch and other process (synthesis) where opportunity for exposure arises. Human factors not influenced by risk management Exposed skin surface (ASO cm² Other given operational conditions affecting workers exposure Location Indoors Domain Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario Scenario subtitle Mixing or blending in batch processes (multistage and/or significant contact) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location Domain industrial Technical conditions and measures to control dispersion and exposure Location Domain Technical conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Respiratory protection Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Respiratory protection Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Respiratory protection Conditions and measures related to personal protection, hygiene and feath evaluation Protective gloves Respiratory protection Cond				
Contributing Scenario (5) controlling industrial worker exposure for PROC 4 Name of contributing scenario 4 - Use in batch and other process (synthesis) where opportunity for exposure arises. Scenario subtitle Use in batch and other process (synthesis) where opportunity for exposure arises. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location Indoors Domain Conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection Contributing scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario Scenario subtitle Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors indoors Domain industrial Technical conditions and measures to control dispersion and exposure Location indoors Domain Contributing scenario Contributing scenario Contributing scenario Conditions and measures to control dispersion and exposure Local exhaust ventilation Domain Technical conditions and measures to control dispersion and exposure Local exhaust ventilation Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Ciloves APF 10 90 % Respiratory protection Respiratory protection Contributing scenario (7) controlling industrial worker exposure for PROC SA Name of contributing scenario Respiratory protection Contributing scenario (7) controlling industrial worker exposure for preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities Cenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers	-	No		
A - Use in batch and other process (synthesis) where opportunity for exposure arises				
Scenario subtitle Use in batch and other process (synthesis) where opportunity for exposure arises. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario Senario subtitle Mixing or blending in batch processes (multistage and/or significant contact) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC SA Name of contributing scenario & a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of chemicals from/to vessels/ large containers at non dedicated facilities General In case no suitable local exhaust ventilation is present:	Contributing Scenario (5) controlling industrial wor	ker exposure for PROC 4		
Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario Scenario subtitle Mixing or blending in batch processes (multistage and/or significant contact) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC SA Name of contributing scenario Technical conditions affecting workers exposure Local exhaust ventilation no Contributing Scenario (7) controlling industrial worker exposure for PROC SA Name of contributing Scenario (7) controlling industrial worker exposure for PROC SA Name of contributing Scenario (7) controlling industrial worker exposure for PROC SA Name of contributing Scenario (7) controlling industrial worker exposure for PROC SA Name of contributing Scenario (7) controlling industrial worker exposure for PROC SA Name of contributing Scenario (7) controlling industrial worker exposure for PROC SA Name of contributing Scenario (7) controlling industrial worker exposure for PROC SA Name of contributing Scenario (7) controlling industrial worker exposure for PROC SA Name of contributing Scenario (7) controlling industrial worker exposure for proparation (charging/discharging) from/to vessels/large containers at non-dedicated fa	Name of contributing scenario			
Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario Scenario subtitle Mixing or blending in batch processes (multistage and/or significant contact) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial workers exposure for PROC 8A Name of contributing scenario Rame of contributing scenario Scenario subtitle resposure for processes (multistage and/or significant contact). ### APP Contributing scenario ### APP Contributing scenario ### Contributing scenario ### APP Contributing scenario ### Contributing scenario (7) controlling industrial workers exposure for PROC 8A Name of contributing scenario ### APP Contributing scenario ### APP Contributing scenario (7) controlling industrial workers exposure for PROC 8A Name of contributing scenario ### Contributing scenario (7) controlling industrial workers exposure for proparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Conditions and the substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities #### Conditions and the substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities #### Conditions an	Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.		
Other given operational conditions affecting workers exposure Location indoors industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario Scenario subtitle Mixing or blending in batch processes (multistage and/or significant contact) Human factors not influenced by risk management Exposed skin surface Most and exposure Location indoors Domain industrial Technical conditions affecting workers exposure Location indoors Conditions and measures to control dispersion and exposure Location industrial Technical conditions and measures to control dispersion and exposure Location no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial workers exposure for PROC 8A Name of contributing scenario Rame of contributing scenario Rame of contributing scenario Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present:	Human factors not influenced by risk management			
Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario 5 - Mixing or blending in batch processes (multistage and/or significant contact) Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario Seenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities General In case no suitable local exhaust ventilation is present:	Exposed skin surface	480 cm^2		
Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario Scenario subtitle Mixing or blending in batch processes (multistage and/or significant contact) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario Seenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities General In case no suitable local exhaust ventilation is present:	Other given operational conditions affecting worker	s exposure		
Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (6) controlling industrial wwterexposure for PROC 5 Name of contributing scenario S - Mixing or blending in batch processes (multistage and/or significant contact) Scenario subtitle Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial wwterexposure for PROC 8A Name of contributing scenario Sa - Transfer of chemicals from/to vessels/large containers at non dedicated facilities Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present:	Location	indoors		
Conditions and measures related to personal protection, hygiene and health evaluation	Domain	industrial		
Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Respiratory protection Respiratory protection Donating Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario Scenario subtitle Mixing or blending in batch processes (multistage and/or significant contact) Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario Sa - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present:	Technical conditions and measures to control disper	sion and exposure		
Protective gloves No Respiratory protection no Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario 5 - Mixing or blending in batch processes (multistage and/or significant contact) Scenario subtitle Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment In case no suitable local exhaust ventilation is present:	Local exhaust ventilation	no		
Respiratory protection no Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario	Conditions and measures related to personal protect	ion, hygiene and health evaluation		
Contributing Scenario (6) controlling industrial worker exposure for PROC 5 Name of contributing scenario Scenario subtitle Mixing or blending in batch processes (multistage and/or significant contact) Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain Technical conditions and measures to control dispersion and exposure Local exhaust ventilation Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment In case no suitable local exhaust ventilation is present:	Protective gloves	No		
Senario subtitle Mixing or blending in batch processes (multistage and/or significant contact)	Respiratory protection	no		
Scenario subtitle Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario Scenario subtitle Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present:	Contributing Scenario (6) controlling industrial wor	ker exposure for PROC 5		
Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment In case no suitable local exhaust ventilation is present:	Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)		
Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment In case no suitable local exhaust ventilation is present:	Scenario subtitle			
Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment In case no suitable local exhaust ventilation is present:	Human factors not influenced by risk management			
Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present:	Exposed skin surface	480 cm ²		
Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment In case no suitable local exhaust ventilation is present:	Other given operational conditions affecting workers	s exposure		
Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment In case no suitable local exhaust ventilation is present:	Location	indoors		
Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment In case no suitable local exhaust ventilation is present:	Domain	industrial		
Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Respiratory protection Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present:	Technical conditions and measures to control disper	sion and exposure		
Protective gloves Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present:	Local exhaust ventilation	no		
Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present:				
Respiratory protection no Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present:				
Contributing Scenario (7) controlling industrial worker exposure for PROC 8A Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present:		no		
facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present:				
Containers at non-dedicated facilities Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present:	Name of contributing scenario			
General In case no suitable local exhaust ventilation is present:	Scenario subtitle			
	Qualitative Risk Assessment			
	General			



Human factors not influenced by risk management	Human factors not influenced by risk management		
Exposed skin surface	960 cm ²		
Other given operational conditions affecting workers exposure			
Location	indoors		
Domain	industrial		
Technical conditions and measures to control disper-	sion and exposure		
Local exhaust ventilation	yes (inhalation 90 %)		
Conditions and measures related to personal protect	ion, hygiene and health evaluation		
Protective gloves	No		
Respiratory protection	no		
Contributing Scenario (8) controlling industrial wor	ker exposure for PROC 8B		
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities		
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities		
Product characteristics			
Physical state	liquid		
Concentration in substance	100 %		
Fugacity / Dustiness	low		
Frequency and duration of use			
Duration of activity	>4 hours (default)		
Frequency of use	5 days / week		
Human factors not influenced by risk management			
Exposed skin surface	960 cm ²		
Other given operational conditions affecting workers	s exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to control disper-	sion and exposure		
Local exhaust ventilation	no		
Conditions and measures related to personal protect	ion, hygiene and health evaluation		
Protective gloves	No		
Respiratory protection	no		
Contributing Scenario (9) controlling industrial worker exposure for PROC 9			
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)		
Scenario subtitle	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)		
Human factors not influenced by risk management			
Exposed skin surface	480 cm ²		
Other given operational conditions affecting workers exposure			
Location	indoors		
Domain industrial			
Technical conditions and measures to control dispersion and exposure			



Conditions and measures related to personal protective gloves Respiratory protection Contributing Scenario (10) controlling industrial welliame of contributing scenario cenario subtitle Ituman factors not influenced by risk management exposed skin surface Other given operational conditions affecting worker cocation Comain Cechnical conditions and measures to control dispe	No no orker exposure for PROC 13 13 - Treatment of articles by dipping and pouring Treatment of articles by dipping and pouring.	
Protective gloves Respiratory protection Contributing Scenario (10) controlling industrial was a second of contributing scenario Conario subtitle Ruman factors not influenced by risk management Exposed skin surface Other given operational conditions affecting worker Cocation Comain	No no orker exposure for PROC 13 13 - Treatment of articles by dipping and pouring Treatment of articles by dipping and pouring. 480 cm ² rs exposure indoors	
Contributing Scenario (10) controlling industrial was a management of contributing scenario cenario subtitle Iuman factors not influenced by risk management exposed skin surface Other given operational conditions affecting worker occation Commain	no orker exposure for PROC 13 13 - Treatment of articles by dipping and pouring Treatment of articles by dipping and pouring. 480 cm ² rs exposure indoors	
Contributing Scenario (10) controlling industrial water of contributing scenario cenario subtitle Tuman factors not influenced by risk management exposed skin surface Other given operational conditions affecting worker cocation Comain	orker exposure for PROC 13 13 - Treatment of articles by dipping and pouring Treatment of articles by dipping and pouring. 480 cm ² rs exposure indoors	
Name of contributing scenario cenario subtitle Iuman factors not influenced by risk management exposed skin surface Other given operational conditions affecting worker cocation Comain	13 - Treatment of articles by dipping and pouring Treatment of articles by dipping and pouring. 480 cm ² rs exposure indoors	
cenario subtitle Iuman factors not influenced by risk management Exposed skin surface Other given operational conditions affecting worker Location Domain	Treatment of articles by dipping and pouring. 480 cm ² rs exposure indoors	
Auman factors not influenced by risk management exposed skin surface Other given operational conditions affecting worker cocation Oomain	480 cm ² rs exposure indoors	
Exposed skin surface Other given operational conditions affecting worker ocation Oomain	rs exposure indoors	
Other given operational conditions affecting worker Occation Oomain	rs exposure indoors	
ocation Domain	indoors	
Oomain		
	industrial	
echnical conditions and measures to control dispe		
	rsion and exposure	
ocal exhaust ventilation	yes (inhalation 90 %)	
Conditions and measures related to personal protec	tion, hygiene and health evaluation	
rotective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
Contributing Scenario (11) controlling industrial w	orker exposure for PROC 14	
Name of contributing scenario	14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation	
cenario subtitle	Production of preparations or articles by tabletting, compression, extrusion, pelletisation.	
Human factors not influenced by risk management		
exposed skin surface	480 cm^2	
Other given operational conditions affecting worker	rs exposure	
ocation	indoors	
Oomain	industrial	
echnical conditions and measures to control dispe	rsion and exposure	
ocal exhaust ventilation	no	
Conditions and measures related to personal protect	tion, hygiene and health evaluation	
rotective gloves	No	
Respiratory protection	no	
Contributing Scenario (12) controlling industrial worker exposure for PROC 15		
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories	
cenario subtitle	Use as laboratory reagent	
Human factors not influenced by risk management		
exposed skin surface	240 cm ²	
Other given operational conditions affecting workers exposure		
ocation	indoors	
Oomain	industrial	
Technical conditions and measures to control dispersion and exposure		

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Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no

ES 3 (Exposure Scenario 3): Distribution of substance

Free short title	Distribution of substance (4)	
Systematic title based on use descriptor	ERC 1; PROC 1, 2, 3, 4, 8A, 8B, 9, 15	
Name of contributing environmental scenario and corresponding ERC	ERC 1 Production of chemicals	
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 15 - Use of laboratory reagents in small scale laboratories	
Contributing Scenario (1) controlling environmenta	l exposure for ERC 1	
As no environmental hazard was identified no environmental	mental-related exposure assessment and risk characterization was performed.	
Product characteristics		
Physical state	liquid	
Concentration in substance	100 %	
Fugacity / Dustiness	low	
Frequency and duration of use		
Duration of activity	>4 hours (default)	
Frequency of use	5 days / week	
Contributing Scenario (2) controlling industrial wor	rker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure	
Scenario subtitle	Use in closed process, no likelihood of exposure	
Human factors not influenced by risk management		
Exposed skin surface	240 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to control disper	rsion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to personal protec	tion, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (3) controlling industrial worker exposure for PROC 2		



	·	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure	
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure	
Human factors not influenced by risk management		
Exposed skin surface	480 cm^2	
Other given operational conditions affecting worker	s exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to control disper	sion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to personal protect	ion, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (4) controlling industrial wor	ker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)	
Scenario subtitle	Use in closed batch process (synthesis or formulation).	
Human factors not influenced by risk management		
Exposed skin surface	240 cm^2	
Other given operational conditions affecting workers	s exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to control disper	sion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to personal protect	ion, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (5) controlling industrial wor	ker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises	
Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.	
Human factors not influenced by risk management		
Exposed skin surface	480 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (6) controlling industrial wor	ker exposure for PROC 8A	



Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	
Qualitative Risk Assessment		
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).	
Human factors not influenced by risk management		
Exposed skin surface	960 cm ²	
Other given operational conditions affecting worker	s exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to control disper	sion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)	
Conditions and measures related to personal protect	ion, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (7) controlling industrial wor	ker exposure for PROC 8B	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Human factors not influenced by risk management		
Exposed skin surface	960 cm^2	
Other given operational conditions affecting worker	s exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to control disper	sion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to personal protect	ion, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (8) controlling industrial worker exposure for PROC 9		
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)	
Scenario subtitle	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
Human factors not influenced by risk management		
Exposed skin surface	480 cm ²	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	

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Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (9) controlling industrial wor	ker exposure for PROC 15	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories	
Scenario subtitle	Use as laboratory reagent	
Human factors not influenced by risk management		
Exposed skin surface	240 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	

ES 4 (Exposure Scenario 4): Formulation & (re)packing of substance and mixtures

Free short title	Formulation & (re)packing of substance and mixtures (5)
Systematic title based on use descriptor	ERC 2; PROC 1, 2, 3, 4, 5, 8A, 8B, 9, 14, 15
Name of contributing environmental scenario and corresponding ERC	ERC 2 Formulation of preparations
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 15 - Use of laboratory reagents in small scale laboratories
Contributing Scenario (1) controlling	environmental exposure for ERC 2
As no environmental hazard was identifi	ied no environmental-related exposure assessment and risk characterization was performed.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	low
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Contributing Scenario (2) controlling	industrial worker exposure for PROC 1
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure

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Scenario subtitle	Use in closed process, no likelihood of exposure	
Human factors not influenced by risk	management	
Exposed skin surface	240 cm^2	
Other given operational conditions aff	fecting workers exposure	
Location indoors		
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (3) controlling	industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure	
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure	
Human factors not influenced by risk	management	
Exposed skin surface	480 cm^2	
Other given operational conditions aff	fecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (4) controlling	industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)	
Scenario subtitle	Use in closed batch process (synthesis or formulation).	
Human factors not influenced by risk	management	
Exposed skin surface	240 cm^2	
Other given operational conditions aff	fecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (5) controlling	industrial worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises	
Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.	

