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

1.1 Product identifier

1.1.1 Commercial Product Name

Methanol

1.1.2 Product code

Substance name: Methanol
EC No.: 200-659-6
CAS No.: 67-56-1

REACH Registration Number

01-2119433307-44-0058

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

1.2.1 Recommended use

Industrial uses:

Use as an intermediate/Use as an process chemical, Distribution of the substance, Formulation and (re)packing of substances and mixtures, Use as a fuel, Industrial use in cleaning agents, Use as a laboratory reagent in industrial settings, Industrial use in wastewater treatment processes

Professional uses:

Use as a fuel, Professional use in cleaning agents, Use as a laboratory reagent in professional settings, Professional use as oilfield chemical (addition to water based drilling agents)

Consumer uses:

Consumer use of cleaning agents and de-icers (liquid products), Consumer use of cleaning agents and de-icers (spray products), Consumer use of fuels indoors (Domestic/hobby use e.g. in model engines, fuel cells, fondue sets), Consumer use of fuels outdoors (gasoline additive)

1.3 Details of the supplier of the safety data sheet

1.3.1 Supplier

1.3.2 Distributor:
(responsible for marketing)

VIA-REK, a.s.
Ol. Blažka 145
679 02 Rájec-Jestřebí Czech Republic
tel.: +420 516 499 945 / +420 516 499 955
fax: +420 516 499 948 / +420 516 499 933
web: www.via-rek.cz
e-mail: expedice@via-rek.cz

1.4 Emergency telephone number

1.4.1 Telephone number, name and address

Toxicological info center, Na Bojisti 1, 120 00 Praha 2, Czech Republic, +420 224 919 293, +420 224 915 402 (nonstop), e-mail: tis@mbox.cesnet.cz,

SECTION 2. HAZARDS IDENTIFICATION

This substance is classified as hazardous in accordance with the CLP Regulation (EC) No.1272/2008. This is a highly flammable liquid. Substance is also toxic if swallowed, toxic in contact with skin and toxic if inhaled. Substance causes damage to organs (Route of exposure: oral, inhalation). See specific concentration limits in section 16.4.

2.1 Classification of the substance or mixture

1272/2008 (CLP)

Flam. Liq. 2, H225
Acute Tox. 3, H331
Acute Tox. 3, H311
Acute Tox. 3, H301
STOT SE 1, H370

2.2 Label elements

1272/2008 (CLP)

GHS08 - GHS06 - GHS02

Signal word **Danger**

Hazard Statements

H225	Highly flammable liquid and vapour.
H331	Toxic if inhaled.
H311	Toxic in contact with skin.
H301	Toxic if swallowed.
H370	Causes damage to organs. Route of exposure: oral, inhalation

Precautionary Statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

2.3 Other hazards

This substance is not a PBT or vPvB.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

This substance has been registered as a monoconstituent substance under REACH.

CAS/EC and Reg.number	EINECS	Chemical name of the substance	Concentration	Classification
67-56-1	200-659-6	Methanol	100 %	**CLP**: Flam. Liq. 2, H225; Acute Tox. 3, H331; Acute Tox. 3, H311; Acute Tox. 3, H301; STOT SE 1, H370

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

Immediately remove contaminated clothing. First aid personnel should pay attention to their own safety.

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

4.1.3 Skin contact
Immediately wash thoroughly with soap and water, seek medical attention.

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

4.1.5 Ingestion
Rinse mouth immediately and then drink plenty of water, induce vomiting, seek medical attention. Administer 50 ml of pure ethanol in a drinkable concentration. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed
Symptoms: Single large oral doses may result in such adverse effects as:, disturbance of vision, skin irritation

4.3 Indication of immediate medical attention and special treatment needed
Treatment: Symptomatic treatment (decontamination, vital functions).

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media

5.1.1 Suitable extinguishing media
Water, dry extinguishing media, carbon dioxide, alcohol-resistant foam.

5.1.2 Extinguishing media which must not be used for safety reasons
No data available.

5.2 Special hazards arising from the substance or mixture
Carbon monoxide, carbon dioxide.The substances/groups of substances mentioned can be released in case of fire.

5.3 Advice for firefighters
Special protective equipment: Wear self-contained breathing apparatus and chemical-protective clothing.

5.4 Specific methods
Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. If exposed to fire, keep containers cool by spraying with water.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid contact with the skin, eyes and clothing. Avoid inhalation. Take off immediately all contaminated clothing

6.2 Environmental precautions
Avoid release to environment.

6.3 Methods and materials for containment and cleaning up
For small amounts: Contain with absorbent material (e.g. sand, silica gel, acid binder, general purpose binder, sawdust).For large amounts: Contain with absorbent material (e.g. sand, silica gel, acid binder, general purpose binder, sawdust).

6.4 Reference to other sections
See also section 8.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Protection against fire and explosion: If exposed to fire, keep containers cool by spraying with water. Vapours may form explosive mixture with air. Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy. Containers should be earthed during decanting operations.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a cool, well-ventilated place.

7.3 Specific end use(s)

A complete quantitative exposure assessment has been performed for human health hazards for end uses specified in section 1.2. For worker's human health exposure ECETOC TRA was used for the exposure calculations. For consumer's human health exposure ConsExpo was used for the exposure calculations.

In the chemical safety assessment performed according to Article 14(3) in connection Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation for the environment is not necessary. Consequently all identified uses of the substance are assessed as safe for the environment.

The exposure scenarios (ES) communicate all operational conditions and risk management measures necessary to ensure safe use of the substance. See further information in Annexes of this SDS. The following uses are covered by the exposure scenarios:

Industrial uses:
ES1 Use as an intermadiate/Use as an process chemical
ES2 Distribution of the substance
ES3 Formulation and (re)packing of substances and mixtures
ES4 Use as a fuel
ES6 Industrial use in cleaning agents
ES8 Use as a laboratory reagent in industrial settings
ES10 Industrial use in wastewater treatment processes

Professional uses:
ES5 Use as a fuel
ES7 Professional use in cleaning agents
ES9 Use as a laboratory reagent in professional settings
ES11 Professional use as oilfield chemical (addition to water based drilling agents),

Consumer uses:
ES12 Consumer use of cleaning agents and de-icers (liquid products)
ES13 Consumer use of cleaning agents and de-icers (spray products),
ES 14 Consumer use of fuels indoors (Domestic/hobby use e.g. in model engines, fuel cells, fondue sets),
ES 15 Consumer use of fuels outdoors (gasoline additive)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.2 Other information on limit values

TLV-TWA: 200 ppm, skin
STEL: 250 ppm, skin notation
OSHA PEL: 200 ppm

8.1.4 DNELs

DNELs for workers:

Acute -systemic effects, Dermal; DNEL: 40 mg/kg bw/day.
Acute -systemic effects, Inhalation; DNEL: 260 mg/m^3.
Acute -local effects, Inhalation; DNEL: 260 mg/m^3.
Long term -systemic effects, Dermal; DNEL: 40 mg/kg bw/day.
Long term -local effects, Inhalation; DNEL: 260 mg/m^3.

Most sensitive endpoint is acute toxicity.
Other routes are not quantifiable.

