



SAFETY DATA SHEET (1907/2006)

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1. OVERVIEW OF EXPOSURE SCENARIOS

ES#	Exposure scenario (ES) name and related environmental contributing scenarios
ES1 (F)	Formulation of coatings and adhesives
ES2 (IS)	Industrial use of coatings and adhesives
ES3 (PW)	Professional use of coatings and adhesives
ES4 (C)	Consumer use of coatings and adhesives
ES5 (F)	Formulation of cleaning products
ES6 (IS)	Industrial use of cleaning products
ES7 (PW)	Professional use of cleaning products
ES8 (C)	Consumer use of cleaning products
ES9 (F)	Manufacture of plastics
ES10 (SL)	Plastic articles
ES11 (F)	Formulation of cosmetic products
ES12 (PW)	Professional use of cosmetic products
ES13 (C)	Consumer use of cosmetic products
ES14 (F)	Formulation of agrochemical products
ES15 (PW)	Use as a co-formulant in plant protection products, spray applications by professionals
ES16 (PW)	Use as a co-formulant in plant protection products, seed and granular applications by professionals
ES17 (C)	Use as a co-formulant in plant protection products, spray applications by consumers
ES18 (C)	Use as a co-formulant in plant protection products, seed and granular applications by consumers
ES19 (F)	Manufacture of rubber goods including tyres
ES20 (SL)	Consumer use of rubber goods

F= Formulation; IW= Industrial use (workers); PW= Professional use (workers); C= Consumer use; SL=Service life

2. EXPOSURE SCENARIO 1: FORMULATION OR RE-PACKING - FORMULATION OF COATINGS AND ADHESIVES

Product category formulated: PC 1: Adhesives, Sealants; PC 9a: Coatings and Paints, Thinners, paint removers

Environment contributing scenario(s):		
CS 1	Formulation of coatings and adhesives	ERC 2
Worker contributing scenario(s):		
CS 2	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition	PROC 3
CS 3	Mixing or blending in batch processes	PROC 5
CS 4	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC 8a
CS 5	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC 9
CS 6	Use as laboratory reagent	PROC 15

2.1. Env CS 1: Formulation of coatings and adhesives (ERC 2)

2.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
<ul style="list-style-type: none"> Daily use amount at site: ≤ 0.05 tonnes/day <i>220 emission days per year are assumed based on sector knowledge.</i> Annual use amount at site: ≤ 10.0 tonnes/year <i>Number of sites = 10</i>
Conditions and measures related to biological sewage treatment plant
<ul style="list-style-type: none"> Biological STP: Standard [Effectiveness Water: 87.65%] Discharge rate of STP: ≥ 2000 m³/day Application of the STP sludge on agricultural soil: Yes
Conditions and measures related to external treatment of waste (including article waste)
<ul style="list-style-type: none"> Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
<ul style="list-style-type: none"> Receiving surface water flow rate: ≥ 18000 m³/day

2.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 2% Release factor after on site RMM: 2% Local release rate: 1 kg/day
Air	ERC based	Release factor before on site RMM: 2.5% Release factor after on site RMM: 2.5% Local release rate: 1.25 kg/day
Non agricultural soil	ERC based	Release factor after on site RMM: 0.01%

2.2. Worker CS 2: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC 3)

2.2.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> Percentage (w/w) of substance in mixture/article: <= 100.0 % Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Closed batch process with occasional controlled exposure Occupational Health and Safety Management System: Advanced General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> Respiratory Protection: No [Effectiveness Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> Place of use: Indoor Operating temperature: <= 40.0 °C Skin surface potentially exposed: One hand face only (240 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

2.3. Worker CS 3: Mixing or blending in batch processes (PROC 5)

2.3.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> Percentage (w/w) of substance in mixture/article: <= 100.0 % Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Occupational Health and Safety Management System: Advanced General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> Respiratory Protection: No [Effectiveness Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> Place of use: Indoor Operating temperature: <= 40.0 °C Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

2.4. Worker CS 4: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)

2.4.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C• Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

2.5. Worker CS 5: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)

2.5.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure

- Place of use: Indoor
- Operating temperature: <= 40.0 °C
- Skin surface potentially exposed: Two hands face (480 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

2.6. Worker CS 6: Use as laboratory reagent (PROC 15)

2.6.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: One hand face only (240 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

3. EXPOSURE SCENARIO 2: USE AT INDUSTRIAL SITES - INDUSTRIAL USE OF COATINGS AND ADHESIVES

Product category used: PC 1: Adhesives, Sealants; PC 9a: Coatings and Paints, Thinners, paint removers

Environment contributing scenario(s):		
CS 1	Industrial use of coatings and adhesives	ERC 4
CS 2	Industrial use of coatings and adhesives	ERC 5
Worker contributing scenario(s):		
CS 3	Mixing or blending in batch processes	PROC 5
CS 4	Industrial spraying <= 100%	PROC 7
CS 5	Industrial spraying <= 25%	PROC 7
CS 6	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC 8a
CS 7	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC 8b
CS 8	Roller application or brushing	PROC 10
CS 9	Treatment of articles by dipping and pouring	PROC 13