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Human factors not influenced by risk	management
Exposed skin surface	480 cm^2
Other given operational conditions af	fecting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to	control dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to po	ersonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (6) controlling	industrial worker exposure for PROC 5
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)
Scenario subtitle	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
Human factors not influenced by risk	management
Exposed skin surface	480 cm^2
Other given operational conditions aft	fecting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to	control dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (7) controlling	industrial worker exposure for PROC 8A
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
Qualitative Risk Assessment	
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).
Human factors not influenced by risk	management
Exposed skin surface	960 cm^2
Other given operational conditions af	fecting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to	control dispersion and exposure
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to po	ersonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no



Name of contributing scenario Sh = Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	Contributing Scenario (8) controlling	industrial worker exposure for PROC 8B
dedicated facilities	Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Contributing Scenario (9) controlling industrial worker exposure for PROC 9 Name of contributing scenario 9 - Transfer of chemicals into small containers (dedicated filling line) Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing Scenario (14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure for PROC 14 Name of contributing Scenario (14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Froduction of preparations or articles by tabletting, compression, extrusion, pelletisation Froduction of preparations or articles by tabletting, compression, extrusion, pelletisation industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation	Scenario subtitle	
Other given operational conditions affecting workers exposure Location industrial industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (9) controlling industrial worker exposure for PROC 9 Name of contributing scenario 9 - Transfer of chemicals into small containers (dedicated filling line) Scenario subtitle Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Production of preparations or articles by tabletting, compression, extrusion, pelletisation Production of preparations or articles by tabletting, compression, extrusion, pelletisation Production of preparations or articles by tabletting, compression, extrusion, pelletisation Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation	Human factors not influenced by risk	management
Location indoors Domain industrial industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (9) controlling industrial worker exposure for PROC 9 Name of contributing scenario Scenario subtitle Transfer of chemicals into small containers (dedicated filling line) Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Protective subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Location indoors Locatic chaust ventilation no Conditions and measures to control dispersion and exposure Locatic chaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Exposed skin surface	960 cm ²
Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (9) controlling industrial worker exposure for PROC 9 Name of contributing scenario 9 - Transfer of chemicals into small containers (dedicated filling line) Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Location indoors Location industrial Technical conditions and measures to control dispersion and exposure Location industrial Technical conditions and measures to control dispersion and exposure Location industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Other given operational conditions aff	fecting workers exposure
Technical conditions and measures to control dispersion and exposure	Location	indoors
Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (9) controlling industrial worker exposure for PROC 9 Name of contributing scenario Scenario subtitle Transfer of chemicals into small containers (dedicated filling line) Scenario subtitle Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Domain	industrial
Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (9) controlling industrial worker exposure for PROC 9 Name of contributing scenario 9 - Transfer of chemicals into small containers (dedicated filling line) Scenario subtitle Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario Location production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Location industrial Technical conditions and measures to control dispersion and exposure Location no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Technical conditions and measures to	control dispersion and exposure
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Respiratory protection no Contributing Scenario (9) controlling industrial worker exposure for PROC 9 Name of contributing scenario 9 - Transfer of chemicals into small containers (dedicated filling line) Scenario subtitle Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Conditions and measures related to po	ersonal protection, hygiene and health evaluation
Contributing Scenario (9) controlling industrial worker exposure for PROC 9 Name of contributing scenario 9 - Transfer of chemicals into small containers (dedicated filling line) Scenario subtitle Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Protective gloves	No
Name of contributing scenario 9 - Transfer of chemicals into small containers (dedicated filling line) Scenario subtitle Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Human factors not influenced by risk management Exposed skin surface Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exp	Respiratory protection	no
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	Contributing Scenario (9) controlling	industrial worker exposure for PROC 9
Weighing Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Scenario subtitle	
Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Local exhaust ventilation Industrial Technical conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoustrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Human factors not influenced by risk	management
Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Exposed skin surface	$480 \mathrm{cm}^2$
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Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Location	indoors
Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Domain	industrial
Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Technical conditions and measures to	control dispersion and exposure
Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Local exhaust ventilation	no
Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Conditions and measures related to pe	ersonal protection, hygiene and health evaluation
Contributing Scenario (10) controlling industrial worker exposure for PROC 14 Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Protective gloves	No
Name of contributing scenario 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Respiratory protection	no
Scenario subtitle Production of preparations or articles by tabletting, compression, extrusion, pelletisation. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Contributing Scenario (10) controlling	g industrial worker exposure for PROC 14
Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Name of contributing scenario	14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation
Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Scenario subtitle	Production of preparations or articles by tabletting, compression, extrusion, pelletisation.
Other given operational conditions affecting workers exposure Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Human factors not influenced by risk	management
Location indoors Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Exposed skin surface	$480 \mathrm{cm}^2$
Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Other given operational conditions aff	fecting workers exposure
Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Location	indoors
Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Domain	industrial
Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Technical conditions and measures to	control dispersion and exposure
Protective gloves No	Local exhaust ventilation	no
	Conditions and measures related to po	ersonal protection, hygiene and health evaluation
Respiratory protection no	Protective gloves	No
	Respiratory protection	no

LANGUAGE: ENGLISH



Contributing Scenario (11) controlling industrial worker exposure for PROC 15	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Scenario subtitle	Use as laboratory reagent
Human factors not influenced by risk	management
Exposed skin surface	240 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no

ES 5 (Exposure Scenario 5): Production of Polymers

Free short title	Production of Polymers (6)
Systematic title based on use descriptor	ERC 6C; PROC 1, 2, 3, 4, 5, 6, 8A, 8B, 9, 15
Name of contributing environmental scenario and corresponding ERC	ERC 6c Production of plastics
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 6 - Calendering operations PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 15 - Use of laboratory reagents in small scale laboratories
Contributing Scenario (1) controlling en	nvironmental exposure for ERC 6C
As no environmental hazard was identified	d no environmental-related exposure assessment and risk characterization was performed.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	low
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Contributing Scenario (2) controlling in	dustrial worker exposure for PROC 1
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Scenario subtitle	Use in closed process, no likelihood of exposure
Human factors not influenced by risk n	nanagement
Exposed skin surface	240 cm^2



Other given operational conditions affect	eting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to co	ontrol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pers	sonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (3) controlling in	dustrial worker exposure for PROC 2
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure
Human factors not influenced by risk m	anagement
Exposed skin surface	480 cm^2
Other given operational conditions affect	eting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to co	ontrol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pers	sonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (4) controlling in	dustrial worker exposure for PROC 3
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Use in closed batch process (synthesis or formulation).
Human factors not influenced by risk m	anagement
Exposed skin surface	240 cm ²
Other given operational conditions affect	eting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to co	ontrol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pers	sonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (5) controlling in	dustrial worker exposure for PROC 4
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.
Human factors not influenced by risk m	anagement
Exposed skin surface	480 cm ²
Other given operational conditions affect	eting workers exposure



Location	indoors
Domain	industrial
Technical conditions and measures to co	ontrol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pers	sonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (6) controlling in	dustrial worker exposure for PROC 5
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)
Scenario subtitle	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
Human factors not influenced by risk m	nanagement
Exposed skin surface	480 cm ²
Other given operational conditions affect	cting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to co	ontrol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pers	sonal protection, hygiene and health evaluation
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (7) controlling in	dustrial worker exposure for PROC 6
Name of contributing scenario	6 - Calendering operations
Scenario subtitle	Calendering operations
Human factors not influenced by risk m	nanagement
Exposed skin surface	960 cm ²
Other given operational conditions affect	cting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to co	ontrol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pers	sonal protection, hygiene and health evaluation
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (8) controlling in	ndustrial worker exposure for PROC 8A
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
Qualitative Risk Assessment	
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).



Human factors not influenced by risk m	nanagement	
Exposed skin surface	960 cm ²	
Other given operational conditions affect	cting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to co	ontrol dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)	
Conditions and measures related to per-	sonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (9) controlling in	dustrial worker exposure for PROC 8B	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Human factors not influenced by risk m	nanagement	
Exposed skin surface	960 cm ²	
Other given operational conditions affect	cting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to co	ontrol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to pers	sonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (10) controlling industrial worker exposure for PROC 9		
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)	
Scenario subtitle	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
Human factors not influenced by risk m	nanagement	
Exposed skin surface	480 cm^2	
Other given operational conditions affect	cting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to co	ontrol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to pers	sonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (11) controlling	industrial worker exposure for PROC 15	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories	
Scenario subtitle	Use as laboratory reagent	

LANGUAGE: ENGLISH



Human factors not influenced by risk management		
Exposed skin surface	240 cm^2	
Other given operational conditions affe	Other given operational conditions affecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	No	

ES 6 (Exposure Scenario 6): Use in Paints/Coatings (industrial)

ERC 4; PROC 1, 2, 3, 4, 5, 7, 8A, 8B, 10, 13, 15 ERC 4 Industrial use of processing aids PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises
PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation)
PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation)
PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 7 - Industrial spraying PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 10 - Roller application or brushing PROC 13 - Treatment of articles by dipping and pouring PROC 15 - Use of laboratory reagents in small scale laboratories
ng environmental exposure for ERC 4
tified no environmental-related exposure assessment and risk characterization was performed.
liquid
100 %
low
>4 hours (default)
5 days / week
ng industrial worker exposure for PROC 1
1 - Use in closed process, no likelihood of exposure
Use in closed process, no likelihood of exposure
sk management
240 cm ²
affecting workers exposure
indoors
industrial



Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (3) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (4) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Use in closed batch process (synthesis or formulation).
Human factors not influenced by risk management	
Exposed skin surface	240 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (5) controlling industrial worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.
Human factors not influenced by risk	management
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	



Local exhaust ventilation	no		
Conditions and measures related to personal protection, hygiene and health evaluation			
Protective gloves	No		
Respiratory protection	no		
Contributing Scenario (6) controllin	g industrial worker exposure for PROC 5		
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)		
Scenario subtitle	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).		
Human factors not influenced by ris	k management		
Exposed skin surface	$480 \mathrm{cm}^2$		
Other given operational conditions a	affecting workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to control dispersion and exposure			
Local exhaust ventilation	no		
Conditions and measures related to	personal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		
Contributing Scenario (7) controllin	g industrial worker exposure for PROC 7		
Name of contributing scenario	7 - Industrial spraying		
Scenario subtitle	Industrial spraying		
Human factors not influenced by ris	k management		
Exposed skin surface	$1,500 \text{ cm}^2$		
Other given operational conditions a	Other given operational conditions affecting workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to control dispersion and exposure			
Local exhaust ventilation	no		
Conditions and measures related to	Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		



2 1/	
Use of external/measured value dermal	The RISKSOFDERM V2.1 model has been used to estimate dermal exposure.
	The 70th percentile of the "Exposure loading per shift body" was added with the 70th percentile of the "Exposure loading per shift hand". The values given in μ l was converted into mg and divided by a body weight of 70 kg which is generally assumed for workers. In addition, appropriate body protection was considered within the calculation of the final dermal exposure value.
	RISKOFDERM v2.1 – Process: "Spraying"
	Physical state: Liquid Concentration of substance: 100%
	Vapour pressure of the substance: 0.008 hPa
	Application rate: 1 l/min Duration of exposure: 6 hours/day Exposed skin surface: Whole body Location: Inside Direction of spraying: Downward/ Level Segregation: Ensure that worker is > 1 m from the source Local exhaust ventilation (Direction of airflow away from the worker): yes (effectiveness: ca. 50%)
	Use of suitable gloves with basic training: Yes (Effectiveness: 90%) Wearing of appropriate working clothes (e.g. an overall): Yes (Effectiveness: 80%)
Use of external/measured value inhalation	The ART model has been used to estimate inhalative exposure. Mechanistic model results:
	The predicted 75th percentile full-shift exposure is 0.27 mg/m³. The inter-quartile confidence interval is 0.13 mg/m³ to 0.57 mg/m³.
	Emission sources: Far field
	Process temperature: Room temperature Vapour pressure: 8 Pa
	Liquid weight fraction: 1
	Viscosity: medium (oil-like)
	Substance product type: Liquids Situation: Surface spraying of liquids, Moderate application rate (0.3 - 3 l/minute)
	Spray direction: Only horizontal or downward
	Spray technique: Spraying with high compressed air use Primary localized controls: LEV systems (50.00 % reduction)
	Secondary localized controls: No (0 % reduction)
	Segregation: Partial segregation with ventilation and filtration of recirculated air (70.00 % reduction)
	Personal enclosure: No (0% reduction)
	Effective housekeeping practices in place: Yes
	Process fully enclosed: No Room size: 1000 m ³
	Work area: Indoors
	Duration (mins): 360 Ventilation rate: No restriction on general ventilation characteristics
	Respiratory protection required: No
Contributing Scenario (8) controlling	industrial worker exposure for PROC 8A
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
Qualitative Risk Assessment	
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).
Human factors not influenced by risk	management



Exposed skin surface	960 cm^2	
Other given operational conditions aff	fecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)	
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (9) controlling	industrial worker exposure for PROC 8B	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Human factors not influenced by risk	management	
Exposed skin surface	960 cm ²	
Other given operational conditions af	fecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (10) controllin	g industrial worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing	
Scenario subtitle	Roller application or brushing	
Human factors not influenced by risk	management	
Exposed skin surface	960 cm ²	
Other given operational conditions af	fecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
Contributing Scenario (11) controlling	g industrial worker exposure for PROC 13	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring	
Scenario subtitle	Treatment of articles by dipping and pouring.	
Human factors not influenced by risk	management	
Exposed skin surface	480 cm^2	

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Other given operational conditions af	Other given operational conditions affecting workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to	Fechnical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	yes (inhalation 90 %)		
Conditions and measures related to p	Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		
Contributing Scenario (12) controlling industrial worker exposure for PROC 15			
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories		
Scenario subtitle	Use as laboratory reagent		
Human factors not influenced by risk management			
Exposed skin surface	240 cm^2		
Other given operational conditions affecting workers exposure			
Location	indoors		
Domain	industrial		
Technical conditions and measures to control dispersion and exposure			
Local exhaust ventilation	no		
Conditions and measures related to personal protection, hygiene and health evaluation			
Protective gloves	No		
Respiratory protection	no		

ES 7 (Exposure Scenario 7): Use in Paints/Coatings/Adhesives/ Sealants/ Foams/ Polymers/ filled Polymers (professional)

Free short title	Use in Paints/Coatings/Adhesives/ Sealants/ Foams/ Polymers/ filled Polymers (professional) (8)
Systematic title based on use descriptor	ERC 8A, 8C, 8D, 8F; PROC 1, 2, 3, 4, 5, 8A, 8B, 9, 10, 11, 13, 14, 15, 19
Name of contributing environmental scenario and corresponding ERC	ERC 8a Wide dispersive indoor use of processing aids in open systems ERC 8c Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC 8d Wide dispersive outdoor use of processing aids in open systems ERC 8f Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 10 - Roller application or brushing PROC 11 - Non industrial spraying PROC 13 - Treatment of articles by dipping and pouring PROC 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 15 - Use of laboratory reagents in small scale laboratories PROC 19 - Hand-mixing with intimate contact (only PPE available
Contributing Scenario (1) controlling envir	onmental exposure for ERC 8A

Contributing Scenario (2) controlling environmental exposure for ERC 8C

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Contributing Scenario (3) controlling enviro	onmental exposure for ERC 8D	
Contributing Scenario (4) controlling enviro	onmental exposure for ERC 8F	
As no environmental hazard was identified no	environmental-related exposure assessment and risk characterization was performed.	
Product characteristics		
Physical state	liquid	
Concentration in substance	100 %	
Fugacity / Dustiness	low	
Frequency and duration of use		
Duration of activity	>4 hours (default)	
Frequency of use	5 days / week	
Contributing Scenario (5) controlling profes	ssional worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure	
Scenario subtitle	Use in closed process, no likelihood of exposure	
Human factors not influenced by risk mana	gement	
Exposed skin surface	240 cm ²	
Other given operational conditions affecting	g workers exposure	
Location	indoors	
Domain	professional	
Technical conditions and measures to contr	ol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to persona	al protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (6) controlling profes	ssional worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure	
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure.	
Human factors not influenced by risk mana	gement	
Exposed skin surface	480 cm^2	
Other given operational conditions affecting	g workers exposure	
Location	indoors	
Domain	professional	
Technical conditions and measures to contr	Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (7) controlling professional worker exposure for PROC 3		
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)	
Scenario subtitle	Use in closed batch process (synthesis or formulation).	
Human factors not influenced by risk management		



Exposed skin surface	240 cm ²	
Other given operational conditions affecting	g workers exposure	
Location	indoors	
Domain	professional	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (8) controlling profes	ssional worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises	
Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.	
Human factors not influenced by risk mana	gement	
Exposed skin surface	480 cm^2	
Other given operational conditions affecting	g workers exposure	
Location	indoors	
Ventilation	good (30%)	
Domain	professional	
Technical conditions and measures to contr	ol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to persona	al protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (9) controlling profes	ssional worker exposure for PROC 5	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)	
Scenario subtitle	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant con-tact)	
Human factors not influenced by risk mana	gement	
Exposed skin surface	480 cm^2	
Other given operational conditions affecting	g workers exposure	
Location	indoors	
Ventilation	good (30%)	
Domain	professional	
Technical conditions and measures to contr	ol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to persona	Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
Contributing Scenario (10) controlling prof	Contributing Scenario (10) controlling professional worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	



Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.		
Qualitative Risk Assessment			
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.		
Human factors not influenced by risk mana	egement		
Exposed skin surface	960 cm^2		
Other given operational conditions affecting	g workers exposure		
Location	indoors		
Domain	professional		
Technical conditions and measures to contr	ol dispersion and exposure		
Local exhaust ventilation	yes (inhalation 80 %)		
Conditions and measures related to persona	al protection, hygiene and health evaluation		
Protective gloves	No		
Respiratory protection	no		
Contributing Scenario (11) controlling prof	ressional worker exposure for PROC 8B		
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities		
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.		
Qualitative Risk Assessment			
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.		
Human factors not influenced by risk mana	gement		
Exposed skin surface	960 cm ²		
Other given operational conditions affecting	g workers exposure		
Location	indoors		
Ventilation	good (30%)		
Domain	professional		
Technical conditions and measures to contr	ol dispersion and exposure		
Local exhaust ventilation	no		
Conditions and measures related to persona	al protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		
Contributing Scenario (12) controlling prof	Contributing Scenario (12) controlling professional worker exposure for PROC 9		
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)		
Scenario subtitle	Transfer of substance or preparation into small containers (dedicated filling line, including weighing).		
Human factors not influenced by risk management			
Exposed skin surface	480 cm^2		
Other given operational conditions affecting	g workers exposure		
Location	indoors		
Ventilation	good (30%)		



Domain	professional
Technical conditions and measures to contr	ol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to persona	al protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (13) controlling prof	
Name of contributing scenario	10 - Roller application or brushing
Scenario subtitle	Roller application or brushing
Qualitative Risk Assessment	Trong approximation of ordinants
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.
Human factors not influenced by risk mana	gement
Exposed skin surface	960 cm^2
Other given operational conditions affecting	g workers exposure
Location	indoors
Domain	professional
Technical conditions and measures to contr	ol dispersion and exposure
Local exhaust ventilation	yes (inhalation 80 %)
Conditions and measures related to persona	al protection, hygiene and health evaluation
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (14) controlling prof	ressional worker exposure for PROC 11
Name of contributing scenario	11 - Non industrial spraying
Scenario subtitle	Non industrial spraying
Human factors not influenced by risk mana	gement
Exposed skin surface	$1,500 \text{ cm}^2$
Other given operational conditions affecting	g workers exposure
Location	indoors
Domain	professional
Technical conditions and measures to contr	ol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to persona	al protection, hygiene and health evaluation
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Use of external/measured value dermal	The RISKSOFDERM V2.1 model has been used to estimate dermal exposure. The 70th percentile of the "Exposure loading per shift body" was added with the 70th percentile of the "Exposure loading per shift hand". The values given in µl was converted into mg and divided by a body weight of 70 kg which is generally assumed for workers. In addition, appropriate body protection was considered within the calculation of the final dermal exposure value.