DNELs for general population:

Acute -systemic effects, Dermal; DNEL: 8 mg/kg bw/day.
Acute -systemic effects, Inhalation; DNEL: 50 mg/m^3.
Acute -systemic effects, Oral; DNEL: 8 mg/kg bw/day.
Acute -local effects, Inhalation; DNEL: 50 mg/m^3.
Long term -systemic effects, Dermal; DNEL: 8 mg/kg bw/day.
Long term -systemic effects, Inhalation; DNEL: 50 mg/m^3.
Long term -systemic effects, Oral; DNEL: 8 mg/kg bw/day.
Long term -local effects, Inhalation; DNEL: 50 mg/m^3.

Most sensitive endpoint is acute toxicity.
Other routes are not quantifiable.

8.1.5 PNECs

PNEC aqua - freshwater: 154 mg/L. Based on the lowest acute E(L)C50 test result for *Lepomis macrochirus*; 15400 mg/l. Assessment factor AF=100.
PNEC aqua -marine water: 15.4 mg/L. Based on the lowest acute E(L)C50 test result for *Lepomis macrochirus*; 15400 mg/l. Assessment factor AF= 1000.
PNEC aqua -intermittent releases: 1540 mg/L. Based on the lowest acute E(L)C50 test result for *Lepomis macrochirus*; 15400 mg/l. Assessment factor AF= 10.

PNEC sediment: 570.4 mg/kg d.w. The PNEC sediment was derived from the PNEC water using the equilibrium partitioning method.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

In confined areas, local and general ventilation should be provided to maintain airborne concentrations beloew permissable exposure limits. Ventilation systems must be designed according to approved engineering standards.

8.2.2 Individual protection measures

8.2.2.1 Respiratory protection

Wear suitable respiratory protection.

8.2.2.2 Hand protection

Butyl and nitrile rubbers are recommended for gloves. Check with manufacturer.

8.2.2.3 Eye/face protection

Face shield and chemical splash goggles when transferring is taking place.

8.2.2.4 Skin protection

Wear chemical resistant pants and jackets, preferably of butyl or nitrile rubber. Check with manufacturer.

8.2.3 Environmental exposure controls

No data available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1	**Important Health Safety and Environmental Information**	
9.1.1	**Appearance**	Colourless liquid.
9.1.2	**Odour**	Pungent.
9.1.3	**Odour threshold**	No data available.
9.1.4	**pH**	No data available.
9.1.5	**Melting point/freezing point**	-97.8 °C
9.1.6	**Initial boiling point and boiling range**	64.7°C
9.1.7	**Flash point**	9.7 °C at 1013 hPa
9.1.8	**Evaporation rate**	No data available.
9.1.9	**Flammability (solid, gas)**	Highly flammable liquid
9.1.10	**Explosive properties**	
9.1.10.1	**Lower explosion limit**	There are no chemical groups associated with explosive properties present in the molecule.
9.1.10.2	**Upper explosion limit**	There are no chemical groups associated with explosive properties present in the molecule.
9.1.11	**Vapour pressure**	169.27 hPa at 25°C,
9.1.12	**Vapour density**	No data available.
9.1.13	**Relative density**	0.79 to 0.8
9.1.14	**Solubility(ies)**	
9.1.14.1	**Water solubility**	Substance is completly miscible in water at 20°C.
9.1.14.2	**Fat solubility (solvent - oil to be specified)**	No data available.
9.1.15	**Partition coefficient: n-octanol/water**	- 0.77 (log value)
9.1.16	**Auto-ignition temperature**	455°C at 1013 hPa
9.1.17	**Decomposition temperature**	No data available.
9.1.18	**Viscosity**	0.544- 0.59 mPa s at 25°C
9.1.19	**Explosive properties**	There are no chemical groups associated with explosive properties present in the molecule.
9.1.20	**Oxidising properties**	Substance is incapable of reacting exothermically with combustible materials.

9.2 **Other information**
No other information.

SECTION 10. STABILITY AND REACTIVITY

10.1 **Reactivity**
Reactive in presence of incompatible materials and ignition sources.

10.2 **Chemical stability**
Stable under normal conditions.

10.3 **Possibility of hazardous reactions**
Contact with incompatible materials may cause a violent or explosive reaction.

10.4 **Conditions to avoid**
Incompatible materials.

10.5 **Incompatible materials**

Avoid contact with strong oxidizers, strong mineral or organic acids, and strong bases. Contact with these materials may cause a violent or explosive reaction. May be corrosive to lead, aluminum, magnesium, and platinum.

10.6 Hazardous decomposition products

Formaldehyde, carbon dioxide, and carbon monoxide.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Substance is classified as acutely toxic by oral, dermal and inhalative exposure, and as capable of inducing serious irreversible effects upon single exposure by all of these routes.

11.1.1 Acute toxicity

LD50/oral/rat: >1187-2769 mg/kg bw. (Study performed according to internal company standards (BASF-test) before actual guideline was adopted)
LD50/dermal/rabbit: 17100 mg/kg bw (No information about the guideliine followed)
LD50/inhalation/rat: 128200 mg/m^3, 4 hour exposure. (Study performed according to internal company standards (BASF-test) before actual guideline was adopted)

Acute toxicity category 3: toxic if swallowed; toxic in contact with skin; toxic if inhaled.

11.1.2 Irritation and corrosion

Skin: not irritating (rabbit)
Eyes: not irritating (rabbit)

11.1.3 Sensitisation

Not sensitising.

11.1.4 Subacute, subchronic and prolonged toxicity

Repeated dose toxicity

Oral: LOAEL subacute = 2340 mg/kg/bw in monkeys (mortality 7/7 after 3 d exposure)
Inhalation: NOAEC chronic = 0.013 mg/L air in monkeys (7 to 29 months exposure)

Classified as STOT single exposure category 1 (route of exposure: oral, inhalation); May cause damage to organs.

Mutagenicity

Genetic toxicity: negative

Carcinogenicity

From the present evaluation it is concluded that methanol is not needed to be classified as a carcinogen.

Toxicity for reproduction

NOAEC (maternal toxicity) = 1.3 mg/L for rats
NOAEC (teratogenicity = 1.3 mg/L for rats
NOAEC (maternal toxicity) = 2.39 mg/L for monkeys
NOAEC (teratogenicity) = 2.39 mg/L for monkeys
Negative for spermatozoa morphological anomalies: NOAEL (oral) = 1000 mg/kg bw/day

No impairment of fertility and reproductive performance was found in male and female rats (parent and daughter generations) exposed to methanol.

11.1.5 STOT-single exposure

STOT single exposure category 1 (route of exposure: oral, inhalation); May cause damage to organs. See section 11.1.4.

11.1.6 STOT-repeated exposure

Not classified due to data which are conclusive although insufficient for classification.

11.1.7 Aspiration hazard

Not classified due to data which are conclusive although insufficient for classification.

11.1.8 Other information on acute toxicity

No data available.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

12.1.1 Aquatic toxicity

Results on aquatic toxicity in freshwater:

Acute Toxicity

Fish, *Lepomis macrochirus*, LC50 (96h):15400 mg/L.
Aquatic invertebrates, *Daphnia magna,* EC50(48h): >10000 mg/L
Algae, *Pseudokirchnerella subcapitata,* EC50 (96 h): ca. 22000 mg/L

Long-term Toxicity

Fish, *Oryzias latipes,* EC10/LC10 or NOEC: 7900 mg/L

12.1.2 Toxicity to other organisms

This information is not available.