3.1. Env CS 1: Industrial use of coatings and adhesives (ERC 4)

3.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
<ul style="list-style-type: none"> Annual use amount at site: <= 5.0 tonnes/year <i>Number of sites =10</i> <ul style="list-style-type: none"> Daily use amount at site: <= 0.02 tonnes/day <i>The default daily use amount is the substance maximum use rate in a typical operation (M_{sperc}). It is the typical maximum site tonnage, based on sector knowledge. 220 emission days/year are assumed.</i>
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Indoor/outdoor use: Covers Indoor and Outdoor use Type of Process: Solvent based process Equipment cleaning: Equipment cleaned with organic solvent, washings are collected and disposed of as solvent waste. Process efficiency: Process with efficient use of raw materials.
Conditions and measures related to biological sewage treatment plant
<ul style="list-style-type: none"> Application of the STP sludge on agricultural soil: Yes Biological STP: Standard [Effectiveness Water: 87.65%] Discharge rate of STP: >= 2000 m³/day
Conditions and measures related to external treatment of waste (including article waste)
<ul style="list-style-type: none"> Particular considerations on the waste treatment operations

3.1.2. Releases

The releases have been estimated on the basis of SPERC FEICA 4.2a.v2: Industrial use of solvents in paper, board and related products/woodworking and joinery/footwear and leather, textile, other adhesives. (FEICA 4.2a.v2: Industrial use of solvents in paper, board and related products/woodworking and joinery/footwear and leather, textile, other adhesives.;Industrial use of solvents in paper, board and related products/woodworking and joinery/footwear and leather, textile, other adhesives.)

Description of activities/processes covered by the SPERC

Industrial applications of paper, board and related products / woodworking and joinery / footwear and leather, textile and others adhesives. Adhesives used in the above mentioned products; others include products like electricity, electronics, optics, hygienics, food, toys, medical technics, sportswear, etc. are normally rolled, sprayed or directly used from the cartridge due to the application purposes.

Product/substance domain: Covers the application of adhesives for a wide range of purposes by industrial uses. Covers different adhesives application techniques for indoor use. Substance domain: Solvents which evaporate to a significant extent upon curing of the adhesives.

The local releases to the environment are reported in the following table.

Local releases to the environment

Release	Explanations
Water	<p>Release factor: 0%</p> <p>Local release rate: 0 kg/day</p> <p>Explanation: Regarding environmental emissions, the industrial use of adhesives and sealants is very similar to related industrial uses of paints, lacquers and varnishes. For that reason, release fractions defined in the OECD emission scenario document have been adopted for the SPERC factsheet for the industrial uses of adhesives and sealants. OECD emission scenario document, series no 22 coating industry (paints, lacquers and varnishes), July 2009.</p>
Air	<p>Release factor: 98.5%</p> <p>Local release rate: 19.7 kg/day</p> <p>Explanation: Regarding environmental emissions, the industrial use of adhesives and sealants is very similar to related industrial uses of paints, lacquers and varnishes. For that reason, release fractions defined in the OECD emission scenario document have been adopted for the SPERC factsheet for the industrial uses of adhesives and sealants. OECD emission scenario document, series no 22 coating industry (paints, lacquers and varnishes), July 2009.</p>
Non agricultural soil	<p>Release factor: 0%</p> <p>Local release rate: - kg/day</p> <p>Explanation: Regarding environmental emissions, the industrial use of adhesives and sealants is very similar to related industrial uses of paints, lacquers and varnishes. For that reason, release fractions defined in the OECD emission scenario document have been adopted for the SPERC factsheet for the industrial uses of adhesives and sealants. OECD emission scenario document, series no 22 coating industry (paints, lacquers and varnishes), July 2009.</p>

Releases to waste

Release factor to external waste: 0 %

Regarding environmental emissions, the industrial use of adhesives and sealants is very similar to related industrial uses of paints, lacquers and varnishes. For that reason, release fractions defined in the OECD emission scenario document have been adopted for the SPERC factsheet for the industrial uses of adhesives and sealants. OECD emission scenario document, series no 22 coating industry (paints, lacquers and varnishes), July 2009.