Use of external/measured value inhalation	RISKOFDERM v2.1 – Process: "Spraying" Physical state: Liquid Concentration of substance: 100% Vapour pressure of the substance: 0.008 hPa Application rate: 0.05 l/min Duration of exposure: 180 mins Exposed skin surface: Whole body Location: Inside Direction of spraying: Level Segregation: Worker is within one meter of the source Direction of airflow: Not clearly away from the worker Use of suitable gloves with basic training: Yes (Effectiveness: 90%) Wearing of appropriate working clothes (e.g. an overall): Yes (Effectiveness: 80%) The ART model has been used to estimate inhalative exposure. Mechanistic model results: The predicted 75th percentile full-shift exposure is 3 mg/m³. The inter-quartile confidence interval is 1.4 mg/m³ to 6.3 mg/m³.
	Emission sources: Near field Process temperature: Room temperature Vapour pressure: 8 Pa Liquid weight fraction: 1 Viscosity: medium (oil-like) Substance product type: Liquids Situation: Surface spraying of liquids, Low application rate (0.03 – 0.3 l/minute) Spray direction: Only horizontal or downward Spray technique: Spraying with high compressed air use Primary localized controls: No (0% reduction) Secondary localized controls: No (0 % reduction) Effective housekeeping practices in place: No General housekeeping in place: Yes Process fully enclosed: No Room size: 100 m³ Work area: Indoors Duration (mins): 180 Ventilation rate: Mechanical ventilation giving at least 1 ACH Respiratory protection required: No
Contributing Scenario (15) controlling prof	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring
Scenario subtitle	Treatment of articles by dipping and pouring.
Human factors not influenced by risk mana	gement
Exposed skin surface	480 cm^2
Other given operational conditions affecting	g workers exposure
Location	indoors
Ventilation	good (30%)
Domain	professional
Technical conditions and measures to contr	ol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to persona	al protection, hygiene and health evaluation
Protective gloves	Gloves APF 10 90 %



Respiratory protection	no
Contributing Scenario (16) controlling prof	ressional worker exposure for PROC 14
Name of contributing scenario	14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation
Scenario subtitle	Production of preparations or articles by tabletting, compression, extrusion, pelletisation.
Human factors not influenced by risk management	
Exposed skin surface	480 cm ²
Other given operational conditions affecting	
Location	indoors
Ventilation	good (30%)
Domain	professional
Technical conditions and measures to contr	[*
Local exhaust ventilation	no
Conditions and measures related to persona	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (17) controlling prof	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Scenario subtitle	Use as laboratory reagent.
Human factors not influenced by risk mana	
Exposed skin surface	240 cm ²
Other given operational conditions affecting	
Location	indoors
Domain	professional
Technical conditions and measures to contr	1*
Local exhaust ventilation	no
Conditions and measures related to persona	
Protective gloves	No
Respiratory protection	no
Contributing Scenario (18) controlling prof	
Name of contributing scenario	19 - Hand-mixing with intimate contact (only PPE available
Scenario subtitle	Hand-mixing with intimate contact (only FFE available
Product characteristics	1
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	low
Frequency and duration of use	1
Duration of activity	less than 15 mins
Frequency of use	5 days / week
Human factors not influenced by risk mana	· ·
Exposed skin surface	1,980 cm ²
Emposed skin surface	1,700 CM

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Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	professional	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	

ES 8 (Exposure Scenario 8): Use in Paints/Coatings /Surface treatment products (Consumer use)

Free short title	Use in Paints/Coatings /Surface treatment products (Consumer use) (9)
Systematic title based on use descriptor	ERC 8A, 8C, 8D, 8F; PC 9a, 15, 18, 23, 34, 31
Name of contributing environmental scenario and corresponding ERC	ERC 8a Wide dispersive indoor use of processing aids in open systems ERC 8c Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC 8d Wide dispersive outdoor use of processing aids in open systems ERC 8f Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Name(s) of contributing consumer scenarios and corresponding PCs/ACs	PC 9a Coatings and Paints, thinners, paint removers PC 15 Non-metal-surface treatment products PC 9a Coatings and Paints, thinners, paint removers PC 15 Non-metal-surface treatment products PC 18 Ink and Toners PC 18 Ink and Toners PC 23 Leather tanning, dye, finishing, impregnation and care products PC 34 Textile dyes, finishing and impregnating products PC 31 Polishes and Wax Blends
Contributing Scenario (1) controlling environ	nmental exposure for ERC 8A
Contributing Scenario (2) controlling environ	nmental exposure for ERC 8C
Contributing Scenario (3) controlling environ	nmental exposure for ERC 8D
Contributing Scenario (4) controlling environ	nmental exposure for ERC 8F
As no environmental hazard was identified no e	nvironmental-related exposure assessment and risk characterization was performed.
Contributing Scenario (5) controlling consum	ner exposure for PC 9a
Name of contributing scenario	PC 9a Coatings and Paints, thinners, paint removers
Scenario subtitle	Use in Paints/Coatings - non-spraying products
Calculation model	ConsExpo
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	1 per day
Exposure time	132 min
Application duration	120 min
Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	1 per day
Release duration	7,200 sec
Product characteristics	



Spray application	no		
Product ingredient fraction by weight	10 %		
Mol weight matrix	45 g/mol		
Mass transfer rate	0.277 m/min		
Amounts used			
Inhalation	1,250 g		
Human factors not influenced by risk manage	ement		
Exposed skin surface (dermal)	1,900 cm ²		
Contact rate	30 mg/min		
Other given operational conditions affecting	consumers exposure		
Inhalation			
Room volume	20 m^3		
Ventilation rate	0.600 1/h		
Release area increases over time			
Release area	1.00E5 cm ²		
Release temperature	25 °C		
Dermal			
Protective gloves	0 %		
Uptake fraction	100 %		
Contributing Scenario (6) controlling consum	ner exposure for PC 15		
Name of contributing scenario	PC 15 Non-metal-surface treatment products		
Scenario subtitle	Use in Paints/Coatings - non-spraying products		
Calculation model	ConsExpo		
Frequency and duration of use			
Inhalation			
Exposure calculation result type	Mean concentration on day of exposure		
Frequency of use	1 per day		
Exposure time	132 min		
Application duration	120 min		
Dermal			
Exposure calculation result type	Internal dose chronic		
Frequency of use	1 per day		
Release duration	7,200 sec		
Product characteristics			
Spray application	no		
Product ingredient fraction by weight	10 %		
Mol weight matrix	45 g/mol		
Mass transfer rate	0.277 m/min		
Amounts used			
Inhalation	1,250 g		



Human factors not influenced by risk management		
Exposed skin surface (dermal)	1,900 cm ²	
Contact rate	30 mg/min	
Other given operational conditions affecting	consumers exposure	
Inhalation		
Room volume	20 m^3	
Ventilation rate	0.600 1/h	
Release area increases over time		
Release area	1.00E5 cm ²	
Release temperature	25 °C	
Dermal		
Protective gloves	0 %	
Uptake fraction	100 %	
Contributing Scenario (7) controlling consum	ner exposure for PC 9a	
Name of contributing scenario	PC 9a Coatings and Paints, thinners, paint removers	
Scenario subtitle	Use in Paints/Coatings - spraying products	
Calculation model	ConsExpo spray can - Application	
Frequency and duration of use		
Inhalation		
Exposure calculation result type	Mean concentration on day of exposure	
Frequency of use	1 per day	
Spray duration	900 sec	
Dermal		
Exposure calculation result type	Internal dose chronic	
Frequency of use	1 per day	
Release duration	900 sec	
Product characteristics		
Spray application	yes	
Product ingredient fraction by weight	10 %	
Amounts used		
Human factors not influenced by risk manag	gement	
Exposed skin surface (dermal)	1,900 cm ²	
Contact rate	100 mg/min	
Other given operational conditions affecting	consumers exposure	
Inhalation		
Room volume	34 m ³	
Ventilation rate	1.5 1/h	
Room height	2.25 m	
Management	0.330 g/s	
Mass generation rate		



Density non-volatile	1.5 %
Droplet distribution	LogNormal, median: 30 μm, coeff. of variation: 0.800 μm, cut-off diameter: 15 μm
Dermal	
Uptake fraction	100 %
Contributing Scenario (8) controlling consum	ner exposure for PC 15
Name of contributing scenario	PC 15 Non-metal-surface treatment products
Scenario subtitle	Use in Paints/Coatings - spraying products
Calculation model	ConsExpo spray can - Application
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	1 per day
Spray duration	900 sec
Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	1 per day
Release duration	900 sec
Product characteristics	
Spray application	yes
Product ingredient fraction by weight	10 %
Amounts used	
Human factors not influenced by risk manage	ement
Exposed skin surface (dermal)	1,900 cm ²
Contact rate	100 mg/min
Other given operational conditions affecting of	consumers exposure
Inhalation	
Room volume	34 m ³
Ventilation rate	1.5 1/h
Room height	2.25 m
Mass generation rate	0.330 g/s
Airborne fraction	100 %
Density non-volatile	1.5 %
Droplet distribution	LogNormal, median: 30 μm, coeff. of variation: 0.800 μm, cut-off diameter: 15 μm
Dermal	
Uptake fraction	100 %
Contributing Scenario (9) controlling consum	ner exposure for PC 18
Name of contributing scenario	PC 18 Ink and Toners
Scenario subtitle	Use in Printing inks- Part A. Refilling of toners (cartridges)
Calculation model	ConsExpo Liquid cleaner - Mixing & Loading



Frequency and duration of use		
Inhalation		
Exposure calculation result type	Mean concentration on day of exposure	
Frequency of use	365 per year	
Exposure time	0.750 min	
Application duration	0.300 min	
Dermal		
Exposure calculation result type	Internal dose chronic	
Frequency of use	365 per year	
Product characteristics		
Spray application	no	
Product ingredient fraction by weight	5 %	
Mol weight matrix	22 g/mol	
Mass transfer rate	0.277 m/min	
Amounts used		
Inhalation	50 g	
Dermal	0.010 g	
Human factors not influenced by risk management		
Exposed skin surface (dermal)	215 cm ²	
Other given operational conditions affecting	consumers exposure	
Inhalation		
Room volume	1 m ³	
Ventilation rate	0.500 1/h	
Release are is constant		
Release area	20 cm ²	
Release temperature	25 °C	
Dermal		
Uptake fraction	100 %	
Contributing Scenario (10) controlling consumer exposure for PC 18		
Name of contributing scenario	PC 18 Ink and Toners	
Scenario subtitle	Use in Printing inks- Part B. Printing process	
Calculation model	ConsExpo Liquid cleaner - Mixing & Loading	
Frequency and duration of use		
Inhalation		
Exposure calculation result type	Mean concentration on day of exposure	
Frequency of use	365 per year	
Dermal	Dermal	
Exposure calculation result type	Internal dose chronic	
Frequency of use	365 per year	
Product characteristics		



no
5 %
16 g
0.010 g
gement
215 cm ²
consumers exposure
25 m ³
0.600 1/h
100 %
imer exposure for PC 23
PC 23 Leather tanning, dye, finishing, impregnation and care products
Use in surface treatment products – non-spraying products
It is assumed that the use of impregnation products for leather or textiles is covered within the scenarios described for PC 9a and 15. As DEG is a solvent which usually evaporated during or immediately after the application, a possible exposure to DEG by wearing/using impregnated products is considered to be negligible.
imer exposure for PC 34
PC 34 Textile dyes, finishing and impregnating products
Use in surface treatment products – non-spraying products
It is assumed that the use of impregnation products for leather or textiles is covered within the scenarios described for PC 9a and 15. As DEG is a solvent which usually evaporated during or immediately after the application, a possible exposure to DEG by wearing/using impregnated products is considered to be negligible.
imer exposure for PC 31
PC 31 Polishes and Wax Blends
Use in surface treatment products – non-spraying products
ConsExpo Furniture polish - Application
Mean concentration on day of exposure
1 per day
240 min
900 min
Internal dose chronic
Internal dose chronic 1 per day

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Product ingredient fraction by weight	10 %	
Mol weight matrix	272 g/mol	
Mass transfer rate	4,660 m/min	
Amounts used		
Inhalation	550 g	
Dermal	5.5 g	
Human factors not influenced by risk management		
Exposed skin surface (dermal)	430 cm^2	
Other given operational conditions affecting consumers exposure		
Inhalation		
Room volume	58 m^3	
Ventilation rate	0.500 1/h	
Release area increases over time		
Release area	$2.20E5 \text{ cm}^2$	
Release temperature	25 °C	
Dermal		
Uptake fraction	100 %	

ES 9 (Exposure Scenario 9): Use in Cleaning agents (industrial)

Free short title	Use in Cleaning agents (industrial) (10)	
Systematic title based on use descriptor	ERC 4; PROC 1, 2, 3, 4, 7, 8A, 8B, 10, 13	
Name of contributing environmental scenario and corresponding ERC	ERC 4 Industrial use of processing aids	
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 7 - Industrial spraying PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 10 - Roller application or brushing PROC 13 - Treatment of articles by dipping and pouring	
Contributing Scenario (1) controlling en	nvironmental exposure for ERC 4	
As no environmental hazard was identified	d no environmental-related exposure assessment and risk characterization was performed.	
Product characteristics		
Physical state	liquid	
Concentration in substance	100 %	
Fugacity / Dustiness	low	
Frequency and duration of use		
Duration of activity	>4 hours (default)	
Frequency of use	5 days / week	
Contributing Scenario (2) controlling industrial worker exposure for PROC 1		
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure	
Scenario subtitle	Use in closed process, no likelihood of exposure	



Human factors not influenced by risk management	
Exposed skin surface	240 cm^2
Other given operational conditions affect	cting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to co	ontrol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pers	sonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (3) controlling in	dustrial worker exposure for PROC 2
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure
Human factors not influenced by risk m	nanagement
Exposed skin surface	480 cm^2
Other given operational conditions affect	cting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to co	ontrol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pers	sonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (4) controlling in	dustrial worker exposure for PROC 3
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Use in closed batch process (synthesis or formulation).
Human factors not influenced by risk m	nanagement
Exposed skin surface	240 cm^2
Other given operational conditions affect	cting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to co	ontrol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pers	sonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (5) controlling in	dustrial worker exposure for PROC 4
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.
Human factors not influenced by risk management	



Exposed skin surface	480 cm^2
Other given operational conditions affect	cting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to co	ontrol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pers	sonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (6) controlling in	dustrial worker exposure for PROC 7
Name of contributing scenario	7 - Industrial spraying
Scenario subtitle	Industrial spraying
Human factors not influenced by risk m	nanagement
Exposed skin surface	$1,500 \text{ cm}^2$
Other given operational conditions affect	cting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to co	ontrol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pers	sonal protection, hygiene and health evaluation
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Use of external/measured value dermal	The RISKSOFDERM V2.1 model has been used to estimate dermal exposure.
ese of external measured value definal	The 70th percentile of the "Exposure loading per shift body" was added with the 70th percentile of the "Exposure loading per shift hand". The values given in µl was converted into mg and divided by a body weight of 70 kg which is generally assumed for workers. In addition, appropriate body protection was considered within the calculation of the final dermal exposure value. RISKOFDERM v2.1 – Process: "Spraying" Physical state: Liquid Concentration of substance: 100% Vapour pressure of the substance: 0.008 hPa Application rate: 1 l/min Duration of exposure: 6 hours/day Exposed skin surface: Whole body Location: Inside Direction of spraying: Downward/ Level Segregation: Ensure that worker is > 1 m from the source Local exhaust ventilation (Direction of airflow away from the worker): yes (effectiveness: ca. 50%) Use of suitable gloves with basic training: Yes (Effectiveness: 90%) Wearing of appropriate working clothes (e.g. an overall): Yes (Effectiveness: 80%)



Use of external/measured value	The ART model has been used to estimate inhalative exposure.
inhalation	Mechanistic model results: The predicted 75th percentile full-shift exposure is 0.27 mg/m³.
	The inter-quartile confidence interval is 0.13 mg/m³ to 0.57 mg/m³.
	Emission sources: Far field
	Process temperature: Room temperature
	Vapour pressure: 8 Pa Liquid weight fraction: 1
	Viscosity: medium (oil-like)
	Substance product type: Liquids
	Situation: Surface spraying of liquids, Moderate application rate (0.3 - 3 l/minute) Spray direction: Only horizontal or downward
	Spray technique: Spraying with high compressed air use
	Primary localized controls: LEV systems (50.00 % reduction)
	Secondary localized controls: No (0 % reduction) Segregation: Partial segregation with ventilation and filtration of recirculated air (70.00 %
	reduction)
	Personal enclosure: No (0% reduction) Effective housekeeping practices in place: Yes
	Process fully enclosed: No
	Room size: 1000 m ³
	Work area: Indoors Duration (mins): 360
	Ventilation rate: No restriction on general ventilation characteristics
	Respiratory protection required: No
Contributing Scenario (7) controlling in	dustrial worker exposure for PROC 8A
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
Qualitative Risk Assessment	
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).
Human factors not influenced by risk m	nanagement
Exposed skin surface	960 cm^2
Other given operational conditions affect	cting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to co	ontrol dispersion and exposure
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to per-	sonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (8) controlling in	dustrial worker exposure for PROC 8B
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Human factors not influenced by risk m	nanagement
Exposed skin surface	960 cm ²
Other given operational conditions affect	cting workers exposure