12.2 Persistence and degradability

12.2.1 Biodegradation

Methanol is readily biodegradable in freshwater based on the results of standard ready tests that show 71.5- 95 percent removal after 5 and 20 days, respectively. In marine water degradation rates were found between 69 - 97 %

CO2 evolution test; biodegradation was 53.4 and 46.3 % after 5 days under aerobic and anaerobic conditions, respectively.

12.2.2 Chemical degradation

Methanol is degraded in the atmosphere by photochemical, hydroxyl-radical dependent reactions. Dissipation half-life of parent compound in air in days: 17.

12.3 Bioaccumulative potential

Methanol does not significantly bioaccumulate in fish. Experimental BCFs of < 10 in fish species, including Cyprinus carpio and Leuciscus idus, have been reported. These results are expected because methanol has a high water solubility and a low octanol-water partition coefficient ; log Kow = - 0.82 to - 0.64.

12.4 Mobility in soil

Methanol is highly soluble in water and it has low adsorption potential to soil, so it is expected to be very mobile in soil.

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

No data available.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste must be classified and labelled prior to recycling or disposal. Waste codes for the product wastes in accordance with European waste catalogue (EWC) should be assigned by the user.

13.1 Waste treatment methods

Dispose of in accordance with waste classification. Primary waste management option for the unused substance and contaminated packaging is hazardous waste incineration. Refer to local or national waste management regulations.

Waste from residues / unused products

Dispose of as hazardous waste. Proposed waste code (EWC) for contaminated packing is:
15 01 10* Packing containing residues of or contaminated by dangerous substances

SECTION 14. TRANSPORT INFORMATION

14.1	**UN number**	1230
14.2	**UN proper shipping name**	METHANOL
14.3	**Transport hazard class(es)**	3. Label: 3 (6.1)
14.4	**Packing group**	II

14.5 Environmental hazards

Based on the available data the classification criteria for environmental hazard is not met.
Marine pollutant: No.

14.6 Special precautions for users

IMDG:
EmS Number 1 : F-E; EmS Number 2 : S-D

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available.

SECTION 15. REGULATORY INFORMATION

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

No data available.

15.2 Chemical safety assessment

Chemical Safety Assessment has been carried out according to REACH regulation (EC) No 1907/2006.

SECTION 16. OTHER INFORMATION

16.1 Additions, Deletions, Revisions

Version 1.0, all sections aligned with the REACH Chemical Safety Report.
This safety data sheet is drawn up to comply with the requirements of Regulation (EC) No. 1907/2006 (REACH), as amended by Annex II to Commission Regulation (EU) No. 2015/830 of 28 May 2015.

16.2 Key or legend to abbreviations and acronyms

CLP - Regulation (EC) No. 1272/2008
DSD - Classification and labelling according to Directive 67/548/EEC
BCF - Bioconcentration factor
DNEL - Derived no-effect level
EC50 - Concentration of the substance that causes 50 percent reduction of a certain effect on test organism LC50 - Concentration of the substance that causes 50 % mortality of the test organisms
LD50 - Lethal dose of the substance that causes 50 % mortality of the test population NOAEC - No Observed Adverse Effect Concentration NOEC - No Observed Effect Concentration
LOAEL - Lowest Observed Adverse Effect Level PBT/vPvB - Persistent, bioaccumulative and toxic/ very persistent and very bioaccumulative PNEC - Predicted no-effect concentration
OSHA PEL- Occupational Safety and Health Administration Permissible Exposure Level
STEL- Short Term Exposure Limit
TLV-TWA- Threshold limit value - Time weighted average

16.3 Key literature references and sources for data

Chemical Safety Report, Methanol.

16.4 Classification procedure

Specific concentration limits:
STOT SE 1; H370: C ≥ 10 %
STOT SE 2; H371: 3 % ≤ C < 10 %

16.6 Emergency telephone number

Europe-wide emergency number: 112

Contact a poison control centre. List of Telephone Numbers :

AUSTRIA (Vienna Wien) +43 1 406 43 43; **BELGIUM** (Brussels Bruxelles) +32 70 245 245; **BULGARIA** (Sofia) + 359 2 9154 409; **CZECH REPUBLIC** (Prague Praha) +420 224 919 293; **DENMARK** (Copenhagen) 82 12 12 12; ESTONIA (Tallinn) 112; **FINLAND** (Helsinki) +358 9 471 977; **FRANCE** (Paris) +33 1 40 0548 48; **GERMANY** (Berlin) +49 30 19240; **GREECE** (Athens Athinai) +30 10 779 3777; **HUNGARY** (Budapest) 06 80 20 11 99; **ICELAND** (Reykjavik) +354 525 111, +354 543 2222; **IRELAND** (Dublin) +353 1 8379964; **ITALY** (Rome) +39 06 305 4343; **LATVIA** (Riga) +371 704 2468; **LITHUANIA** (Vilnius) +370 5 236 20 52 or +370 687 53378; **MALTA** (Valletta) 2425 0000; **NETHERLANDS** (Bilthoven) +31 30 274 88 88; **NORWAY** (Oslo) 22 591300; **POLAND** (Gdansk) +48 58301 65 16 or +48 58 349 2831; **PORTUGAL** (Lisbon Lisboa) 808 250 143; **ROMANIA** (Bucharest) +40 21 3183606 **SLOVAKIA** (Bratislava) +421 2 54 77 4166; **SLOVENIA** (Ljubljana) + 386 41 650 500; **SPAIN** (Barcelona) +34 93 227 98 33 or +34 93 227 54 00 bleep 190; **SWEDEN** (Stockholm) 112 or +46 8 33 12 31 (mon-fri 9.00-17.00); **UNITED KINGDOM** (London) 112 or 0845 4647 (NHS Direct).

Date: 08/09/2016
Previous date: 11/09/2013

Scenario 1: Manufacture of the substance/Use as an intermediate/Use as an process chemical

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Manufacture of the substance/Use as an intermediate/Use as an process chemical*.

Description of ES 1

Free short title	Manufacture of the substance/Use as an intermediate/Use as an process chemical
Systematic title based on use descriptor	ERC 1, 4, 6A, 6B; PROC 1, 2, 3, 4, 8A, 8B, 15
Name of contributing environmental scenario and corresponding ERC	ERC 1 Production of chemicals ERC 4 Industrial use of processing aids ERC 6a Industrial use of intermediates ERC 6b Industrial use of reactive processing aids

Date: 08/09/2016
Previous date: 11/09/2013

Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) 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 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 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 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 15 - Use of laboratory reagents in small scale laboratories PROC 15 - Use of laboratory reagents in small scale laboratories
9.1.1 Contributing Scenario (1) controlling environmental exposure for ERC 1	
9.1.2 Contributing Scenario (2) controlling environmental exposure for ERC 4	
9.1.3 Contributing Scenario (3) controlling environmental exposure for ERC 6A	
9.1.4 Contributing Scenario (4) controlling environmental exposure for ERC 6B	
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.	

Date: 08/09/2016
Previous date: 11/09/2013

9.1.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
9.1.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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

Date: 08/09/2016
Previous date: 11/09/2013

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
9.1.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.1.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high

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	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 5 80 %
Respiratory protection	no
9.1.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.1.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 3	

Date: 08/09/2016
Previous date: 11/09/2013

Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.1.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	480 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 personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.1.12 Contributing Scenario (12) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.1.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high

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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 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 5 80 %
Respiratory protection	no

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9.1.14 Contributing Scenario (14) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.1.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 8B	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 exposure	

Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.1.16 Contributing Scenario (16) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.1.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 15	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Product characteristics	
Physical state	liquid
Concentration in substance	100 %

Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.1.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 15	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %

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Respiratory protection	no

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Scenario 2: Distribution of the substance

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Distribution of the substance*.

Description of ES 2

Free short title	Distribution of the substance
Systematic title based on use descriptor	ERC 1, 2; PROC 1, 2, 3, 4, 8A, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 1 Production of chemicals ERC 2 Formulation of preparations

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Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) 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 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 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 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 9 - Transfer of chemicals into small containers (dedicated filling line)
9.2.1 Contributing Scenario (1) controlling environmental exposure for ERC 1	
9.2.2 Contributing Scenario (2) controlling environmental exposure for ERC 2	
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.	
9.2.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure

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Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
9.2.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
9.2.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.2.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.2.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.2.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Short-term calculation

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Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.2.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.2.10 Contributing Scenario (10) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.2.11 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
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.2.12 Contributing Scenario (12) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.2.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 8B	

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Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.2.14 Contributing Scenario (14) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 exposure	
Location	indoors

Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.2.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 9	
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.2.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 9	
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high

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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	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 5 80 %
Respiratory protection	no

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Scenario 3: Formulation and (re)packing of substance and mixtures

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Formulation and (re)packing of substance and mixtures*.

Description of ES 3

Free short title	Formulation and (re)packing of substance and mixtures
Systematic title based on use descriptor	ERC 2; PROC 1, 2, 3, 4, 8A, 8B, 9, 15
Name of contributing environmental scenario and corresponding ERC	ERC 2 Formulation of preparations

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Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) 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 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 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 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 9 - Transfer of chemicals into small containers (dedicated filling line) PROC 15 - Use of laboratory reagents in small scale laboratories PROC 15 - Use of laboratory reagents in small scale laboratories
9.3.1 Contributing Scenario (1) controlling environmental exposure for ERC 2	

As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.	
9.3.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
9.3.3 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
9.3.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.3.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid

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Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.3.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %

Respiratory protection	no
9.3.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.3.8 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
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.3.9 Contributing Scenario (9) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.3.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Product characteristics	
Physical state	liquid

Concentration in substance	100 %
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.3.11 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)

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Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.3.12 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
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.3.13 Contributing Scenario (13) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.3.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 9	
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.3.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 9	
Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Scenario subtitle	Short-term calculation

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Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.3.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 15	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)

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Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.3.17 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

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Scenario 4: Industrial use as wastewater treatment chemical

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Industrial use as wastewater treatment chemical*.

Description of ES 4

Free short title	Industrial use as wastewater treatment chemical
Systematic title based on use descriptor	ERC 7; PROC 2
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 2 - Use in closed, continuous process with occasional controlled exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure
9.4.1 Contributing Scenario (1) controlling environmental exposure for ERC 7	
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.	
9.4.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.4.3 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no

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Scenario 5: Industrial use in cleaning agents

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Industrial use in cleaning agents*.

Description of ES 5

Free short title	Industrial use in cleaning agents
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 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) 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 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 7 - Industrial spraying PROC 7 - Industrial spraying PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities 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 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 10 - Roller application or brushing PROC 10 - Roller application or brushing PROC 13 - Treatment of articles by dipping and pouring PROC 13 - Treatment of articles by dipping and pouring
9.5.1 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.	
9.5.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
9.5.3 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
9.5.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.5.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid

Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.5.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %

Respiratory protection	no
9.5.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.5.8 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
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.5.9 Contributing Scenario (9) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.5.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 7	
Name of contributing scenario	7 - Industrial spraying
Product characteristics	
Physical state	liquid

Concentration in substance	100 %
Fugacity / Dustiness	high
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	1,500 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
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 5 80 %
Respiratory protection	no
Use of external/measured value inhalation	Value calculated with Stoffenmanager 3.5. Details: Emission source: far field (distance head-product greater than 1m) Volume of the room: >1000 m3 Venitlation in the room: Mechanical or natural general ventilation Immission controls used to limit exposure of the worker: The worker works in a cabin without specific ventilation system (e.g. in a cabin of a tractor or truck, a cabin not equipped with filters or overpressure system Protective equipment: none General housekeeping practices in place? Yes Task or process: Spraying of product (high-pressure or spray painting) Handling category: Handling of liquids at high pressure resulting in sustantial generation of mist or spray/haze Calculated as 75 th percentile
9.5.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 7	
Name of contributing scenario	7 - Industrial spraying
Scenario subtitle	Short-term calculation

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Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	1,500 cm^2
Other given operational conditions affecting workers exposure	
Location	indoors
Ventilation	good (30%)
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 5 80 %
Respiratory protection	no
Use of external/measured value inhalation	Value calculated with Stoffenmanager 3.5. Details: Emission source: far field (distance head-product greater than 1m) Volume of the room: >1000 m3 Venitlation in the room: Mechanical or natural general ventilation Immission controls used to limit exposure of the worker: The worker works in a cabin without specific ventilation system (e.g. in a cabin of a tractor or truck, a cabin not equipped with filters or overpressure system Protective equipment: none General housekeeping practices in place? Yes Task or process: Spraying of product (high-pressure or spray painting) Handling category: Handling of liquids at high pressure resulting in sustantial generation of mist or spray/haze Calculated as 75 th percentile

9.5.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 8A

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Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.5.13 Contributing Scenario (13) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.5.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 8B	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.5.15 Contributing Scenario (15) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high

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 exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.5.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Product characteristics	
Physical state	liquid
Concentration in substance	80 %, concentration has been considered linearly *(justification: Max. used concentration)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no

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9.5.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	80 %, concentration has been considered linearly *(justification: Max. used concentration)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.5.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 13	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.5.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 13	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no

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Scenario 6: Professional use in cleaning agents

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Professional use in cleaning agents*.

Description of ES 6

Free short title	Professional use in cleaning agents
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 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) 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 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 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 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 10 - Roller application or brushing PROC 10 - Roller application or brushing PROC 11 - Non industrial spraying PROC 11 - Non industrial spraying PROC 13 - Treatment of articles by dipping and pouring PROC 13 - Treatment of articles by dipping and pouring
9.6.1 Contributing Scenario (1) controlling environmental exposure for ERC 8A	
9.6.2 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.	
9.6.3 Contributing Scenario (3) controlling professional worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
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
9.6.4 Contributing Scenario (4) controlling professional worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
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
9.6.5 Contributing Scenario (5) controlling professional worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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	yes (inhalation 80 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.6.6 Contributing Scenario (6) controlling professional worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid

Concentration in substance	100 %
Fugacity / Dustiness	high
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	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	yes (inhalation 80 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.6.7 Contributing Scenario (7) controlling professional worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
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 5 80 %

Respiratory protection	no
9.6.8 Contributing Scenario (8) controlling professional worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
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 5 80 %
Respiratory protection	no
9.6.9 Contributing Scenario (9) controlling professional worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
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	yes (inhalation 80 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.6.10 Contributing Scenario (10) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
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 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 5 80 %
Respiratory protection	no
9.6.11 Contributing Scenario (11) controlling professional worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Product characteristics	

Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.6.12 Contributing Scenario (12) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.6.13 Contributing Scenario (13) controlling professional worker exposure for PROC 8B	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.6.14 Contributing Scenario (14) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*

Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.6.15 Contributing Scenario (15) controlling professional worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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 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 5 80 %

Respiratory protection	no
9.6.16 Contributing Scenario (16) controlling professional worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.6.17 Contributing Scenario (17) controlling professional worker exposure for PROC 11	
Name of contributing scenario	11 - Non industrial spraying
Product characteristics	
Physical state	liquid
Concentration in substance	3 %, concentration has been considered linearly *(justification: Max. used concentration)*
Fugacity / Dustiness	high
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	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 personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no
Use of external/measured value inhalation	Value calculated with Stoffenmanager 3.5. Details: Emission source: far field (distance head-product greater than 1m) Task or process: Spraying of product (high-pressure or spray painting) Handling category: Handling of liquids at high pressure resulting in sustantial generation of mist or spray/haze General housekeeping practices in place? No Volume of the room: 100-1000 m3 Venitlation in the room: General ventilation (open windows and doors) Immission controls used to limit exposure of the worker: The worker does not work not in a cabin Protective equipment: none Calculated as 75 th percentile
9.6.18 Contributing Scenario (18) controlling professional worker exposure for PROC 11	
Name of contributing scenario	11 - Non industrial spraying
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	3 %, concentration has been considered linearly *(justification: Max. used concentration)*
Fugacity / Dustiness	high
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	1,500 cm^2

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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
Use of external/measured value inhalation	Value calculated with Stoffenmanager 3.5. Details: Emission source: far field (distance head-product greater than 1m) Task or process: Spraying of product (high-pressure or spray painting) Handling category: Handling of liquids at high pressure resulting in sustantial generation of mist or spray/haze General housekeeping practices in place? No Volume of the room: 100-1000 m3 Venitlation in the room: General ventilation (open windows and doors) Immission controls used to limit exposure of the worker: The worker does not work not in a cabin Protective equipment: none Calculated as 75 th percentile
9.6.19 Contributing Scenario (19) controlling professional worker exposure for PROC 13	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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	yes (inhalation 80 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.6.20 Contributing Scenario (20) controlling professional worker exposure for PROC 13	
Name of contributing scenario	13 - Treatment of articles by dipping and pouring
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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	yes (inhalation 80 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

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Scenario 7: Industrial use in oilfield drilling and production operations

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Industrial use in oilfield drilling and production operations*.

Description of ES 7

Free short title	Industrial use in oilfield drilling and production operations
Systematic title based on use descriptor	ERC 7; PROC 4, 5, 8A, 8B
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 4 - Use in batch and other process (synthesis) where opportunity for exposure arises 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 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 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 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
9.7.1 Contributing Scenario (1) controlling environmental exposure for ERC 7	
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.	
9.7.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 4	
Name of contributing scenario	4 - Use in batch and other process (synthesis) where opportunity for exposure arises

Methanol

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Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
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 5 80 %
Respiratory protection	no
9.7.3 Contributing Scenario (3) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
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 5 80 %
Respiratory protection	no
9.7.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 5	
Name of contributing scenario	5 - Mixing or blending in batch processes (multistage and/or significant contact)
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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	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	Gloves APF 5 80 %
Respiratory protection	no
9.7.5 Contributing Scenario (5) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*

Fugacity / Dustiness	high
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	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	Gloves APF 5 80 %
Respiratory protection	no
9.7.6 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
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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 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 5 80 %

Respiratory protection	no
9.7.7 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.7.8 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
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentraion.)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.7.9 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentraion.)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no

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Scenario 8: Use as a fuel in industrial settings

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Use as a fuel in industrial settings*.

Description of ES 8

Free short title	Use as a fuel in industrial settings
Systematic title based on use descriptor	ERC 7; PROC 1, 2, 3, 8A, 8B, 16, 19
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 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 3 - Use in closed batch process (synthesis or formulation) PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities 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 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 16 - Using material as fuel sources, limited exposure to unburned product to be expected PROC 16 - Using material as fuel sources, limited exposure to unburned product to be expected PROC 19 - Hand-mixing with intimate contact (only PPE available PROC 19 - Hand-mixing with intimate contact (only PPE available
9.8.1 Contributing Scenario (1) controlling environmental exposure for ERC 7	
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.	
9.8.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Product characteristics	

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Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
9.8.3 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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

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Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	No
Respiratory protection	no
9.8.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.8.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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 5 80 %
Respiratory protection	no
9.8.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.8.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Short-term calculation
Product characteristics	

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Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.8.8 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
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 90 %)

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Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.8.9 Contributing Scenario (9) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.8.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 8B	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.8.11 Contributing Scenario (11) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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 exposure	
Location	indoors
Domain	industrial
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	yes (inhalation 95 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.8.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 16	
Name of contributing scenario	16 - Using material as fuel sources, limited exposure to unburned product to be expected

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Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	Gloves APF 5 80 %
Respiratory protection	no
9.8.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 16	
Name of contributing scenario	16 - Using material as fuel sources, limited exposure to unburned product to be expected
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	Gloves APF 5 80 %
Respiratory protection	no
9.8.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 19	
Name of contributing scenario	19 - Hand-mixing with intimate contact (only PPE available
Product characteristics	
Physical state	liquid
Concentration in substance	10 %, concentration has been considered linearly *(justification: Max. used concentration)*
Fugacity / Dustiness	high
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	1,980 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	Gloves APF 5 80 %
Respiratory protection	no
9.8.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 19	
Name of contributing scenario	19 - Hand-mixing with intimate contact (only PPE available
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	10 %, concentration has been considered linearly *(justification: Max. used concentration)*
Fugacity / Dustiness	high
Frequency and duration of use	

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Duration of activity	1 - 4 hours
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	1,980 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	Gloves APF 5 80 %
Respiratory protection	no

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Scenario 9: Use as a fuel in professional settings

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Use as a fuel in professional settings*.

Description of ES 9

Free short title	Use as a fuel in professional settings
Systematic title based on use descriptor	ERC 8B, 8E; PROC 1, 2, 3, 8A, 8B, 16, 19
Name of contributing environmental scenario and corresponding ERC	ERC 8b Wide dispersive indoor use of reactive substances in open systems ERC 8e Wide dispersive outdoor use of reactive substances 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 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 3 - Use in closed batch process (synthesis or formulation) PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities 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 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 16 - Using material as fuel sources, limited exposure to unburned product to be expected PROC 16 - Using material as fuel sources, limited exposure to unburned product to be expected PROC 19 - Hand-mixing with intimate contact (only PPE available PROC 19 - Hand-mixing with intimate contact (only PPE available
9.9.1 Contributing Scenario (1) controlling environmental exposure for ERC 8B	
9.9.2 Contributing Scenario (2) controlling environmental exposure for ERC 8E	
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.	
9.9.3 Contributing Scenario (3) controlling professional worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure

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Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
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
9.9.4 Contributing Scenario (4) controlling professional worker exposure for PROC 1	
Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
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
9.9.5 Contributing Scenario (5) controlling professional worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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	yes (inhalation 80 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.9.6 Contributing Scenario (6) controlling professional worker exposure for PROC 2	
Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	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	yes (inhalation 80 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.9.7 Contributing Scenario (7) controlling professional worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
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 5 80 %
Respiratory protection	no
9.9.8 Contributing Scenario (8) controlling professional worker exposure for PROC 3	
Name of contributing scenario	3 - Use in closed batch process (synthesis or formulation)
Scenario subtitle	Short-term calculation

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Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
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 5 80 %
Respiratory protection	no
9.9.9 Contributing Scenario (9) controlling professional worker exposure for PROC 8A	
Name of contributing scenario	8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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 exposure	
Location	indoors
Domain	professional
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	Gloves APF 5 80 %
Respiratory protection	no
9.9.10 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.9.11 Contributing Scenario (11) controlling professional worker exposure for PROC 8B	
Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high

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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 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 5 80 %
Respiratory protection	no
9.9.12 Contributing Scenario (12) 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	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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 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 5 80 %

Respiratory protection	no
9.9.13 Contributing Scenario (13) controlling professional worker exposure for PROC 16	
Name of contributing scenario	16 - Using material as fuel sources, limited exposure to unburned product to be expected
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
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 5 80 %
Respiratory protection	no
9.9.14 Contributing Scenario (14) controlling professional worker exposure for PROC 16	
Name of contributing scenario	16 - Using material as fuel sources, limited exposure to unburned product to be expected
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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

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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 5 80 %
Respiratory protection	no
9.9.15 Contributing Scenario (15) controlling professional worker exposure for PROC 19	
Name of contributing scenario	19 - Hand-mixing with intimate contact (only PPE available
Product characteristics	
Physical state	liquid
Concentration in substance	10 %, concentration has been considered linearly *(justification: Max. used concentration)*
Fugacity / Dustiness	high
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	1,980 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 5 80 %
Respiratory protection	no
9.9.16 Contributing Scenario (16) controlling professional worker exposure for PROC 19	
Name of contributing scenario	19 - Hand-mixing with intimate contact (only PPE available
Scenario subtitle	Short-term calculation
Product characteristics	

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Physical state	liquid
Concentration in substance	10 %, concentration has been considered linearly *(justification: Max. used concentration)*
Fugacity / Dustiness	high
Frequency and duration of use	
Duration of activity	1 - 4 hours
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	1,980 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 5 80 %
Respiratory protection	no

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Scenario 10: Use as a laboratory reagent in industrial settings

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Use as a laboratory reagent in industrial settings* .

Description of ES 10

Free short title	Use as a laboratory reagent in industrial settings
Systematic title based on use descriptor	ERC 4; PROC 10, 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 10 - Roller application or brushing PROC 10 - Roller application or brushing PROC 15 - Use of laboratory reagents in small scale laboratories PROC 15 - Use of laboratory reagents in small scale laboratories
9.10.1 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.	
9.10.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Product characteristics	
Physical state	liquid
Concentration in substance	80 %, concentration has been considered linearly *(justification: Max. used concentration)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.10.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	80 %, concentration has been considered linearly *(justification: Max. used concentration)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.10.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 15	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Product characteristics	
Physical state	liquid
Concentration in substance	100 %

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Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no
9.10.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 15	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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	yes (inhalation 90 %)
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	Gloves APF 5 80 %

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Respiratory protection	no

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Scenario 11: Use as a laboratory reagent in professional settings

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Use as a laboratory reagent in professional settings*.

Description of ES 11

Free short title	Use as a laboratory reagent in professional settings
Systematic title based on use descriptor	ERC 8A; PROC 10, 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 10 - Roller application or brushing PROC 10 - Roller application or brushing PROC 15 - Use of laboratory reagents in small scale laboratories PROC 15 - Use of laboratory reagents in small scale laboratories
9.11.1 Contributing Scenario (1) controlling environmental exposure for ERC 8A	
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.	
9.11.2 Contributing Scenario (2) controlling professional worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.11.3 Contributing Scenario (3) controlling professional worker exposure for PROC 10	
Name of contributing scenario	10 - Roller application or brushing
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	5 %, concentration has been considered linearly *(justification: Max. used concentration.)*
Fugacity / Dustiness	high
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 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 5 80 %
Respiratory protection	no
9.11.4 Contributing Scenario (4) controlling professional worker exposure for PROC 15	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Product characteristics	
Physical state	liquid
Concentration in substance	100 %

Fugacity / Dustiness	high
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
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 5 80 %
Respiratory protection	no
9.11.5 Contributing Scenario (5) controlling professional worker exposure for PROC 15	
Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Scenario subtitle	Short-term calculation
Product characteristics	
Physical state	liquid
Concentration in substance	100 %
Fugacity / Dustiness	high
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
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 5 80 %

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Respiratory protection	no

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Scenario 12: Consumer use of cleaning agents and de-icers (liquid products)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Consumer use of cleaning agents and de-icers (liquid products)*.

Description of ES 12

Free short title	Consumer use of cleaning agents and de-icers (liquid products)
Systematic title based on use descriptor	ERC 8A, 8D; PC 4, 35
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 4 Anti-Freeze and De-icing products PC 35 Washing and Cleaning Products (including solvent based products) PC 4 Anti-Freeze and De-icing products PC 35 Washing and Cleaning Products (including solvent based products)
9.12.1 Contributing Scenario (1) controlling environmental exposure for ERC 8A	
9.12.2 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.	
9.12.3 Contributing Scenario (3) controlling consumer exposure for PC 4	
Name of contributing scenario	PC 4 Anti-Freeze and De-icing products
Calculation model	ConsExpo Liquid cleaner - Application
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	104 per year
Exposure time	240 min

Application duration	20 min
Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	104 per year
Product characteristics	
Spray application	no
Product ingredient fraction by weight	2.5 %
Mol weight matrix	18 g/mol
Mass transfer rate	0.413 m/min
Amounts used	
Inhalation	100 g *
Dermal	5 g
Human factors not influenced by risk management	
Exposed skin surface (dermal)	1,900 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	5.00E4 cm^2
Release temperature	20 °C
Dermal	
Uptake fraction	100 %
9.12.4 Contributing Scenario (4) controlling consumer exposure for PC 35	
Name of contributing scenario	PC 35 Washing and Cleaning Products (including solvent based products)
Calculation model	ConsExpo Liquid cleaner - Application
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	104 per year
Exposure time	240 min
Application duration	20 min

Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	104 per year
Product characteristics	
Spray application	no
Product ingredient fraction by weight	2.5 %
Mol weight matrix	18 g/mol
Mass transfer rate	0.413 m/min
Amounts used	
Inhalation	100 g *
Dermal	5 g
Human factors not influenced by risk management	
Exposed skin surface (dermal)	1,900 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	5.00E4 cm^2
Release temperature	20 °C
Dermal	
Uptake fraction	100 %
9.12.5 Contributing Scenario (5) controlling consumer exposure for PC 4	
Name of contributing scenario	PC 4 Anti-Freeze and De-icing products
Calculation model	ConsExpo Liquid cleaner - Application
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean event concentration
Exposure time	240 min
Application duration	20 min
Dermal	
Exposure calculation result type	Internal dose acute