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Location	indoors	
Domain	industrial	
Technical conditions and measures to c	T	
Local exhaust ventilation	no	
Conditions and measures related to per	sonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (9) controlling in	ndustrial worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing	
Scenario subtitle	Roller application or brushing	
Human factors not influenced by risk n	nanagement	
Exposed skin surface	960 cm ²	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to c	ontrol dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)	
Conditions and measures related to per	sonal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
Contributing Scenario (10) controlling	industrial worker exposure for PROC 13	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring	
Scenario subtitle	Treatment of articles by dipping and pouring.	
Human factors not influenced by risk n	nanagement	
Exposed skin surface	480 cm^2	
Other given operational conditions affe	cting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to c	ontrol dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
	1	

ES 10 (Exposure Scenario 10): Use in Cleaning agents (professional)

Free short title	Use in Cleaning agents (professional) (11)
Systematic title based on use descriptor	ERC 8A, 8D; PROC 1, 2, 3, 4, 8A, 8B, 10, 11, 13
Name of contributing environmental scenario and corresponding ERC	ERC 8a Wide dispersive indoor use of processing aids in open systems ERC 8d Wide dispersive outdoor use of processing aids in open systems

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Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 10 - Roller application or brushing PROC 11 - Non industrial spraying PROC 13 - Treatment of articles by dipping and pouring	
Contributing Scenario (1) controlling	environmental exposure for ERC 8A	
Contributing Scenario (2) controlling	environmental exposure for ERC 8D	
As no environmental hazard was identified	ed no environmental-related exposure assessment and risk characterization was performed.	
Product characteristics		
Physical state	liquid	
Concentration in substance	100 %	
Fugacity / Dustiness	low	
Frequency and duration of use		
Duration of activity	>4 hours (default)	
Frequency of use	5 days / week	
Contributing Scenario (3) controlling professional worker exposure for PROC 1		
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure	
Scenario subtitle	Use in closed process, no likelihood of exposure	
Human factors not influenced by risk	management	
Exposed skin surface	240 cm^2	
Other given operational conditions af	fecting workers exposure	
Location	indoors	
Domain	professional	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (4) controlling	professional worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure	
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure.	
Human factors not influenced by risk	management	
Exposed skin surface	480 cm^2	
Other given operational conditions af	Other given operational conditions affecting workers exposure	
Location	indoors	
Domain	professional	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	



Protective gloves	No		
Respiratory protection	no		
	professional worker exposure for PROC 3		
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)		
Scenario subtitle	Use in closed batch process (synthesis or formulation).		
Human factors not influenced by risk management			
Exposed skin surface 240 cm ²			
Other given operational conditions aff			
Location	indoors		
Domain	professional		
Technical conditions and measures to			
Local exhaust ventilation	no		
	ersonal protection, hygiene and health evaluation		
	No		
Protective gloves			
Respiratory protection	no		
	Contributing Scenario (6) controlling professional worker exposure for PROC 4		
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises		
	Scenario subtitle Use in batch and other process (synthesis) where opportunity for exposure arises.		
Human factors not influenced by risk			
Exposed skin surface	480 cm^2		
Other given operational conditions aff	fecting workers exposure		
Location	indoors		
Ventilation	good (30%)		
Domain	professional		
Technical conditions and measures to control dispersion and exposure			
Local exhaust ventilation	no		
Conditions and measures related to po	ersonal protection, hygiene and health evaluation		
Protective gloves	No		
Respiratory protection	no		
Contributing Scenario (7) controlling	professional worker exposure for PROC 8A		
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities		
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.		
Qualitative Risk Assessment			
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.		
Human factors not influenced by risk management			
Exposed skin surface	960 cm^2		
Other given operational conditions aff	fecting workers exposure		
Location	indoors		
Domain	professional		
	<u> </u>		



Technical conditions and measures to control dispersion and exposure			
Local exhaust ventilation	yes (inhalation 80 %)		
Conditions and measures related to personal protection, hygiene and health evaluation			
Protective gloves	No		
Respiratory protection	no		
Contributing Scenario (8) controlling	professional worker exposure for PROC 8B		
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities		
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.		
Qualitative Risk Assessment			
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.		
Human factors not influenced by risk	management		
Exposed skin surface	960 cm ²		
Other given operational conditions af	fecting workers exposure		
Location	indoors		
Ventilation	good (30%)		
Domain	professional		
Technical conditions and measures to	Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no		
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		
Contributing Scenario (9) controlling	professional worker exposure for PROC 10		
Name of contributing scenario	10 - Roller application or brushing		
Scenario subtitle	Roller application or brushing		
Qualitative Risk Assessment			
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.		
Human factors not influenced by risk management			
Exposed skin surface	960 cm ²		
Other given operational conditions af	fecting workers exposure		
Location	indoors		
Domain	professional		
Technical conditions and measures to control dispersion and exposure			
Local exhaust ventilation	yes (inhalation 80 %)		
Conditions and measures related to personal protection, hygiene and health evaluation			
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		
Contributing Scenario (10) controlling professional worker exposure for PROC 11			
Name of contributing scenario	11 - Non industrial spraying		



Scenario subtitle	Non industrial spraying	
Human factors not influenced by risk management		
Exposed skin surface	1,500 cm ²	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	professional	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
Use of external/measured value dermal	The RISKSOFDERM V2.1 model has been used to estimate dermal exposure.	
	The 70th percentile of the "Exposure loading per shift body" was added with the 70th percentile of the "Exposure loading per shift hand". The values given in µl was converted into mg and divided by a body weight of 70 kg which is generally assumed for workers. In addition, appropriate body protection was considered within the calculation of the final dermal exposure value.	
	RISKOFDERM v2.1 – Process: "Spraying" Physical state: Liquid Concentration of substance: 100% Vapour pressure of the substance: 0.008 hPa	
	Application rate: 0.05 l/min Duration of exposure: 180 mins Exposed skin surface: Whole body Location: Inside Direction of spraying: Level Segregation: Worker is within one meter of the source Direction of airflow: Not clearly away from the worker	
	Use of suitable gloves with basic training: Yes (Effectiveness: 90%) Wearing of appropriate working clothes (e.g. an overall): Yes (Effectiveness: 80%)	
Use of external/measured value inhalation	The ART model has been used to estimate inhalative exposure. Mechanistic model results: The predicted 75th percentile full-shift exposure is 3 mg/m³. The inter-quartile confidence interval is 1.4 mg/m³ to 6.3 mg/m³. Emission sources: Near field Process temperature: Room temperature Vapour pressure: 8 Pa Liquid weight fraction: 1	
	Viscosity: medium (oil-like) Substance product type: Liquids Situation: Surface spraying of liquids, Low application rate (0.03 – 0.3 l/minute) Spray direction: Only horizontal or downward Spray technique: Spraying with high compressed air use Primary localized controls: No (0% reduction) Secondary localized controls: No (0 % reduction) Effective housekeeping practices in place: No General housekeeping in place: Yes Process fully enclosed: No Room size: 100 m³ Work area: Indoors Duration (mins): 180	

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	Ventilation rate: Mechanical ventilation giving at least 1 ACH		
	Respiratory protection required: No		
Contributing Scenario (11) controlling	Contributing Scenario (11) controlling professional worker exposure for PROC 13		
Name of contributing scenario	13 - Treatment of articles by dipping and pouring		
Scenario subtitle	Treatment of articles by dipping and pouring.		
Human factors not influenced by risk management			
Exposed skin surface	480 cm^2		
Other given operational conditions affecting workers exposure			
Location	indoors		
Ventilation	good (30%)		
Domain	professional		
Technical conditions and measures to	Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no		
Conditions and measures related to personal protection, hygiene and health evaluation			
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		

ES 11 (Exposure Scenario 11): Use in Cleaning agents (Consumer use)

Free short title	Use in Cleaning agents (Consumer use) (12)	
Systematic title based on use descriptor	ERC 8A, 8D; PC 35	
Name of contributing environmental scenario a corresponding ERC	ERC 8a Wide dispersive indoor use of processing aids in open systems ERC 8d Wide dispersive outdoor use of processing aids in open systems	
Name(s) of contributing consumer scenarios an corresponding PCs/ACs	PC 35 Washing and Cleaning Products (including solvent based products) PC 35 Washing and Cleaning Products (including solvent based products) PC 35 Washing and Cleaning Products (including solvent based products) PC 35 Washing and Cleaning Products (including solvent based products) PC 35 Washing and Cleaning Products (including solvent based products) PC 35 Washing and Cleaning Products (including solvent based products)	
Contributing Scenario (1) controlling environmental exposure for ERC 8A		
Contributing Scenario (2) controlling environmental exposure for ERC 8D		
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.		
Contributing Scenario (3) controlling consumer exposure for PC 35		
Name of contributing scenario	PC 35 Washing and Cleaning Products (including solvent based products)	
Scenario subtitle	Use in All-purpose cleaners - non-spraying products-Part A. Mixing and Loading	
Calculation model	ConsExpo Liquid cleaner - Mixing & Loading	
Frequency and duration of use		
Inhalation		
Exposure calculation result type	Mean concentration on day of exposure	
Frequency of use	1 per day	
Exposure time	0.750 min	
Application duration	0.300 min	
Dermal		



osure calculation result type	Internal dose chronic	
quency of use	1 per day	
duct characteristics	xx	
ay application	no	
duct ingredient fraction by weight	20 %	
weight matrix	22 g/mol	
ss transfer rate	3,660 m/min	
ounts used	5,000 III IIIII	
alation	500 g	
mal	0.010 g	
nan factors not influenced by risk management	0.010 g	
osed skin surface (dermal)	215 cm ²	
er given operational conditions affecting consum		
alation	ers exposure	
om volume	1 m ³	
tilation rate	0.500 1/h	
ease are is constant	0.300 1/11	
ease area	$20~\mathrm{cm}^2$	
	25 °C	
ease temperature	25 °C	
mal	100 %	
ake fraction	100 %	
Contributing Scenario (4) controlling consumer exposure for PC 35		
ne of contributing scenario	PC 35 Washing and Cleaning Products (including solvent based products)	
nario subtitle	Use in All-purpose cleaners - non-spraying products-Part B. Application	
culation model	ConsExpo Liquid cleaner - Application	
Frequency and duration of use		
alation		
osure calculation result type	Mean concentration on day of exposure	
quency of use	1 per day	
osure time	240 min	
lication duration	20 min	
mal		
osure calculation result type	Internal dose chronic	
quency of use	1 per day	
Product characteristics		
ay application	no	
duct ingredient fraction by weight	4 %	
weight matrix	18 g/mol	
s transfer rate	3,660 m/min	
ounts used		



Inhalation	400 g	
Dermal	19 g	
Human factors not influenced by risk management		
Exposed skin surface (dermal)	1,900 cm ²	
Other given operational conditions affecting consum	ners exposure	
Inhalation		
Room volume	58 m ³	
Ventilation rate	0.500 1/h	
Release area increases over time		
Release area	$1.00E5 \text{ cm}^2$	
Release temperature	25 °C	
Dermal		
Uptake fraction	100 %	
Contributing Scenario (5) controlling consumer exp	oosure for PC 35	
Name of contributing scenario	PC 35 Washing and Cleaning Products (including solvent based products)	
Scenario subtitle	Use in All-purpose cleaners - spraying products-Part A. Spraying	
Calculation model	ConsExpo Spray cleaner - Application: spraying	
Frequency and duration of use	Transfer of S	
Inhalation		
Exposure calculation result type	Mean concentration on day of exposure	
Frequency of use	365 per year	
Spray duration	24.6 sec	
Dermal		
Exposure calculation result type	Internal dose chronic	
Frequency of use	365 per year	
Release duration	24.6 sec	
Product characteristics		
Spray application	yes	
Product ingredient fraction by weight	5 %	
Amounts used		
Human factors not influenced by risk management		
Exposed skin surface (dermal)	1,900 cm ²	
Contact rate	46 mg/min	
Other given operational conditions affecting consumers exposure		
Inhalation		
Room volume	15 m ³	
Ventilation rate	2.5 1/h	
Room height	2.5 m	
Room height Mass generation rate		



Density non-volatile	1.8 %
Droplet distribution	LogNormal, median: 100 μm , coeff. of variation: 0.600 μm , cut-off diameter: 15 μm
Dermal	
Uptake fraction	100 %
Contributing Scenario (6) controlling consu	mer exposure for PC 35
Name of contributing scenario	PC 35 Washing and Cleaning Products (including solvent based products)
Scenario subtitle	Use in All-purpose cleaners - spraying products-Part B. Cleaning
Calculation model	ConsExpo Spray cleaner - Application: cleaning
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	365 per year
Exposure time	60 min
Application duration	10 min
Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	365 per year
Product characteristics	•
Spray application	no
Product ingredient fraction by weight	5 %
Mol weight matrix	22 g/mol
Mass transfer rate	3,660 m/min
Amounts used	
Inhalation	16.2 g
Dermal	0.160 g
Human factors not influenced by risk manag	gement
Exposed skin surface (dermal)	215 cm^2
Other given operational conditions affecting	consumers exposure
Inhalation	
Room volume	15 m ³
Ventilation rate	2.5 1/h
Release are is constant	
Release area	1.71E4 cm ²
Release temperature	25 °C
Dermal	
Uptake fraction	100 %
Contributing Scenario (7) controlling consu	mer exposure for PC 35
Name of contributing scenario	PC 35 Washing and Cleaning Products (including solvent based products)



Scenario subtitle	Use in All-purpose cleaners - Use in Floor cleaning products-Part A. Mixing and Loading
Calculation model	ConsExpo Floor cleaning liquid - Mixing & Loading
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	1 per day
Exposure time	0.750 min
Application duration	0.300 min
Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	1 per day
Product characteristics	
Spray application	no
Product ingredient fraction by weight	4 %
Mol weight matrix	22 g/mol
Mass transfer rate	3,660 m/min
Amounts used	
Inhalation	500 g
Dermal	0.010 g
Human factors not influenced by risk management	
Exposed skin surface (dermal)	215 cm ²
Other given operational conditions affecting consur	ners exposure
Inhalation	
Room volume	1 m ³
Ventilation rate	1 1/h
Release are is constant	
Release area	20 cm ²
Release temperature	25 °C
Dermal	
Uptake fraction	100 %
Contributing Scenario (8) controlling consumer exp	posure for PC 35
Name of contributing scenario	PC 35 Washing and Cleaning Products (including solvent based products)
Scenario subtitle	Use in All-purpose cleaners - Use in Floor cleaning products-Part B Application
Calculation model	ConsExpo Floor cleaning liquid - Application
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	1 per day

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Exposure time	240 min	
Application duration	30 min	
Dermal		
Exposure calculation result type	Internal dose chronic	
Frequency of use	1 per day	
Product characteristics		
Spray application	no	
Product ingredient fraction by weight	4 %	
Mol weight matrix	18 g/mol	
Mass transfer rate	3,660 m/min	
Amounts used		
Inhalation	880 g	
Dermal	19 g	
Human factors not influenced by risk management		
Exposed skin surface (dermal)	215 cm ²	
Other given operational conditions affecting consumers exposure		
Inhalation		
Room volume	58 m ³	
Ventilation rate	0.500 1/h	
Release area increases over time		
Release area	2.20E5 cm ²	
Release temperature	25 °C	
Dermal		
Uptake fraction	100 %	

FS 12 (Exposure Scenario 12): Use in Riocidal products (Consumer use)

S 12 (Exposure Scenario 12): Use in Biocidal products (Consumer use)		
Free short title	Use in Biocidal products (Consumer use) (13)	
Systematic title based on use descriptor	ERC 8A, 8D; PC 8	
Name of contributing environmental scenario and corresponding ERC	ERC 8a Wide dispersive indoor use of processing aids in open systems ERC 8d Wide dispersive outdoor use of processing aids in open systems	
Name(s) of contributing consumer scenarios and corresponding PCs/ACs	PC 8 Biocidal Products (e.g. Disinfectants, pest control) PC 8 Biocidal Products (e.g. Disinfectants, pest control)	
Contributing Scenario (1) controlling environmental exposure for ERC 8A		
Contributing Scenario (2) controlling environmental exposure for ERC 8D		
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.		
Contributing Scenario (3) controlling consumer exposure for PC 8		
Name of contributing scenario	PC 8 Biocidal Products (e.g. Disinfectants, pest control)	
Scenario subtitle	Use in Biocidal products-Part A. Spraying	
Calculation model	ConsExpo Disinfectants for use indoors: - Spraying	
Frequency and duration of use		
Inhalation		



T 1.1.2 Iv.	M 1 C
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	365 per year
Spray duration	30.6 sec
Dermal	T
Exposure calculation result type	Internal dose chronic
Frequency of use	365 per year
Release duration	2.6 sec
Product characteristics	
Spray application	yes
Product ingredient fraction by weight	10 %
Amounts used	
Human factors not influenced by risk management	
Exposed skin surface (dermal)	1,900 cm ²
Contact rate	46 mg/min
Other given operational conditions affecting consum	ners exposure
Inhalation	
Room volume	15 m ³
Ventilation rate	2.5 1/h
Room height	2.5 m
Mass generation rate	0.750 g/s
Airborne fraction	20 %
Density non-volatile	1.8 %
Droplet distribution	LogNormal, median: 50 μm, coeff. of variation: 0.600 μm, cut-off diameter: 15 μm
Dermal	
Uptake fraction	100 %
Contributing Scenario (4) controlling consumer exp	osure for PC 8
Name of contributing scenario	PC 8 Biocidal Products (e.g. Disinfectants, pest control)
Scenario subtitle	Use in Biocidal products-Part B. Wiping
Calculation model	ConsExpo Disinfectants for use indoors: - Wiping
Frequency and duration of use	
Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	365 per year
Product characteristics	
Spray application	no
Product ingredient fraction by weight	10 %
Amounts used	1
Dermal	0.020 g
Human factors not influenced by risk management	-
Exposed skin surface (dermal)	215 cm^2
1	

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Other given operational conditions affecting consumers exposure	
Dermal	
Uptake fraction	100 %