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Product characteristics	
Spray application	no
Product ingredient fraction by weight	2.5 %
Mol weight matrix	18 g/mol
Mass transfer rate	0.413 m/min
Amounts used	
Inhalation	100 g *
Dermal	5 g
Human factors not influenced by risk management	
Exposed skin surface (dermal)	1,900 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	5.00E4 cm^2
Release temperature	20 °C
Dermal	
Uptake fraction	100 %
9.12.6 Contributing Scenario (6) controlling consumer exposure for PC 35	
Name of contributing scenario	PC 35 Washing and Cleaning Products (including solvent based products)
Calculation model	ConsExpo Liquid cleaner - Application
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean event concentration
Exposure time	240 min
Application duration	20 min
Dermal	
Exposure calculation result type	Internal dose acute
Product characteristics	
Spray application	no
Product ingredient fraction by weight	2.5 %

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Mol weight matrix	18 g/mol
Mass transfer rate	0.413 m/min
Amounts used	
Inhalation	100 g *
Dermal	5 g
Human factors not influenced by risk management	
Exposed skin surface (dermal)	1,900 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	5.00E4 cm^2
Release temperature	20 °C
Dermal	
Uptake fraction	100 %

* The ConsExpo default database was modified regarding the following parameters:
- Inhalation model: applied amout of 100g (instead of 400g)
Release area of 5m² (instead of 10m²)
- Dermal model: applied amount of 5 g (instead of 19g)
According to the Cleaning products Fact Sheet it is assumed that 1% of the product gives dermal exposure unless it is stated otherwise. The ConsExpo defaults give a dermal exposure of 19g for a applied amount of 400g of the product which corresponds to approx. 5%. Thus, for a product amount of 100g, 5g of the product are assumed to give dermal exposure.

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Scenario 13: Consumer use of cleaning agents and de-icers (spray products)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Consumer use of cleaning agents and de-icers (spray products)*.

Description of ES 13

Free short title	Consumer use of cleaning agents and de-icers (spray products)
Systematic title based on use descriptor	ERC 8A, 8D; PC 4, 35
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 4 Anti-Freeze and De-icing products PC 4 Anti-Freeze and De-icing products PC 35 Washing and Cleaning Products (including solvent based products) PC 35 Washing and Cleaning Products (including solvent based products) PC 4 Anti-Freeze and De-icing products PC 4 Anti-Freeze and De-icing products PC 35 Washing and Cleaning Products (including solvent based products) PC 35 Washing and Cleaning Products (including solvent based products)
9.13.1 Contributing Scenario (1) controlling environmental exposure for ERC 8A	
9.13.2 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.	
9.13.3 Contributing Scenario (3) controlling consumer exposure for PC 4	
Name of contributing scenario	PC 4 Anti-Freeze and De-icing products

Scenario subtitle	Spraying
Calculation model	ConsExpo Spray 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	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)	960 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
Mass generation rate	0.800 g/s
Airborne fraction	20 %
Density non-volatile	1.8 %
Droplet distribution	Normal, mean: 2.4 µm, std. deviation: 0.370 µm, cut-off diameter: 15 µm
Dermal	
Uptake fraction	100 %
9.13.4 Contributing Scenario (4) controlling consumer exposure for PC 4	
Name of contributing scenario	PC 4 Anti-Freeze and De-icing products
Scenario subtitle	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	0.413 m/min
Amounts used	
Inhalation	16.2 g
Dermal	0.160 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	15 m^3
Ventilation rate	2.5 1/h
Release are is constant	
Release area	1.71E4 cm^2
Release temperature	20 °C
Dermal	
Uptake fraction	100 %
9.13.5 Contributing Scenario (5) controlling consumer exposure for PC 35	
Name of contributing scenario	PC 35 Washing and Cleaning Products (including solvent based products)
Scenario subtitle	Spraying

Calculation model	ConsExpo Spray cleaner - Application: spraying
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration yearly
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)	960 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
Mass generation rate	0.800 g/s
Airborne fraction	20 %
Density non-volatile	1.8 %
Droplet distribution	LogNormal, median: 2.4 µm, coeff. of variation: 0.370 µm, cut-off diameter: 15 µm
Dermal	
Uptake fraction	100 %
9.13.6 Contributing Scenario (6) controlling consumer exposure for PC 35	
Name of contributing scenario	PC 35 Washing and Cleaning Products (including solvent based products)
Scenario subtitle	Cleaning

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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	0.413 m/min
Amounts used	
Inhalation	16.2 g
Dermal	0.160 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	15 m^3
Ventilation rate	2.5 1/h
Release are is constant	
Release area	1.71E4 cm^2
Release temperature	20 °C
Dermal	
Uptake fraction	100 %
9.13.7 Contributing Scenario (7) controlling consumer exposure for PC 4	
Name of contributing scenario	PC 4 Anti-Freeze and De-icing products
Scenario subtitle	Spraying

Calculation model	ConsExpo Spray cleaner - Application: spraying
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean event concentration
Spray duration	24.6 sec
Dermal	
Exposure calculation result type	Internal dose acute
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)	960 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
Mass generation rate	0.800 g/s
Airborne fraction	20 %
Density non-volatile	1.8 %
Droplet distribution	Normal, mean: 2.4 µm, std. deviation: 0.370 µm, cut-off diameter: 15 µm
Dermal	
Uptake fraction	100 %
9.13.8 Contributing Scenario (8) controlling consumer exposure for PC 4	
Name of contributing scenario	PC 4 Anti-Freeze and De-icing products
Scenario subtitle	Cleaning
Calculation model	ConsExpo Spray cleaner - Application: cleaning
Frequency and duration of use	

Inhalation	
Exposure calculation result type	Mean event concentration
Exposure time	60 min
Application duration	10 min
Dermal	
Exposure calculation result type	Internal dose acute
Product characteristics	
Spray application	no
Product ingredient fraction by weight	5 %
Mol weight matrix	22 g/mol
Mass transfer rate	0.413 m/min
Amounts used	
Inhalation	16.2 g
Dermal	0.160 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	15 m^3
Ventilation rate	2.5 1/h
Release are is constant	
Release area	1.71E4 cm^2
Release temperature	20 °C
Dermal	
Uptake fraction	100 %
9.13.9 Contributing Scenario (9) controlling consumer exposure for PC 35	
Name of contributing scenario	PC 35 Washing and Cleaning Products (including solvent based products)
Scenario subtitle	Spraying
Calculation model	ConsExpo Spray cleaner - Application: spraying
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean event concentration

Spray duration	24.6 sec
Dermal	
Exposure calculation result type	Internal dose acute
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)	960 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
Mass generation rate	0.800 g/s
Airborne fraction	20 %
Density non-volatile	1.8 %
Droplet distribution	LogNormal, median: 2.4 µm, coeff. of variation: 0.370 µm, cut-off diameter: 15 µm
Dermal	
Uptake fraction	100 %
9.13.10 Contributing Scenario (10) controlling consumer exposure for PC 35	
Name of contributing scenario	PC 35 Washing and Cleaning Products (including solvent based products)
Scenario subtitle	Cleaning
Calculation model	ConsExpo Spray cleaner - Application: cleaning
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean event concentration
Exposure time	60 min
Application duration	10 min

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Dermal	
Exposure calculation result type	Internal dose acute
Product characteristics	
Spray application	no
Product ingredient fraction by weight	5 %
Mol weight matrix	22 g/mol
Mass transfer rate	0.413 m/min
Amounts used	
Inhalation	16.2 g
Dermal	0.160 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	15 m^3
Ventilation rate	2.5 1/h
Release are is constant	
Release area	1.71E4 cm^2
Release temperature	20 °C
Dermal	
Uptake fraction	100 %

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Previous date: 11/09/2013

Scenario 14: Consumer use of fuels indoors (Domestic/hobby use e.g in model engines, fuel cells, fondue sets)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Consumer use of fuels indoors (Domestic/hobby use e.g in model engines, fuel cells, fondue sets)*.