Uptake fraction	100 %
ES 13 (Exposure Scenario 13)	: Use in Lubricants (industrial)
Free short title	Use in Lubricants (industrial) (14)
Systematic title based on use descriptor	ERC 4, 7; PROC 1, 2, 3, 4, 7, 8A, 8B, 9, 10, 13, 17, 18
Name of contributing environmental scenario and corresponding ERC	ERC 4 Industrial use of processing aids ERC 7 Industrial use of substances in closed systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 7 - Industrial spraying PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 10 - Roller application or brushing PROC 13 - Treatment of articles by dipping and pouring PROC 17 - Lubrication at high energy conditions and in partly open process PROC 18 - Greasing at high energy conditions
$Contributing \ Scenario \ (1) \ controlling$	environmental exposure for ERC 4
Contributing Scenario (2) controlling	environmental exposure for ERC 7
As no environmental hazard was identified	ied no environmental-related exposure assessment and risk characterization was performed.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	low
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Contributing Scenario (3) controlling	industrial worker exposure for PROC 1

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Scenario subtitle	Use in closed process, no likelihood of exposure

Human factors not influenced by risk management

Exposed skin surface $240\ cm^2$

Other given operational conditions affecting workers exposure

Location indoors Domain industrial

Technical conditions and measures to control dispersion and exposure

Local exhaust ventilation

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

No Protective gloves Respiratory protection no

Contributing Scenario (4) controlling industrial worker exposure for PROC 2



Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure	
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure	
Human factors not influenced by risk management		
Exposed skin surface	480 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (5) controlling	industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)	
Scenario subtitle	Use in closed batch process (synthesis or formulation).	
Human factors not influenced by risk	management	
Exposed skin surface	240 cm^2	
Other given operational conditions aff	fecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (6) controlling	industrial worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises	
Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.	
Human factors not influenced by risk	management	
Exposed skin surface	480 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (7) controlling industrial worker exposure for PROC 7		
Name of contributing scenario	7 - Industrial spraying	



Scenario subtitle	Industrial spraying
Human factors not influenced by risk management	
Exposed skin surface	$1,500 \text{ cm}^2$
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to	control dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Use of external/measured value dermal	The RISKSOFDERM V2.1 model has been used to estimate dermal exposure.
	The 70th percentile of the "Exposure loading per shift body" was added with the 70th percentile of the "Exposure loading per shift hand". The values given in µl was converted into mg and divided by a body weight of 70 kg which is generally assumed for workers. In addition, appropriate body protection was considered within the calculation of the final dermal exposure value. RISKOFDERM v2.1 – Process: "Spraying" Physical state: Liquid Concentration of substance: 100% Vapour pressure of the substance: 0.008 hPa Application rate: 1 l/min Duration of exposure: 6 hours/day Exposed skin surface: Whole body Location: Inside Direction of spraying: Downward/ Level Segregation: Ensure that worker is > 1 m from the source Local exhaust ventilation (Direction of airflow away from the worker): yes (effectiveness: ca. 50%) Use of suitable gloves with basic training: Yes (Effectiveness: 90%) Wearing of appropriate working clothes (e.g. an overall): Yes (Effectiveness: 80%)



Use of external/measured value	The ART model has been used to estimate inhalative exposure.
inhalation	Mechanistic model results: The predicted 75th percentile full-shift exposure is 0.27 mg/m³.
	The inter-quartile confidence interval is 0.13 mg/m ³ to 0.57 mg/m ³ .
	Emission sources: Far field Process temperature: Room temperature
	Process temperature: Room temperature Vapour pressure: 8 Pa
	Liquid weight fraction: 1
	Viscosity: medium (oil-like)
	Substance product type: Liquids Situation: Surface spraying of liquids, Moderate application rate (0.3 - 3 l/minute)
	Spray direction: Only horizontal or downward
	Spray technique: Spraying with high compressed air use
	Primary localized controls: LEV systems (50.00 % reduction) Secondary localized controls: No (0 % reduction)
	Segregation: Partial segregation with ventilation and filtration of recirculated air (70.00 %
	reduction)
	Personal enclosure: No (0% reduction) Effective housekeeping practices in place: Yes
	Process fully enclosed: No
	Room size: 1000 m ³
	Work area: Indoors
	Duration (mins): 360 Ventilation rate: No restriction on general ventilation characteristics
	ventuation rate. No restriction on general ventuation characteristics
	Respiratory protection required: No
Contributing Scenario (8) controlling	g industrial worker exposure for PROC 8A
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
Qualitative Risk Assessment	
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).
Human factors not influenced by risk	s management
Exposed skin surface	960 cm ²
Other given operational conditions at	ffecting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to	o control dispersion and exposure
Local exhaust ventilation	yes (inhalation 90 %)
Conditions and measures related to p	personal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (9) controlling	g industrial worker exposure for PROC 8B
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
Human factors not influenced by risk	s management
Exposed skin surface	960 cm^2



Domain industrial Technical conditions and measures to control dispersion and exposure Local exhaust veniliation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing scenario (10 controlling industrial worker exposure for PROC 9 Name of contributing scenario 9 - Transfer of chemicals into small containers (dedicated filling line) Scenario subtitle Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Located exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Conditions and measures related application or brushing Scenario subtitle Roller application or brushing Muman factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure for PROC 10 Name of contributing scenario (11) controlling industrial worker exposure for PROC 10 Name of contributing scenario influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Local exhaust ventilation yes (sinhalation 90 %) Conditions and measures to control dispersion and exposure Local exhaust ventilation yes (sinhalation 90 %) Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gioves APP 10 90 % Respiratory protection no Contributing scenario (12) controlling industrial worker exposure for PROC 13 Name of contributing scenario (12) controlling industrial worker exposure for PROC 13 Name of contributing scenario (12) controlling industrial worker exposure for PROC 13 Name of contributing scenario (12) controlling industrial worker exposure for PR	Location	indoors	
Local eshaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Contributing Secnario (10) controlling industrial worker exposure for PROC 9 Name of contributing secnario 9 - Transfer of chemicals into small containers (dedicated filling line) Secnario subtitle Transfer of substance or preparation into small containers (dedicated filling line) Protective gloves Other given operational conditions affecting workers exposure Location Domain industrial Technical conditions and measures to control dispersion and exposure Local eshaust ventilation Domain Local eshaust ventilation Domain	Domain	industrial	
Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 9 Name of contributing scenario 9 - Transfer of chemicals into small containers (dedicated filling line) Scenario subtitle Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location Indoors Domain Industrial Technical conditions and measures to control dispersion and exposure Locations and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection No Contributing Scenario (11) controlling industrial worker exposure for PROC 10 Name of contributing scenario Roller application or brushing Scenario subtitle Roller application or brushing Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location Domain Industrial Technical conditions and measures to control dispersion and exposure Location Domain Industrial Technical conditions and measures to control dispersion and exposure Location Domain Industrial Technical conditions and measures to control dispersion and exposure Location Domain Industrial Technical conditions and measures to control dispersion and exposure Location Domain Industrial Technical conditions and measures to control dispersion and exposure Location Domain Industrial Technical conditions and measures to control dispersion and exposure Location Domain Industrial Technical conditions and measures to control dispersion and exposure Location Domain Industrial Technical conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gioves APF 10 90 % Respiratory protection Contributing scenario (12) controlling industrial	Technical conditions and measures to	control dispersion and exposure	
Protective gloves No Respiratory protection no Contributing Scenario (10) controlling industrial worker exposure for PROC 9 Name of contributing scenario 9 - Transfer of substance or preparation into small containers (dedicated filling line) Scenario subtitle Transfer of substance or preparation into small containers (dedicated filling line, including weighing) Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (11) controlling industrial worker exposure for PROC 10 Name of contributing scenario Scenario subtitle Roller application or brushing Scenario subtitle Roller application or brushing Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location industrial Technical conditions and measures to control dispersion and exposure Location industrial Technical conditions and measures to control dispersion and exposure Location industrial Technical conditions and measures to control dispersion and exposure Location industrial Technical conditions and measures for control dispersion and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (12) controlling industrial worker exposure for PROC 13 Name of contributing scenario Location Industrial worker exposure for PROC 13 Name of contributing scenario Location Industrial worker exposure for PROC 14 Location Industrial worker exposure for PROC 15 Name of contributing scenario Location Industrial worker exposure for PROC 15 Location Industrial worker exposure fo	Local exhaust ventilation	no	
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Respiratory protection no Contributing Scenario (12) controlling industrial worker exposure for PROC 13 Name of contributing scenario 13 - Treatment of articles by dipping and pouring Scenario subtitle Treatment of articles by dipping and pouring. Human factors not influenced by risk management Exposed skin surface 480 cm ² Other given operational conditions affecting workers exposure	Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Contributing Scenario (12) controlling industrial worker exposure for PROC 13 Name of contributing scenario 13 - Treatment of articles by dipping and pouring Scenario subtitle Treatment of articles by dipping and pouring. Human factors not influenced by risk management Exposed skin surface 480 cm ² Other given operational conditions affecting workers exposure	Protective gloves	Gloves APF 10 90 %	
Name of contributing scenario 13 - Treatment of articles by dipping and pouring Scenario subtitle Treatment of articles by dipping and pouring. Human factors not influenced by risk management Exposed skin surface 480 cm ² Other given operational conditions affecting workers exposure	Respiratory protection	no	
Scenario subtitle Treatment of articles by dipping and pouring. Human factors not influenced by risk management Exposed skin surface 480 cm ² Other given operational conditions affecting workers exposure	Contributing Scenario (12) controlling industrial worker exposure for PROC 13		
Human factors not influenced by risk management Exposed skin surface 480 cm ² Other given operational conditions affecting workers exposure	Name of contributing scenario	13 - Treatment of articles by dipping and pouring	
Exposed skin surface 480 cm ² Other given operational conditions affecting workers exposure	Scenario subtitle	Treatment of articles by dipping and pouring.	
Other given operational conditions affecting workers exposure	Human factors not influenced by risk	management	
	Exposed skin surface	480 cm^2	
	Other given operational conditions affecting workers exposure		
Location indoors	Location	indoors	

LANGUAGE: ENGLISH



Domain	industrial		
Technical conditions and measures to	control dispersion and exposure		
Local exhaust ventilation	yes (inhalation 90 %)		
Conditions and measures related to p	ersonal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		
Contributing Scenario (13) controllin	g industrial worker exposure for PROC 17		
Name of contributing scenario	17 - Lubrication at high energy conditions and in partly open process		
Scenario subtitle	Lubrication at high energy conditions and in partly open process.		
Qualitative Risk Assessment			
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).		
Human factors not influenced by risk	management		
Exposed skin surface	960 cm ²		
Other given operational conditions af	fecting workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to	control dispersion and exposure		
Local exhaust ventilation	yes (inhalation 90 %)		
Conditions and measures related to p	ersonal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		
Contributing Scenario (14) controllin	g industrial worker exposure for PROC 18		
Name of contributing scenario	18 - Greasing at high energy conditions		
Scenario subtitle	Greasing at high energy conditions.		
Qualitative Risk Assessment			
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).		
Human factors not influenced by risk	management		
Exposed skin surface	960 cm ²		
Other given operational conditions affecting workers exposure			
Location	indoors		
Domain	industrial		
Technical conditions and measures to control dispersion and exposure			
Local exhaust ventilation	yes (inhalation 90 %)		
Conditions and measures related to p	Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No		
Respiratory protection	no		

ES 14 (Exposure Scenario 14): Use in Metal-working fluids (industrial)

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Free short title	Use in Metal-working fluids (industrial) (15)	
I I CC SHOT C CICIC	obe in Metal Working Halab (Maaberlai) (15)	



Systematic title based on use descriptor	ERC 4; PROC 1, 2, 3, 4, 5, 7, 8A, 8B, 9, 10, 13, 17	
Name of contributing environmental scenario and corresponding ERC	ERC 4 Industrial use of processing aids	
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 7 - Industrial spraying PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 10 - Roller application or brushing PROC 13 - Treatment of articles by dipping and pouring PROC 17 - Lubrication at high energy conditions and in partly open process	
Contributing Scenario (1) controlling	environmental exposure for ERC 4	
As no environmental hazard was identified	ed no environmental-related exposure assessment and risk characterization was performed.	
Product characteristics		
Physical state	liquid	
Concentration in substance	100 %	
Fugacity / Dustiness	low	
Frequency and duration of use		
Duration of activity	>4 hours (default)	
Frequency of use	5 days / week	
Contributing Scenario (2) controlling	industrial worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure	
Scenario subtitle	Use in closed process, no likelihood of exposure	
Human factors not influenced by risk	management	
Exposed skin surface	240 cm^2	
Other given operational conditions aff	fecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (3) controlling industrial worker exposure for PROC 2		
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure	
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure	
Human factors not influenced by risk	management	
Exposed skin surface	480 cm^2	
Other given operational conditions aff	fecting workers exposure	
Location	indoors	



Domain	industrial	
Technical conditions and measures to		
Local exhaust ventilation	no	
	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
	industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)	
Scenario subtitle	Use in closed batch process (synthesis or formulation).	
Human factors not influenced by risk		
Exposed skin surface	240 cm ²	
Other given operational conditions af		
Location	indoors	
Domain	industrial	
Technical conditions and measures to	T T	
Local exhaust ventilation	no	
	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
	industrial worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises	
Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.	
Human factors not influenced by risk	management	
Exposed skin surface	480 cm ²	
Other given operational conditions af	fecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to p	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (6) controlling industrial worker exposure for PROC 5		
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)	
Scenario subtitle	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).	
Human factors not influenced by risk management		
Exposed skin surface	480 cm^2	
Other given operational conditions af	fecting workers exposure	
Location	l. ,	
	indoors	



Technical conditions and measures to	control dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to po	ersonal protection, hygiene and health evaluation
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Contributing Scenario (7) controlling	industrial worker exposure for PROC 7
Name of contributing scenario	7 - Industrial spraying
Scenario subtitle	Industrial spraying
Human factors not influenced by risk	management
Exposed skin surface	$1,500 \text{ cm}^2$
Other given operational conditions aff	fecting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to	control dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Use of external/measured value dermal	The RISKSOFDERM V2.1 model has been used to estimate dermal exposure. The 70th percentile of the "Exposure loading per shift body" was added with the 70th percentile of the "Exposure loading per shift hand". The values given in µl was converted into mg and divided by a body weight of 70 kg which is generally assumed for workers. In addition, appropriate body protection was considered within the calculation of the final dermal exposure value. RISKOFDERM v2.1 – Process: "Spraying" Physical state: Liquid Concentration of substance: 100% Vapour pressure of the substance: 0.008 hPa Application rate: 1 l/min Duration of exposure: 6 hours/day Exposed skin surface: Whole body Location: Inside Direction of spraying: Downward/ Level Segregation: Ensure that worker is > 1 m from the source Local exhaust ventilation (Direction of airflow away from the worker): yes (effectiveness: ca. 50%) Use of suitable gloves with basic training: Yes (Effectiveness: 90%) Wearing of appropriate working clothes (e.g. an overall): Yes (Effectiveness: 80%)
Use of external/measured value inhalation	The ART model has been used to estimate inhalative exposure. Mechanistic model results: The predicted 75th percentile full-shift exposure is 0.27 mg/m³. The inter-quartile confidence interval is 0.13 mg/m³ to 0.57 mg/m³. Emission sources: Far field Process temperature: Room temperature Vapour pressure: 8 Pa Liquid weight fraction: 1 Viscosity: medium (oil-like) Substance product type: Liquids



	Situation: Surface spraying of liquids, Moderate application rate (0.3 - 3 l/minute) Spray direction: Only horizontal or downward Spray technique: Spraying with high compressed air use Primary localized controls: LEV systems (50.00 % reduction) Secondary localized controls: No (0 % reduction) Segregation: Partial segregation with ventilation and filtration of recirculated air (70.00 % reduction) Personal enclosure: No (0% reduction) Effective housekeeping practices in place: Yes Process fully enclosed: No Room size: 1000 m³ Work area: Indoors Duration (mins): 360 Ventilation rate: No restriction on general ventilation characteristics Respiratory protection required: No		
Contributing Scenario (8) controlling	industrial worker exposure for PROC 8A		
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities		
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities		
Qualitative Risk Assessment			
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).		
Human factors not influenced by risk	management		
Exposed skin surface	960 cm ²		
Other given operational conditions af	fecting workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to	control dispersion and exposure		
Local exhaust ventilation	yes (inhalation 90 %)		
Conditions and measures related to p	ersonal protection, hygiene and health evaluation		
Protective gloves	No		
Respiratory protection	no		
Contributing Scenario (9) controlling	industrial worker exposure for PROC 8B		
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities		
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities		
Human factors not influenced by risk management			
Exposed skin surface	960 cm ²		
Other given operational conditions af	Other given operational conditions affecting workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to	control dispersion and exposure		
Local exhaust ventilation	no		
	Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No		
Respiratory protection	no		



Contributing Scenario (10) controlling industrial worker exposure for PROC 9			
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)		
Scenario subtitle	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)		
Human factors not influenced by risk	Human factors not influenced by risk management		
Exposed skin surface	480 cm^2		
Other given operational conditions af	fecting workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to	control dispersion and exposure		
Local exhaust ventilation	no		
Conditions and measures related to po	ersonal protection, hygiene and health evaluation		
Protective gloves	No		
Respiratory protection	no		
Contributing Scenario (11) controlling	g industrial worker exposure for PROC 10		
Name of contributing scenario	10 - Roller application or brushing		
Scenario subtitle	Roller application or brushing		
Human factors not influenced by risk	management		
Exposed skin surface	960 cm^2		
Other given operational conditions af	fecting workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to	control dispersion and exposure		
Local exhaust ventilation	yes (inhalation 90 %)		
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		
Contributing Scenario (12) controlling	g industrial worker exposure for PROC 13		
Name of contributing scenario	13 - Treatment of articles by dipping and pouring		
Scenario subtitle	Treatment of articles by dipping and pouring.		
Human factors not influenced by risk	management		
Exposed skin surface	480 cm^2		
Other given operational conditions af	fecting workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to	control dispersion and exposure		
Local exhaust ventilation	yes (inhalation 90 %)		
Conditions and measures related to personal protection, hygiene and health evaluation			
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		
Contributing Scenario (13) controlling industrial worker exposure for PROC 17			



Name of contributing scenario	17 - Lubrication at high energy conditions and in partly open process		
Scenario subtitle	Lubrication at high energy conditions and in partly open process.		
Qualitative Risk Assessment			
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).		
Human factors not influenced by risk	management		
Exposed skin surface	960 cm ²		
Other given operational conditions aff	Other given operational conditions affecting workers exposure		
Location	indoors		
Domain	industrial		
Technical conditions and measures to	Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	yes (inhalation 90 %)		
Conditions and measures related to personal protection, hygiene and health evaluation			
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		

Free short title	Use in metal-working fluids (professional) (16)
Systematic title based on use descriptor	ERC 8A; PROC 1, 2, 3, 5, 8A, 8B, 9, 10, 11, 13, 17
Name of contributing environmental scenario and corresponding ERC	ERC 8a Wide dispersive indoor use of processing aids in open systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 10 - Roller application or brushing PROC 11 - Non industrial spraying PROC 13 - Treatment of articles by dipping and pouring PROC 17 - Lubrication at high energy conditions and in partly open process
Contributing Scenario (1) controlling env	rironmental exposure for ERC 8A
As no environmental hazard was identified	no environmental-related exposure assessment and risk characterization was performed.

Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	low
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Contributing Scenario (2) controlling professional worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Scenario subtitle	Use in closed process, no likelihood of exposure



Human factors not influenced by risk management		
Exposed skin surface	240 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	professional	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to perso	nal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (3) controlling pro	fessional worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure	
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure.	
Human factors not influenced by risk ma	nagement	
Exposed skin surface	480 cm^2	
Other given operational conditions affecti	ing workers exposure	
Location	indoors	
Domain	professional	
Technical conditions and measures to con	trol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to perso	nal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (4) controlling pro	fessional worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)	
Scenario subtitle	Use in closed batch process (synthesis or formulation).	
Human factors not influenced by risk management		
Exposed skin surface	240 cm^2	
Other given operational conditions affecti	ing workers exposure	
Location	indoors	
Domain	professional	
Technical conditions and measures to con	trol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to perso	Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (5) controlling professional worker exposure for PROC 5		
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)	
Scenario subtitle	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant con-tact)	
Human factors not influenced by risk management		



Exposed skin surface	480 cm^2	
Other given operational conditions affe	cting workers exposure	
Location	indoors	
Ventilation	good (30%)	
Domain	professional	
Technical conditions and measures to c	ontrol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to per	sonal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
Contributing Scenario (6) controlling p	rofessional worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.	
Qualitative Risk Assessment	•	
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.	
Human factors not influenced by risk n	nanagement	
Exposed skin surface	960 cm ²	
Other given operational conditions affe	cting workers exposure	
Location	indoors	
Domain	professional	
Technical conditions and measures to c	ontrol dispersion and exposure	
Local exhaust ventilation	yes (inhalation 80 %)	
Conditions and measures related to per	sonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (7) controlling p	rofessional worker exposure for PROC 8B	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.	
Qualitative Risk Assessment		
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.	
Human factors not influenced by risk n	nanagement	
Exposed skin surface	960 cm ²	
Other given operational conditions affe	Other given operational conditions affecting workers exposure	
Location	indoors	
Ventilation	good (30%)	
Ventilation Domain	good (30%) professional	
	professional	



Respiratory protection no Contributing Scenario (S) controlling protessional worker exposure for PROC 9 Name of contributing scenario 9 - Transfer of chemicals into small containers (dedicated filling line) wrighing). Human factors not influenced by risk manusgement Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Ventilation good (30%) Domain Protective gloves No Conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Conditions genario (9) controlling protessional worker exposure for PROC 10 Name of contributing scenario (9) controlling scenario (10 - Roller application or brushing Qualitative Risk Assessment Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Local on inducenced by risk manusgement Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Local exhaust ventilation protection. Conditions and measures related to personal protection, bygiene and health evaluation Protective gloves No Conditions and measures related to personal protection, bygiene and health evaluation Protective gloves (10 - Roller application or brushing Qualitative Risk Assessment Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain protection indoors Domain protection protection protection. Conditions and measures to control dispersion and exposure Local exhaust ventilation yes (inhalation 80 %) Conditions and measures related to personal protection, bygiene and health evaluation Protective gloves (Gloves APF 10 90 % Respiratory protection no Contributing Scenario (10) controlling protessional worker exposure for PROC 11 Name of contributing scenario (10) controlling protessional worker exposure for PROC 11 Name of contributing scenario (10) controlling protessi	Conditions and measures related to personal protection, hygiene and health evaluation	
Contributing Scenario (8) controlling professional worker exposure for PROC 9 Name of contributing scenario 9 - Transfer of chemicals into small containers (dedicated filling line) Scenario subtitle Transfer of shemicals into small containers (dedicated filling line, including weighing). Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indeors Ventilation good (30%) Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Contributing Scenario (9) controlling professional worker exposure for PROC 10 Name of contributing scenario In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection. Human factors not influenced by risk management Exposed skin surface Other given operational conditions affecting workers exposure Including Conditions and measures related to personal protection or brushing Other protective gloves Other given operational conditions affecting workers exposure for PROC 10 Name of contributing scenario (9) controlling professional worker exposure for PROC 10 Name of contributing scenario (9) controlling professional worker exposure for PROC 10 Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Localion indoors Domain professional Technical conditions and measures to control dispersion and exposure Local conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection On contributing scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario (10) controlling professional worker exposure	Protective gloves	Gloves APF 10 90 %
Name of contributing scenario Scenario subtitle Transfer of substance or preparation into small containers (dedicated filling line, including weighned) Transfer of substance or preparation into small containers (dedicated filling line, including weighned) Transfer of substance or preparation into small containers (dedicated filling line, including weighned) Transfer of substance or preparation into small containers (dedicated filling line, including weighned) The substance of the substance or preparation into small containers (dedicated filling line, including weighned) The substance of the substance of preparation into small containers (dedicated filling line, including weighned) The substance of preparation into small containers (dedicated filling line, including weighned) The substance of preparation into small containers (dedicated filling line, including weighned) The substance of preparation into small containers (dedicated filling line, including weighned) The substance of the substance	Respiratory protection	no
Scenario subtitle Transfer of substance or preparation into small containers (dedicated filling line, including weighing). Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Ventilation good (30%) Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, bygiene and health evaluation Protective gloves No Contributing Scenario (9) controlling professional worker exposure for PROC 10 Name of contributing scenario (9) controlling professional worker exposure for PROC 10 Name of contributing scenario (9) controlling professional worker exposure for PROC 10 Name of contributing scenario (9) controlling professional worker exposure for PROC 10 Name of contributing scenario (9) controlling professional worker exposure for PROC 10 Name of contributing scenario (9) controlling professional worker exposure for PROC 10 Name of contributing scenario (9) controlling professional worker exposure (10) controlling scenario (10) respective protection or brushing Qualitative Risk Assessment Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to tool dispersion and exposure Location indoors Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection Conditions and measures related to personal vorker exposure for PROC 11 Name of contributing scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario (10) controlling professional spraying Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	Contributing Scenario (8) controlling professional worker exposure for PROC 9	
Munan factors not influenced by risk management	Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
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Respiratory protection no Contributing Scenario (9) controlling professional worker exposure for PROC 10 Name of contributing scenario 10 - Roller application or brushing Scenario subtitle Roller application or brushing Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection. Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation yes (inhalation 80 %) Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	Conditions and measures related to pers	onal protection, hygiene and health evaluation
Contributing Scenario (9) controlling professional worker exposure for PROC 10 Name of contributing scenario	Protective gloves	No
Name of contributing scenario Scenario subtitle Roller application or brushing Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection. Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affective workers exposure Location indoors Domain Professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation yes (inhalation 80 %) Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection Other jurity protection 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affective workers exposure Version or brushing In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection. In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection. In case nos suitable local exhaust ventilation is present: Wear suitable respiratory protection. In case nos suitable local exhaust ventilation is present: Wear suitable respiratory protection. In case nos suitable local exhaust ventilation is present: Wear suitable respiratory protection. In case nos suitable local exhaust ventilation is present: Wear suitable respiratory protection. In case nos suitable local exhaust ventilations is prese	Respiratory protection	no
Roller application or brushing Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection. Human factors not influenced by risk maragement Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation yes (inhalation 80 %) Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk maragement Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	Contributing Scenario (9) controlling pr	ofessional worker exposure for PROC 10
Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection. Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation yes (inhalation 80 %) Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	Name of contributing scenario	10 - Roller application or brushing
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Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation yes (inhalation 80 %) Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	Qualitative Risk Assessment	
Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation yes (inhalation 80 %) Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	General	
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Location indoors Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation yes (inhalation 80 %) Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	Exposed skin surface	960 cm ²
Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation yes (inhalation 80 %) Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	Other given operational conditions affec	ting workers exposure
Technical conditions and measures to control dispersion and exposure Local exhaust ventilation yes (inhalation 80 %) Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	Location	indoors
Local exhaust ventilation yes (inhalation 80 %) Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Gloves APF 10 90 % Respiratory protection no Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	Domain	professional
Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves Respiratory protection Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	Technical conditions and measures to co	ntrol dispersion and exposure
Protective gloves Respiratory protection no Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	Local exhaust ventilation	yes (inhalation 80 %)
Respiratory protection no Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm² Other given operational conditions affecting workers exposure	Conditions and measures related to pers	onal protection, hygiene and health evaluation
Contributing Scenario (10) controlling professional worker exposure for PROC 11 Name of contributing scenario	Protective gloves	Gloves APF 10 90 %
Name of contributing scenario 11 - Non industrial spraying Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm ² Other given operational conditions affecting workers exposure	Respiratory protection	no
Scenario subtitle Non industrial spraying Human factors not influenced by risk management Exposed skin surface 1,500 cm ² Other given operational conditions affecting workers exposure	Contributing Scenario (10) controlling p	rofessional worker exposure for PROC 11
Human factors not influenced by risk management Exposed skin surface 1,500 cm ² Other given operational conditions affecting workers exposure	Name of contributing scenario	11 - Non industrial spraying
Exposed skin surface 1,500 cm ² Other given operational conditions affecting workers exposure	Scenario subtitle	Non industrial spraying
Other given operational conditions affecting workers exposure	Human factors not influenced by risk ma	anagement
	Exposed skin surface	$1,500 \text{ cm}^2$
Location indoors	Other given operational conditions affect	ting workers exposure
1	Location	indoors



Domain	professional
Technical conditions and measures to con	ntrol dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to person	onal protection, hygiene and health evaluation
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Use of external/measured value dermal	The RISKSOFDERM V2.1 model has been used to estimate dermal exposure. The 70th percentile of the "Exposure loading per shift body" was added with the 70th
	percentile of the "Exposure loading per shift hand". The values given in μ l was converted into mg and divided by a body weight of 70 kg which is generally assumed for workers. In addition, appropriate body protection was considered within the calculation of the final dermal exposure value.
	RISKOFDERM v2.1 – Process: "Spraying" Physical state: Liquid Concentration of substance: 100% Vapour pressure of the substance: 0.008 hPa
	Application rate: 0.05 l/min Duration of exposure: 180 mins Exposed skin surface: Whole body Location: Inside Direction of spraying: Level
	Segregation: Worker is within one meter of the source Direction of airflow: Not clearly away from the worker Use of suitable gloves with basic training: Yes (Effectiveness: 90%) Wearing of appropriate working clothes (e.g. an overall): Yes (Effectiveness: 80%)
Use of external/measured value inhalation	The ART model has been used to estimate inhalative exposure. Mechanistic model results: The predicted 75th percentile full-shift exposure is 3 mg/m³. The inter-quartile confidence interval is 1.4 mg/m³ to 6.3 mg/m³.
	Emission sources: Near field Process temperature: Room temperature Vapour pressure: 8 Pa Liquid weight fraction: 1 Viscosity: medium (oil-like) Substance product type: Liquids Situation: Surface spraying of liquids, Low application rate (0.03 – 0.3 l/minute) Spray direction: Only horizontal or downward Spray technique: Spraying with high compressed air use Primary localized controls: No (0% reduction) Secondary localized controls: No (0 % reduction) Effective housekeeping practices in place: No General housekeeping in place: Yes
	Process fully enclosed: No Room size: 100 m³ Work area: Indoors Duration (mins): 180 Ventilation rate: Mechanical ventilation giving at least 1 ACH Respiratory protection required: No
Contributing Scenario (11) controlling p	refessional worker exposure for PROC 13
Name of contributing scenario	13 - Treatment of articles by dipping and pouring
Scenario subtitle	Treatment of articles by dipping and pouring.
	Treatment of dideles of dipping and pouring.

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Human factors not influenced by risk management			
Exposed skin surface	$480 \mathrm{cm}^2$		
Other given operational conditions af	fecting workers exposure		
Location	indoors		
Ventilation	good (30%)		
Domain	professional		
Technical conditions and measures to	control dispersion and exposure		
Local exhaust ventilation	no		
Conditions and measures related to p	ersonal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		
Contributing Scenario (12) controllin	g professional worker exposure for PROC 17		
Name of contributing scenario	17 - Lubrication at high energy conditions and in partly open process		
Scenario subtitle	Lubrication at high energy conditions and in partly open process.		
Qualitative Risk Assessment			
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.		
Human factors not influenced by risk management			
Exposed skin surface	960 cm ²		
Other given operational conditions af	fecting workers exposure		
Location	indoors		
Domain	professional		
Technical conditions and measures to	Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	yes (inhalation 80 %)		
Conditions and measures related to p	ersonal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %		
Respiratory protection	no		

ES 16 (Exposure Scenario 16): Use in/as Functional fluids (industrial)

S 16 (Exposure Scenario 16): Use in/as Functional fluids (industrial)	
Free short title	Use in/as Functional fluids (industrial) (17)
Systematic title based on use descriptor	ERC 7; PROC 1, 2, 3, 4, 8A, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 7 Industrial use of substances in closed systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)
Contributing Scenario (1) controlling	environmental exposure for ERC 7
As no environmental hazard was identif	ied no environmental-related exposure assessment and risk characterization was performed.
Product characteristics	



Physical state	liquid	
Concentration in substance	100 %	
Fugacity / Dustiness	low	
Frequency and duration of use		
Duration of activity	>4 hours (default)	
Frequency of use	5 days / week	
Contributing Scenario (2) controlling	industrial worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure	
Scenario subtitle	Use in closed process, no likelihood of exposure	
Human factors not influenced by risk	management	
Exposed skin surface	240 cm ²	
Other given operational conditions aff	ecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (3) controlling	industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure	
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure	
Human factors not influenced by risk	management	
Exposed skin surface	480 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (4) controlling industrial worker exposure for PROC 3		
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)	
Scenario subtitle	Use in closed batch process (synthesis or formulation).	
Human factors not influenced by risk management		
Exposed skin surface	240 cm ²	
Exposed skin surface Other given operational conditions aff		



Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
	industrial worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises	
Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.	
Human factors not influenced by risk		
Exposed skin surface	480 cm^2	
Other given operational conditions aff		
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (6) controlling	industrial worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	
Qualitative Risk Assessment		
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).	
Human factors not influenced by risk	management	
Exposed skin surface	960 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (7) controlling	Contributing Scenario (7) controlling industrial worker exposure for PROC 8B	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Human factors not influenced by risk management		
Human factors not influenced by risk	management	

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Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (8) controlling	industrial worker exposure for PROC 9	
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)	
Scenario subtitle	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
Human factors not influenced by risk	management	
Exposed skin surface	480 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	

ES 17 (Exposure Scenario 17): Use in/as Functional fluids (professional)

	: Use in/as Functional fluids (professional)
Free short title	Use in/as Functional fluids (professional) (18)
Systematic title based on use descriptor	ERC 9A, 9B; PROC 1, 2, 3, 4, 8A, 9, 20
Name of contributing environmental scenario and corresponding ERC	ERC 9a Wide dispersive indoor use of substances in closed systems ERC 9b Wide dispersive outdoor use of substances in closed systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 20 - Heat and pressure transfer fluids (closed systems) in dispersive use
Contributing Scenario (1) controlling environmental exposure for ERC 9A	
Contributing Scenario (2) controlling environmental exposure for ERC 9B	
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.	
Product characteristics	
Physical state	liquid



Concentration in substance	100 %
Fugacity / Dustiness	low
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Contributing Scenario (3) controlling	professional worker exposure for PROC 1
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Scenario subtitle	Use in closed process, no likelihood of exposure
Human factors not influenced by risk	management
Exposed skin surface	240 cm^2
Other given operational conditions aff	fecting workers exposure
Location	indoors
Domain	professional
Technical conditions and measures to	control dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (4) controlling	professional worker exposure for PROC 2
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure.
Human factors not influenced by risk	management
Exposed skin surface	480 cm^2
Other given operational conditions aff	fecting workers exposure
Location	indoors
Domain	professional
Technical conditions and measures to	control dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to po	ersonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (5) controlling	professional worker exposure for PROC 3
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Use in closed batch process (synthesis or formulation).
Human factors not influenced by risk	management
Exposed skin surface	240 cm^2
Other given operational conditions aff	fecting workers exposure
Location	indoors
Domain	professional
Technical conditions and measures to control dispersion and exposure	