Description of ES 14

Free short title	Consumer use of fuels indoors (Domestic/hobby use e.g in model engines, fuel cells, fondue sets)
Systematic title based on use descriptor	ERC 8B; PC 13
Name of contributing environmental scenario and corresponding ERC	ERC 8b Wide dispersive indoor use of reactive substances in open systems
Name(s) of contributing consumer scenarios and corresponding PCs/ACs	PC 13 Fuels PC 13 Fuels PC 13 Fuels PC 13 Fuels
9.14.1 Contributing Scenario (1) controlling environmental exposure for ERC 8B	
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.	
9.14.2 Contributing Scenario (2) controlling consumer exposure for PC 13	
Name of contributing scenario	PC 13 Fuels
Calculation model	ConsExpo
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	2 per week
Exposure time	10 min
Application duration	10 min
Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	2 per week

Release duration	600 sec
Product characteristics	
Spray application	no
Product ingredient fraction by weight	9 %
Mol weight matrix	100 g/mol
Mass transfer rate	0.413 m/min
Amounts used	
Inhalation	800 g
Human factors not influenced by risk management	
Exposed skin surface (dermal)	430 cm^2
Contact rate	500 mg/min
Other given operational conditions affecting consumers exposure	
Inhalation	
Room volume	20 m^3
Ventilation rate	0.500 1/h
Release are is constant	
Release area	2 cm^2
Release temperature	20 °C
Dermal	
Uptake fraction	100 %
9.14.3 Contributing Scenario (3) controlling consumer exposure for PC 13	
Name of contributing scenario	PC 13 Fuels
Calculation model	ConsExpo
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	2 per week
Exposure time	10 min
Application duration	10 min
Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	2 per week
Release duration	600 sec

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Product characteristics	
Spray application	no
Product ingredient fraction by weight	80 %
Mol weight matrix	100 g/mol
Mass transfer rate	0.413 m/min
Amounts used	
Inhalation	800 g
Human factors not influenced by risk management	
Exposed skin surface (dermal)	430 cm^2
Contact rate	500 mg/min
Other given operational conditions affecting consumers exposure	
Inhalation	
Room volume	20 m^3
Ventilation rate	0.500 1/h
Release are is constant	
Release area	2 cm^2
Release temperature	20 °C
Dermal	
Protective gloves	90 %
Uptake fraction	100 %
9.14.4 Contributing Scenario (4) controlling consumer exposure for PC 13	
Name of contributing scenario	PC 13 Fuels
Calculation model	ConsExpo
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean event concentration
Exposure time	10 min
Application duration	10 min
Dermal	
Exposure calculation result type	Internal dose acute
Release duration	600 sec
Product characteristics	
Spray application	no

Product ingredient fraction by weight	9 %
Mol weight matrix	100 g/mol
Mass transfer rate	0.413 m/min
Amounts used	
Inhalation	800 g
Human factors not influenced by risk management	
Exposed skin surface (dermal)	430 cm^2
Contact rate	500 mg/min
Other given operational conditions affecting consumers exposure	
Inhalation	
Room volume	20 m^3
Ventilation rate	0.500 1/h
Release are is constant	
Release area	2 cm^2
Release temperature	20 °C
Dermal	
Uptake fraction	100 %
9.14.5 Contributing Scenario (5) controlling consumer exposure for PC 13	
Name of contributing scenario	PC 13 Fuels
Calculation model	ConsExpo
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean event concentration
Exposure time	10 min
Application duration	10 min
Dermal	
Exposure calculation result type	Internal dose acute
Release duration	600 sec
Product characteristics	
Spray application	no
Product ingredient fraction by weight	80 %
Mol weight matrix	100 g/mol
Mass transfer rate	0.413 m/min

Methanol

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Amounts used	
Inhalation	800 g
Human factors not influenced by risk management	
Exposed skin surface (dermal)	430 cm^2
Contact rate	500 mg/min
Other given operational conditions affecting consumers exposure	
Inhalation	
Room volume	20 m^3
Ventilation rate	0.500 1/h
Release are is constant	
Release area	2 cm^2
Release temperature	20 °C
Dermal	
Protective gloves	90 %
Uptake fraction	100 %

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Scenario 15: Consumer use of fuels outdoors (gasoline additive at petrol stations)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters and are based on information on Identified Uses relevant to REACH supply chains compiled during preparation of the registration dossier.

An overall exposure scenario may be described by a number of contributing scenarios which may be subdivided into environmental exposure, worker exposure and consumer exposure.
The following scenarios contribute to the scenario *Consumer use of fuels outdoors (gasoline additive at petrol stations)*.

Description of ES 15

Free short title	Consumer use of fuels I (gasoline additive at petrol stations)
Systematic title based on use descriptor	ERC 8E; PC 13
Name of contributing environmental scenario and corresponding ERC	ERC 8e Wide dispersive outdoor use of reactive substances in open systems
Name(s) of contributing consumer scenarios and corresponding PCs/ACs	PC 13 Fuels PC 13 Fuels
9.15.1 Contributing Scenario (1) controlling environmental exposure for ERC 8E	
As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.	
9.15.2 Contributing Scenario (2) controlling consumer exposure for PC 13	
Name of contributing scenario	PC 13 Fuels
Calculation model	ConsExpo
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean concentration on day of exposure
Frequency of use	2 per week
Exposure time	10 min
Application duration	10 min
Dermal	
Exposure calculation result type	Internal dose chronic
Frequency of use	2 per week
Product characteristics	
Spray application	no
Product ingredient fraction by weight	3 % (according to the Fuel Dircective 2009/30/EC)

Mol weight matrix	100 g/mol
Mass transfer rate	0.413 m/min
Amounts used	
Inhalation	5.00E4 g
Dermal	10 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	20 m^3
Ventilation rate	0.500 1/h
Release are is constant	
Release area	2 cm^2
Release temperature	20 °C
Dermal	
Uptake fraction	100 %
9.15.3 Contributing Scenario (3) controlling consumer exposure for PC 13	
Name of contributing scenario	PC 13 Fuels
Calculation model	ConsExpo
Frequency and duration of use	
Inhalation	
Exposure calculation result type	Mean event concentration
Exposure time	10 min
Application duration	10 min
Dermal	
Exposure calculation result type	Internal dose acute
Product characteristics	
Spray application	no
Product ingredient fraction by weight	3 % (according to the Fuel Dircective 2009/30/EC)
Mol weight matrix	100 g/mol
Mass transfer rate	0.413 m/min
Amounts used	
Inhalation	5.00E4 g

Dermal	10 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	20 m^3
Ventilation rate	0.500 1/h
Release are is constant	
Release area	2 cm^2
Release temperature	20 °C
Dermal	
Uptake fraction	100 %