Local exhaust ventilation	no	
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (6) controlling	professional worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises	
Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.	
Human factors not influenced by risk	management	
Exposed skin surface	480 cm ²	
Other given operational conditions aff	fecting workers exposure	
Location	indoors	
Ventilation	good (30%)	
Domain	professional	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (7) controlling	professional worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.	
Qualitative Risk Assessment		
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.	
Human factors not influenced by risk	management	
Exposed skin surface	960 cm ²	
Other given operational conditions aff	fecting workers exposure	
Location	indoors	
Domain	professional	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 80 %)	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (8) controlling	Contributing Scenario (8) controlling professional worker exposure for PROC 9	
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)	
Scenario subtitle	Transfer of substance or preparation into small containers (dedicated filling line, including	
	weighing).	
Human factors not influenced by risk		

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Other given operational conditions af	Other given operational conditions affecting workers exposure	
Location	indoors	
Ventilation	good (30%)	
Domain	professional	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to p	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (9) controlling	professional worker exposure for PROC 20	
Name of contributing scenario	20 - Heat and pressure transfer fluids (closed systems) in dispersive use	
Scenario subtitle	Heat and pressure transfer fluids in dispersive, professional use but closed systems.	
Human factors not influenced by risk	management	
Exposed skin surface	480 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	professional	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	

ES 18 (Exposure Scenario 18: Use in Heat transfer and Hydraulic fluids (Consumer use)		
Free short title	Use in Heat transfer and Hydraulic fluids (Consumer use) (19)	
Systematic title based on use descriptor	ERC 9A, 9B; PC 16, 17	
Name of contributing environmental scenario and corresponding ERC	ERC 9a Wide dispersive indoor use of substances in closed systems ERC 9b Wide dispersive outdoor use of substances in closed systems	
Name(s) of contributing consumer scenarios and corresponding PCs/ACs	PC 16 Heat Transfer Fluids PC 17 Hydraulic Fluids	
Contributing Scenario (1) controlling environmental exposure for ERC 9A		
Contributing Scenario (2) controlling environmental exposure for ERC 9B		
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.		
Contributing Scenario (3) controlling consumer expe	osure for PC 16	
Name of contributing scenario	PC 16 Heat Transfer Fluids	
Scenario subtitle	Use in Heat transfer and Hydraulic fluids	
Calculation model	Ecetoc TRA	
Frequency and duration of use		
Frequency of use	0.547945 time(s)/day	
Exposure time	0.250 h	
Product characteristics		
Spray application	no	

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Product ingredient fraction by weight (inhalation)	45 %	
Product ingredient fraction by weight (dermal)	45 %	
Amounts used		
Amounts used	100 g	
Human factors not influenced by risk management		
Skin surface area dermal	hands	
Skin surface area oral	-	
Tranfer factor dermal	100 %	
Other given operational conditions affecting consu	mers exposure	
Room volume	20 m ³	
Release fraction to air	1.0 %	
Contributing Scenario (4) controlling consumer exposure for PC 17		
Name of contributing scenario	PC 17 Hydraulic Fluids	
Scenario subtitle	Use in Heat transfer and Hydraulic fluids	
Calculation model	Ecetoc TRA	
Frequency and duration of use		
Frequency of use	0.547945 time(s)/day	
Exposure time	0.250 h	
Product characteristics		
Spray application	no	
Product ingredient fraction by weight (inhalation)	45 %	
Product ingredient fraction by weight (dermal)	45 %	
Amounts used		
Amounts used	100 g	
Human factors not influenced by risk management		
Skin surface area dermal	hands	
Skin surface area oral	-	
Tranfer factor dermal	100 %	
Other given operational conditions affecting consumers exposure		
Room volume	20 m ³	
Release fraction to air	1.0 %	

ES 19 (Exposure Scenario 19): Use in/as De-icing/Anti-icing applications/agents (professional)

Free short title	Use in/as De-icing/Anti-icing applications/agents (professional) (20)
Systematic title based on use descriptor	ERC 8D; PROC 1, 2, 8A, 8B, 11
Name of contributing environmental scenario and corresponding ERC	ERC 8d Wide dispersive outdoor use of processing aids in open systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 11 - Non industrial spraying
Contributing Scenario (1) controlling environmental exposure for ERC 8D	



As no environmental hazard was identified i	no environmental-related exposure assessment and risk characterization was performed.	
Product characteristics		
Physical state	hysical state liquid	
Concentration in substance	100 %	
Fugacity / Dustiness	low	
Frequency and duration of use		
Duration of activity	>4 hours (default)	
Frequency of use	5 days / week	
Contributing Scenario (2) controlling pro	· ·	
Name of contributing scenario 1 - Use in closed process, no likelihood of exposure		
Scenario subtitle	Use in closed process, no likelihood of exposure	
Human factors not influenced by risk ma		
Exposed skin surface	240 cm^2	
Other given operational conditions affecti	ing workers exposure	
Location	indoors	
Domain	professional	
Technical conditions and measures to con	trol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to perso	nal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (3) controlling professional worker exposure for PROC 2		
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure	
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure.	
Human factors not influenced by risk ma		
Exposed skin surface	480 cm^2	
Other given operational conditions affecti	ing workers exposure	
Location	indoors	
Domain	professional	
Technical conditions and measures to con	trol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (4) controlling professional worker exposure for PROC 8A		
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.	
Qualitative Risk Assessment		
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.	



	nagement	
Human factors not influenced by risk management Exposed skin surface 960 cm ²		
Other given operational conditions affecting workers exposure		
	indoors	
Domain	professional	
Technical conditions and measures to cont		
	yes (inhalation 80 %)	
	nal protection, hygiene and health evaluation	
<u> </u>	No	
Respiratory protection	no	
Contributing Scenario (5) controlling professional worker exposure for PROC 8B Name of contributing scenario 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities		
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.	
Qualitative Risk Assessment		
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.	
Human factors not influenced by risk man	nagement	
Exposed skin surface	960 cm ²	
Other given operational conditions affection	ng workers exposure	
Location	indoors	
Ventilation	good (30%)	
Domain	professional	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to person	nal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
Contributing Scenario (6) controlling prof	fessional worker exposure for PROC 11	
Name of contributing scenario	11 - Non industrial spraying	
Scenario subtitle	Non industrial spraying	
Human factors not influenced by risk man	nagement	
Exposed skin surface	$1,500 \text{ cm}^2$	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	professional	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation no		
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	

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Use of external/measured value dermal	The RISKSOFDERM V2.1 model has been used to estimate dermal exposure.
	The 70th percentile of the "Exposure loading per shift body" was added with the 70th percentile of the "Exposure loading per shift hand". The values given in μ l was converted into mg and divided by a body weight of 70 kg which is generally assumed for workers. In addition, appropriate body protection was considered within the calculation of the final dermal exposure value.
	RISKOFDERM v2.1 – Process: "Spraying" Physical state: Liquid Concentration of substance: 100% Vapour pressure of the substance: 0.008 hPa
	Application rate: 0.05 l/min Duration of exposure: 180 mins Exposed skin surface: Whole body Location: Inside Direction of spraying: Level Segregation: Worker is within one meter of the source Direction of airflow: Not clearly away from the worker
	Use of suitable gloves with basic training: Yes (Effectiveness: 90%) Wearing of appropriate working clothes (e.g. an overall): Yes (Effectiveness: 80%)
Use of external/measured value inhalation	The ART model has been used to estimate inhalative exposure. Mechanistic model results: The predicted 75th percentile full-shift exposure is 3 mg/m³. The inter-quartile confidence interval is 1.4 mg/m³ to 6.3 mg/m³.
	Emission sources: Near field Process temperature: Room temperature Vapour pressure: 8 Pa Liquid weight fraction: 1 Viscosity: medium (oil-like) Substance product type: Liquids Situation: Surface spraying of liquids, Low application rate (0.03 – 0.3 l/minute) Spray direction: Only horizontal or downward Spray technique: Spraying with high compressed air use Primary localized controls: No (0% reduction) Secondary localized controls: No (0 % reduction) Effective housekeeping practices in place: No General housekeeping in place: Yes
	Process fully enclosed: No Room size: 100 m³ Work area: Indoors Duration (mins): 180 Ventilation rate: Mechanical ventilation giving at least 1 ACH
	Respiratory protection required: No

ES 20 (Exposure Scenario 20): Use in/as De-icing/Anti-icing applications/agents (Consumer use)

ES 20 (Exposure Scenario 20). Use m/a	25 20 (Exposure Scenario 20). Use m/as De-icing/Anti-icing applications/agents (Consumer use)	
Free short title	Use in/as De-icing/Anti-icing applications/agents (Consumer use) (21)	
Systematic title based on use descriptor	ERC 8D; PC 4	
Name of contributing environmental scenario and corresponding ERC	ERC 8d Wide dispersive outdoor use of processing aids in open systems	
Name(s) of contributing consumer scenarios and corresponding PCs/ACs	PC 4 Anti-Freeze and De-icing products PC 4 Anti-Freeze and De-icing products PC 4 Anti-Freeze and De-icing products	
Contributing Scenario (1) controlling environmental exposure for ERC 8D		
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.		
Contributing Scenario (2) controlling consumer exposure for PC 4		



Name of contributing scenario	PC 4 Anti-Freeze and De-icing products
Scenario subtitle	Use in De-icing applications - spraying products-Part A. Spraying
Calculation model	ConsExpo Glass cleaner - Application: spraying
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	365 per year
Spray duration	42 sec
Dermal	·
Exposure calculation result type	Internal dose chronic
Frequency of use	365 per year
Release duration	42 sec
Product characteristics	
Spray application	yes
Product ingredient fraction by weight	100 %
Amounts used	<u>.</u>
Human factors not influenced by risk manag	ement
Exposed skin surface (dermal)	1,900 cm ²
Contact rate	46 mg/min
Other given operational conditions affecting	consumers exposure
Inhalation	
Room volume	58 m ³
Ventilation rate	0.500 1/h
Room height	2.5 m
Mass generation rate	0.780 g/s
Airborne fraction	100 %
Density non-volatile	1.8 %
Droplet distribution	LogNormal, median: 100 μm, coeff. of variation: 0.600 μm, cut-off diameter: 15 μm
Dermal	
Uptake fraction	100 %
Contributing Scenario (3) controlling consum	ner exposure for PC 4
Name of contributing scenario	PC 4 Anti-Freeze and De-icing products
Scenario subtitle	Use in De-icing applications - spraying products-Part B. Cleaning
Calculation model	ConsExpo Glass cleaner - Application: cleaning
Frequency and duration of use	
Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	365 per year
Product characteristics	
Spray application	no

LANGUAGE: ENGLISH



Product ingredient fraction by weight	100 %	
Amounts used		
Dermal	0.290 g	
Human factors not influenced by risk managemen	nt	
Exposed skin surface (dermal)	215 cm ²	
Other given operational conditions affecting const	umers exposure	
Dermal		
Uptake fraction	100 %	
Contributing Scenario (4) controlling consumer ex	xposure for PC 4	
Name of contributing scenario	PC 4 Anti-Freeze and De-icing products	
Scenario subtitle	Use in De-icing applications - Use in Anti-freezing agents	
Calculation model	Ecetoc TRA	
Frequency and duration of use		
Frequency of use	0.547945 time(s)/day	
Exposure time	0.250 h	
Product characteristics		
Spray application	no	
Product ingredient fraction by weight (inhalation)	45 %	
Product ingredient fraction by weight (dermal)	45 %	
Amounts used		
Amounts used	100 g	
Human factors not influenced by risk management		
Skin surface area dermal	hands	
Skin surface area oral	-	
Tranfer factor dermal	100 %	
Other given operational conditions affecting consumers exposure		
Room volume	20 m ³	
Release fraction to air	1.0 %	

ES 21 (Exposure Scenario 21): Use in Jahoratories (industrial)

LS 21 (Exposure Scenario 21): Use in laboratories (industrial)		
Use in laboratories (industrial) (22a)		
ERC 4; PROC 15		
ERC 4 Industrial use of processing aids		
PROC 15 - Use of laboratory reagents in small scale laboratories		
Contributing Scenario (1) controlling environmental exposure for ERC 4		
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.		
Contributing Scenario (2) controlling industrial worker exposure for PROC 15		
15 - Use of laboratory reagents in small scale laboratories		
Use in laboratories (industrial)		

LANGUAGE: ENGLISH



Product characteristics		
Physical state	liquid	
Concentration in substance	100 %	
Fugacity / Dustiness	low	
Frequency and duration of use		
Duration of activity	>4 hours (default)	
Frequency of use	5 days / week	
Human factors not influenced by risk management		
Exposed skin surface	240 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	

ES 22 (Exposure Scenario 22): Use in laboratories (professional)

LS 22 (Exposure Scenario 22): Use in laboratories (professional)		
Free short title	Use in laboratories (professional) (22b)	
Systematic title based on use descriptor	ERC 8A; PROC 15	
Name of contributing environmental scenario and corresponding ERC	ERC 8a Wide dispersive indoor use of processing aids in open systems	
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 15 - Use of laboratory reagents in small scale laboratories	
Contributing Scenario (1) controlling environmenta	d exposure for ERC 8A	
As no environmental hazard was identified no environ	mental-related exposure assessment and risk characterization was performed.	
Contributing Scenario (2) controlling professional worker exposure for PROC 15		
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories	
Scenario subtitle	Use in laboratories (professional)	
Product characteristics		
Physical state	liquid	
Concentration in substance	100 %	
Fugacity / Dustiness	low	
Frequency and duration of use		
Duration of activity	>4 hours (default)	
Frequency of use	5 days / week	
Human factors not influenced by risk management		
Exposed skin surface	240 cm ²	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	professional	

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Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	no
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no

ES 23 (Exposure Scenario 23): Use in Adhesives and Sealants (Consumer use)

	Adnesives and Sealants (Consumer use)
Free short title	Use in Adhesives and Sealants (Consumer use) (23)
Systematic title based on use descriptor	ERC 8C, 8F; PC 1
Name of contributing environmental scenario and corresponding ERC	ERC 8c Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC 8f Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Name(s) of contributing consumer scenarios and corresponding PCs/ACs	PC 1 Adhesives, Sealants
Contributing Scenario (1) controlling environme	ntal exposure for ERC 8C
Contributing Scenario (2) controlling environme	ntal exposure for ERC 8F
As no environmental hazard was identified no envir	onmental-related exposure assessment and risk characterization was performed.
Contributing Scenario (3) controlling consumer of	exposure for PC 1
Name of contributing scenario	PC 1 Adhesives, Sealants
Scenario subtitle	Mixing and Loading
Calculation model	ConsExpo Carpet glue - Application
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	0.250 per year
Exposure time	75 min
Application duration	75 min
Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	0.250 per year
Release duration	4,500 sec
Product characteristics	
Spray application	no
Product ingredient fraction by weight	0.075 %
Mol weight matrix	3,000 g/mol
Mass transfer rate	3,660 m/min
Amounts used	
Inhalation	9,000 g
Human factors not influenced by risk manageme	ent
Exposed skin surface (dermal)	110 cm ²
Contact rate	30 mg/min
Other given operational conditions affecting cons	sumers exposure

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Inhalation	
Room volume	58 m ³
Ventilation rate	0.500 1/h
Release are is constant	
Release area	$4.00E4 \text{ cm}^2$
Release temperature	25 °C
Dermal	
Uptake fraction	100 %

ES 24 (Exposure Scenario 24): Production of Polymers, filled polymers, Foams, Coatings, Adhesives, Sealants

Free short title	Production of Polymers, filled polymers, Foams, Coatings, Adhesives, Sealants (24)	
Systematic title based on use descriptor	ERC 2, 3, 5, 6C; PROC 1, 2, 3, 4, 5, 7, 8A, 8B, 9, 10, 13, 14, 15	
Name of contributing environmental scenario and corresponding ERC	ERC 2 Formulation of preparations ERC 3 Formulation in articles ERC 5 Industrial use resulting in inclusion into or onto a matrix ERC 6c Production of plastics	
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 7 - Industrial spraying PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 10 - Roller application or brushing PROC 13 - Treatment of articles by dipping and pouring PROC 14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 15 - Use of laboratory reagents in small scale laboratories	
Contributing Scenario (1) controlling env	ironmental exposure for ERC 2	
Contributing Scenario (2) controlling env	ironmental exposure for ERC 3	
Contributing Scenario (3) controlling env	ironmental exposure for ERC 5	
Contributing Scenario (4) controlling env	ironmental exposure for ERC 6C	
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.		
Product characteristics		
Physical state	liquid	
Concentration in substance	100 %	
Fugacity / Dustiness	low	
Frequency and duration of use		
Duration of activity	>4 hours (default)	
Frequency of use	5 days / week	
Contributing Scenario (5) controlling industrial worker exposure for PROC 1		
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure	
Scenario subtitle	Use in closed process, no likelihood of exposure	
Human factors not influenced by risk management		



Exposed skin surface Other given operational conditions affect Location Domain		
Location		
	l	
Domain	indoors	
	industrial	
Technical conditions and measures to con	ntrol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to person	onal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (6) controlling ind	lustrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure	
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure	
Human factors not influenced by risk ma	anagement	
Exposed skin surface	480 cm^2	
Other given operational conditions affect	ting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to con	ntrol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to person	onal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (7) controlling ind	lustrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)	
Scenario subtitle	Use in closed batch process (synthesis or formulation).	
Human factors not influenced by risk ma	anagement	
Exposed skin surface	240 cm^2	
Other given operational conditions affect	ting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to person	onal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (8) controlling industrial worker exposure for PROC 4		
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises	
Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.	
Human factors not influenced by risk ma	anagement	
	480 cm^2	

LANGUAGE: ENGLISH



Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to co	ntrol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to pers	onal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (9) controlling ind	lustrial worker exposure for PROC 5	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)	
Scenario subtitle	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).	
Human factors not influenced by risk ma	anagement	
Exposed skin surface	480 cm ²	
Other given operational conditions affec	ting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to pers	onal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
Contributing Scenario (10) controlling in	ndustrial worker exposure for PROC 7	
Name of contributing scenario	7 - Industrial spraying	
Scenario subtitle	Industrial spraying	
Human factors not influenced by risk ma	anagement	
Exposed skin surface	1,500 cm ²	
Other given operational conditions affec	ting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to co	ntrol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to pers	onal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
Use of external/measured value dermal	The RISKSOFDERM V2.1 model has been used to estimate dermal exposure.	
	The 70th percentile of the "Exposure loading per shift body" was added with the 70th percentile of the "Exposure loading per shift hand". The values given in μ l was converted into mg and divided by a body weight of 70 kg which is generally assumed for workers. In addition, appropriate body protection was considered within the calculation of the final dermal exposure value.	
	RISKOFDERM v2.1 – Process: "Spraying"	



	Physical state: Liquid Concentration of substance: 100% Vapour pressure of the substance: 0.008 hPa	
	Application rate: 1 l/min Duration of exposure: 6 hours/day Exposed skin surface: Whole body	
	Location: Inside Direction of spraying: Downward/ Level	
	Segregation: Ensure that worker is > 1 m from the source	
	Local exhaust ventilation (Direction of airflow away from the worker): yes (effectiveness: ca. 50%)	
	Use of suitable gloves with basic training: Yes (Effectiveness: 90%) Wearing of appropriate working clothes (e.g. an overall): Yes (Effectiveness: 80%)	
Use of external/measured value inhalation	The ART model has been used to estimate inhalative exposure.	
	Mechanistic model results: The predicted 75th percentile full-shift exposure is 0.27 mg/m³.	
	The inter-quartile confidence interval is 0.13 mg/m ³ to 0.57 mg/m ³ .	
	Emission sources: Far field	
	Process temperature: Room temperature	
	Vapour pressure: 8 Pa Liquid weight fraction: 1	
	Viscosity: medium (oil-like)	
	Substance product type: Liquids	
	Situation: Surface spraying of liquids, Moderate application rate (0.3 - 3 l/minute) Spray direction: Only horizontal or downward	
	Spray direction. Only nonzontal of downward Spray technique: Spraying with high compressed air use	
	Primary localized controls: LEV systems (50.00 % reduction)	
	Secondary localized controls: No (0 % reduction)	
	Segregation: Partial segregation with ventilation and filtration of recirculated air (70.00 % reduction)	
	Personal enclosure: No (0% reduction)	
	Effective housekeeping practices in place: Yes	
	Process fully enclosed: No Room size: 1000 m ³	
	Work area: Indoors	
	Duration (mins): 360	
	Ventilation rate: No restriction on general ventilation characteristics	
	Respiratory protection required: No	
Contributing Scenario (11) controlling industrial worker exposure for PROC 8A		
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	
Qualitative Risk Assessment		
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).	
Human factors not influenced by risk ma	Human factors not influenced by risk management	
Exposed skin surface	960 cm ²	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to con	trol dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)	



Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (12) controlling industrial worker exposure for PROC 8B		
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Human factors not influenced by risk man	nagement	
Exposed skin surface	960 cm^2	
Other given operational conditions affecti	ing workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to con	trol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to perso	nal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (13) controlling industrial worker exposure for PROC 9		
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)	
Scenario subtitle	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
Human factors not influenced by risk man	nagement	
Exposed skin surface	480 cm^2	
Other given operational conditions affecti	ng workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to con	trol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to perso	nal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (14) controlling industrial worker exposure for PROC 10		
Name of contributing scenario	10 - Roller application or brushing	
Scenario subtitle	Roller application or brushing	
Human factors not influenced by risk management		
Exposed skin surface	960 cm ²	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to con	trol dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)	



Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
Contributing Scenario (15) controlling in	dustrial worker exposure for PROC 13	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring	
Scenario subtitle	Treatment of articles by dipping and pouring.	
Human factors not influenced by risk ma	nagement	
Exposed skin surface	480 cm^2	
Other given operational conditions affecti	ng workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to con	trol dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)	
Conditions and measures related to perso	nal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
Contributing Scenario (16) controlling in	dustrial worker exposure for PROC 14	
Name of contributing scenario	14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation	
Scenario subtitle	Production of preparations or articles by tabletting, compression, extrusion, pelletisation.	
Human factors not influenced by risk ma	nagement	
Exposed skin surface	480 cm^2	
Other given operational conditions affecti	ing workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to con	trol dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (17) controlling industrial worker exposure for PROC 15		
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories	
Scenario subtitle	Use as laboratory reagent	
Human factors not influenced by risk management		
Exposed skin surface	240 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		

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Protective gloves	No
Respiratory protection	no

ES 25 (Exposure Scenario 25): Production of rigid foam (Consumer use)

Free short title	Production of rigid foam (Consumer use) (25)
Systematic title based on use descriptor	ERC 8C, 8F; PC 32
Name of contributing environmental scenario and corresponding ERC	ERC 8c Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC 8f Wide dispersive outdoor use resulting in inclusion into or onto a matrix
Name(s) of contributing consumer scenarios and corresponding PCs/ACs	PC 32 Polymer Preparations and Compounds
Contributing Scenario (1) controlling environ	nmental exposure for ERC 8C
Contributing Scenario (2) controlling environ	nmental exposure for ERC 8F
As no environmental hazard was identified no e	nvironmental-related exposure assessment and risk characterization was performed.
Contributing Scenario (3) controlling consum	ner exposure for PC 32
Name of contributing scenario	PC 32 Polymer Preparations and Compounds
Scenario subtitle	Production of rigid foam (Consumer use)
Calculation model	ConsExpo Insulation foam - Application
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	0.200 per year
Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	0.200 per year
Product characteristics	
Spray application	no
Product ingredient fraction by weight	5 %
Amounts used	
Inhalation	825 g
Dermal	0.250 g
Human factors not influenced by risk manag	ement
Exposed skin surface (dermal)	1,900 cm ²
Other given operational conditions affecting	consumers exposure
Inhalation	
Room volume	57.5 m ³
Ventilation rate	1.5 1/h
Dermal	
Uptake fraction	100 %

ES 26 (Exposure Scenario 26): Use in Water-treatment chemicals (industrial)

Free short title	Use in Water-treatment chemicals (industrial) (26)



Systematic title based on use descriptor	ERC 3, 4; PROC 1, 2, 3, 4, 8A, 8B, 13
Name of contributing environmental scenario and corresponding ERC	ERC 3 Formulation in articles ERC 4 Industrial use of processing aids
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 13 - Treatment of articles by dipping and pouring
Contributing Scenario (1) controlling	environmental exposure for ERC 3
Contributing Scenario (2) controlling	environmental exposure for ERC 4
As no environmental hazard was identified	ed no environmental-related exposure assessment and risk characterization was performed.
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	low
Frequency and duration of use	
Duration of activity	>4 hours (default)
Frequency of use	5 days / week
Contributing Scenario (3) controlling	industrial worker exposure for PROC 1
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Scenario subtitle	Use in closed process, no likelihood of exposure
Human factors not influenced by risk	management
Exposed skin surface	240 cm^2
Other given operational conditions aff	Cecting workers exposure
Location	indoors
Domain	industrial
Technical conditions and measures to	control dispersion and exposure
Local exhaust ventilation	no
Conditions and measures related to po	ersonal protection, hygiene and health evaluation
Protective gloves	No
Respiratory protection	no
Contributing Scenario (4) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	Use in closed, continuous process with occasional controlled exposure
Human factors not influenced by risk management	
Exposed skin surface	480 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to	control dispersion and exposure



Local exhaust ventilation	no	
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (5) controlling	industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)	
Scenario subtitle	Use in closed batch process (synthesis or formulation).	
Human factors not influenced by risk	management	
Exposed skin surface	240 cm^2	
Other given operational conditions aff	fecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (6) controlling	industrial worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises	
Scenario subtitle	Use in batch and other process (synthesis) where opportunity for exposure arises.	
Human factors not influenced by risk	management	
Exposed skin surface	480 cm^2	
Other given operational conditions aff	fecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (7) controlling	industrial worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	
Qualitative Risk Assessment		
General	In case no suitable local exhaust ventilation is present: Wear a suitable respiratory protection with adequate effectiveness (90%).	
Human factors not influenced by risk management		
Exposed skin surface	960 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	

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Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)	
Conditions and measures related to po	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (8) controlling	Contributing Scenario (8) controlling industrial worker exposure for PROC 8B	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
Human factors not influenced by risk	management	
Exposed skin surface	960 cm ²	
Other given operational conditions aff	fecting workers exposure	
Location	indoors	
Domain	industrial	
Technical conditions and measures to	control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to pe	ersonal protection, hygiene and health evaluation	
Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (9) controlling	industrial worker exposure for PROC 13	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring	
Scenario subtitle	Treatment of articles by dipping and pouring.	
Human factors not influenced by risk	management	
Exposed skin surface	480 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Domain	industrial	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	yes (inhalation 90 %)	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	

ES 27 (Exposure Scenario 27): Use in Water-treatment chemicals (professional)

Free short title	Use in Water-treatment chemicals (professional) (27)
Systematic title based on use descriptor	ERC 8F; PROC 1, 2, 3, 4, 8A, 8B, 13
Name of contributing environmental scenario and corresponding ERC	ERC 8f Wide dispersive outdoor use resulting in inclusion into or onto a matrix

LANGUAGE: ENGLISH



Name(s) of contributing worker senarios and corresponding PROS PROC 1 - Use in closed process, no likelihood of exposure PROC 3 - Use in closed, on those process (synthesis or formulation) PROC 4 - Use in banch and other process (synthesis) where opportunity for exposure arises pROC 8a - Transfer of chemicals from/to vessels/ large containers at ond delicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 8a - Vessels and Processor seasons assessment and risk characterization was performed. Forduct characteristics Forduct characteristics Forduct characteristics Forduct characte		
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed. Product characteristics Physical state liquid Concentration in substance 100 % Progucity / Dustiness 100 w Prequency and duration of use Duration of activity 24 hours (default) Prequency of use 5 days / week Contributing Scenario (2) controlling professional worker exposure for PROC 1 Name of contributing scenario 1 - Use in closed process, no likelihood of exposure Human factors not influenced by risk management Exposed skin surface 240 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Protective gloves No Respiratory protection 0 - Contributing Scenario (3) controlling professional worker exposure No Contributing scenario (3) controlling professional worker exposure Location no Contributing scenario (3) controlling professional worker exposure Location no Contributing scenario (3) controlling professional worker exposure Location no Contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (40 cm² Conditions and measures tested to professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional wo		PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics Physical state Dougland Dou	Contributing Scenario (1) controlling	environmental exposure for ERC 8F
Physical state Diquid	As no environmental hazard was identifi	ed no environmental-related exposure assessment and risk characterization was performed.
Concentration in substance 100 % Fugacity / Dustiness low Frequency and duration of use Duration of activity >4 hours (default) Prequency of use 5 days / week Contributing Scenario (2) controlling professional worker exposure for PROC 1 Name of contributing scenario 1 - Use in closed process, no likelihood of exposure Buman factors not influenced by risk management Exposed skin surface 240 cm² Other given operational conditions attering workers exposure Location indoors Local exhaust ventilation professional Technical conditions and measures related to process in all exposure Local exhaust ventilation no Conditions and measures related to process in all protection, hygiene and health evaluation Protective gloves No Respiratory protection po Contributing Scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario 2 - Use in closed, continuous process with occasional controlled exposure Exposed skin surface 480 cm²	Product characteristics	
Piggacity / Dustiness low Frequency and duration of use Duration of activity >4 hours (default) Frequency of use 5 days / week Contributing Scenario (2) controllumy professional worker exposure for PROC 1 Name of contributing scenario (2) controllumy professional worker exposure for PROC 1 Mame of contributing scenario (2) controllumy professional worker exposure Exposed skin surface 240 cm² Other given operational conditions articles workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to professional protection, hygiene and health evaluation Protective gloves No Respiratory protection Respiratory protection no Contributing Scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario 2 - Use in closed, continuous process with occasional controlled exposure Exposed skin surface 480 cm² Other given operational conditions are industribution in indoors	Physical state	liquid
Duration of activity >4 hours (default) Frequency of use 5 days / week Contributing Scenario (2) controlling professional worker exposure for PROC 1 Name of contributing scenario 1 - Use in closed process, no likelihood of exposure Exposed skin surface 240 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures related to process and health evaluation Conditions and measures related to process and the alth occasional controlled exposure Local shaust ventilation no Contributing Scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario (3) controlling professional worker exposure for PROC	Concentration in substance	100 %
Duration of activity 54 hours (default) Frequency of use 5 days / week Contributing Scenario (2) controlling professional worker exposure for PROC 1 Name of contributing scenario 1 - Use in closed process, no likelihood of exposure Scenario subtitle Use in closed process, no likelihood of exposure Human factors not influenced by risk management Exposed skin surface 240 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection 10 contributing Scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario 2 - Use in closed, continuous process with occasional controlled exposure Exposed skin surface 480 cm² Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting worker exposure Location indoors Domain professional Technical conditions and measures to turol dispersion and exposure Location indoors Domain professional Technical conditions and measures to turol dispersion and exposure Location indoors Domain professional Technical conditions and measures to turol dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No	Fugacity / Dustiness	low
Frequency of use 5 days / week Contributing Scenario (2) controlling professional worker exposure for PROC 1 Name of contributing scenario 1 - Use in closed process, no likelihood of exposure Becanario subtitle Use in closed process, no likelihood of exposure Human factors not influenced by risk management Exposed skin surface 240 cm² Other given operational conditions artering workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to professional protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (3) controlling professional worker exposure for PROC 2 Name of contributing scenario 2 - Use in closed, continuous process with occasional controlled exposure Buman factors not influenced by risk management Exposed skin surface 480 cm² Other given operational condit	Frequency and duration of use	
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Respiratory protection no	Conditions and measures related to personal protection, hygiene and health evaluation	
	Protective gloves	No
Contributing Scenario (4) controlling professional worker exposure for PROC 3	Respiratory protection	no
	Contributing Scenario (4) controlling	professional worker exposure for PROC 3

LANGUAGE: ENGLISH



Scenario subtitle Use in closed batch process (synthesis or formulation). Human factors not influenced by risk management Exposed skin surface 240 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure Local exhaust ventilation no Conditions and measures related to personal protection, hygiene and health evaluation Protective gloves No Respiratory protection no Contributing Scenario (5) controlling professional worker exposure for PROC 4 Name of contributing scenario 4 - Use in batch and other process (synthesis) where opportunity for exposure arises. Human factors not influenced by risk management Exposed skin surface 480 cm² Other given operational conditions affecting workers exposure Location indoors Ventilation good (30%) Domain professional professional and exposure Location professional measures related to personal protection, hygiene and health evaluation Protective gloves No Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Frotective gloves No Contributing Scenario (6) controlling professional worker exposure for PROC 8A Name of contributing scenario (6) controlling professional worker exposure for PROC 8A Name of contributing scenario (6) controlling professional worker exposure for PROC 8A Name of contributing scenario (6) con	Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)	
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Contributing Scenario (6) controlling professional worker exposure for PROC 8A Name of contributing scenario Scenario subtitle Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection. Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain Technical conditions and measures to control dispersion and exposure	Protective gloves	No	
Name of contributing scenario 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection. Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure	Respiratory protection	no	
Scenario subtitle Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection. Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure	Contributing Scenario (6) controlling	professional worker exposure for PROC 8A	
non-dedicated facilities. Qualitative Risk Assessment General In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection. Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure	Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities	
General In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection. Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure	Scenario subtitle		
Wear suitable respiratory protection. Human factors not influenced by risk management Exposed skin surface 960 cm² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure	Qualitative Risk Assessment		
Exposed skin surface 960 cm ² Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure	General		
Other given operational conditions affecting workers exposure Location indoors Domain professional Technical conditions and measures to control dispersion and exposure	Human factors not influenced by risk management		
Location indoors Domain professional Technical conditions and measures to control dispersion and exposure	Exposed skin surface	960 cm ²	
Domain professional Technical conditions and measures to control dispersion and exposure	Other given operational conditions affecting workers exposure		
Technical conditions and measures to control dispersion and exposure	Location	indoors	
	Domain	professional	
Local exhaust ventilation ves (inhalation 80 %)	Technical conditions and measures to control dispersion and exposure		
Jes (minimum of 70)	Local exhaust ventilation	yes (inhalation 80 %)	
Conditions and measures related to personal protection, hygiene and health evaluation	Conditions and measures related to po	ersonal protection, hygiene and health evaluation	

LANGUAGE: ENGLISH



Protective gloves	No	
Respiratory protection	no	
Contributing Scenario (7) controlling	g professional worker exposure for PROC 8B	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities	
Scenario subtitle	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.	
Qualitative Risk Assessment		
General	In case no suitable local exhaust ventilation is present: Wear suitable respiratory protection.	
Human factors not influenced by risl	k management	
Exposed skin surface	960 cm ²	
Other given operational conditions a	ffecting workers exposure	
Location	indoors	
Ventilation	good (30%)	
Domain	professional	
Technical conditions and measures to	o control dispersion and exposure	
Local exhaust ventilation	no	
Conditions and measures related to p	personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	
Contributing Scenario (8) controlling	professional worker exposure for PROC 13	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring	
Scenario subtitle	Treatment of articles by dipping and pouring.	
Human factors not influenced by risl	x management	
Exposed skin surface	480 cm^2	
Other given operational conditions affecting workers exposure		
Location	indoors	
Ventilation	good (30%)	
Domain	professional	
Technical conditions and measures to control dispersion and exposure		
Local exhaust ventilation	no	
Conditions and measures related to personal protection, hygiene and health evaluation		
Protective gloves	Gloves APF 10 90 %	
Respiratory protection	no	

END OF SAFETY DATA SHEET