3.2. Env CS 2: Industrial use of coatings and adhesives (ERC 5)

3.2.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
<ul style="list-style-type: none"> Annual use amount at site: <= 5.0 tonnes/year <p><i>Number of sites = 10</i></p> <ul style="list-style-type: none"> Daily use amount at site: <= 0.02 tonnes/day <p><i>The default daily use amount is the substance maximum use rate in a typical operation (M_{sperc}). It is a typical site tonnage, based on sector knowledge. 220 emission days per year are assumed.</i></p>
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Equipment cleaning: Equipment cleaned with water, washing disposed of with wastewater. Indoor/outdoor use: Covers Indoor and Outdoor use Type of Process: Substance applied in aqueous process solution with negligible volatilization Process efficiency: Process with efficient use of raw materials.
Conditions and measures related to biological sewage treatment plant

<ul style="list-style-type: none"> • Application of the STP sludge on agricultural soil: Yes • Biological STP: Standard [Effectiveness Water: 87.65%] • Discharge rate of STP: >= 2000 m3/day
Conditions and measures related to external treatment of waste (including article waste)
<ul style="list-style-type: none"> • Particular considerations on the waste treatment operations

3.2.2. Releases

The releases have been estimated on the basis of SPERC FEICA 5.1c.v2: Industrial Use of Substances other than Solvents in water borne adhesives

(FEICA 5.1c.v2: Industrial Use of Substances other than Solvents in water borne adhesives ;Industrial Use of Substances other than Solvents in water borne adhesives)

Description of activities/processes covered by the SPERC

Industrial applications of Paper, Board and related Products / Woodworking and joinery / Footwear and Leather, Textile and others adhesives

Adhesives used in the above mentioned products; others include products like electricity, electronics, optics, hygienics, food, toys medical technics, sportswear etc. are normally rolled, sprayed or directly used from the cartridge due to the application purposes.

Industrial applications of Transportation (Automotive/aircraft/rail vehicles) / industrial Building Construction/Adhesives adhesives

Adhesives used in the above mentioned products; are normally brushed, rolled, sprayed or directly used from the cartridge due to the application purposes.

Product/substance domain: Covers the application of adhesives for a wide range of purposes by industrial uses. Covers different adhesives application techniques for indoor use.

Substance Domain: All substances which do not evaporate to a significant extent upon curing of the adhesives. The local releases to the environment are reported in the following table.

Local releases to the environment

Release	Explanations
Water	<p>Release factor: 0.3%</p> <p>Local release rate: 0.06 kg/day</p> <p>Explanation:</p> <p>The release fractions defined in the OECD Emission Scenario Document for water borne decorative paints in professional and general public use were adapted. Adaptation was done by accounting for the higher degree of efficiency of material use in industrial settings. The corresponding release factor to water reported in the OECD Emission Scenario Document was divided by three.</p> <p>The OECD Emission Scenario Document specifies two release factors to water, 0 for professional users, 0.015 (i.e. 1.5%) for the general public. For the approximation, an amalgamated value of 0.9% was used.</p> <p>This value was divided by three to obtain a release factor of 0.003 (0.3 %) for the emissions to water from industrial use. The corresponding release factor to air is set to 0 following the OECD Emission Scenario Document.</p> <p>OECD Emission Scenario Document, Series No. 22 Coating Industry (Paints, Lacquers and Varnishes), July 2009.</p>
Air	<p>Release factor: 0%</p> <p>Local release rate: 0 kg/day</p> <p>Explanation:</p> <p>The release fractions defined in the OECD Emission Scenario Document for water borne decorative paints in professional and general public use were adapted. Adaptation was done by accounting for the higher degree of efficiency of material use in industrial settings. The corresponding release factor to water reported in the OECD Emission Scenario Document was divided by three.</p> <p>The OECD Emission Scenario Document specifies two release factors to water, 0 for professional users, 0.015 (i.e. 1.5%) for the general public. For the approximation, an amalgamated value of 0.9% was used.</p> <p>This value was divided by three to obtain a release factor of 0.003 (0.3 %) for the emissions</p>

Release	Explanations
	to water from industrial use. The corresponding release factor to air is set to 0 following the OECD Emission Scenario Document. OECD Emission Scenario Document, Series No. 22 Coating Industry (Paints, Lacquers and Varnishes), July 2009.
Non agricultural soil	<p>Release factor: 0%</p> <p>Local release rate: - kg/day</p> <p>Explanation: The release fractions defined in the OECD Emission Scenario Document for water borne decorative paints in professional and general public use were adapted. Adaptation was done by accounting for the higher degree of efficiency of material use in industrial settings. The corresponding release factor to water reported in the OECD Emission Scenario Document was divided by three. The OECD Emission Scenario Document specifies two release factors to water, 0 for professional users, 0.015 (i.e. 1.5%) for the general public. For the approximation, an amalgamated value of 0.9% was used. This value was divided by three to obtain a release factor of 0.003 (0.3 %) for the emissions to water from industrial use. The corresponding release factor to air is set to 0 following the OECD Emission Scenario Document. OECD Emission Scenario Document, Series No. 22 Coating Industry (Paints, Lacquers and Varnishes), July 2009.</p>

Releases to waste

Release factor to external waste: 0 %

The release fractions defined in the OECD Emission Scenario Document for water borne decorative paints in professional and general public use were adapted. Adaptation was done by accounting for the higher degree of efficiency of material use in industrial settings. The corresponding release factor to water reported in the OECD Emission Scenario Document was divided by three.

The OECD Emission Scenario Document specifies two release factors to water, 0 for professional users, 0.015 (i.e. 1.5%) for the general public. For the approximation, an amalgamated value of 0.9% was used.

This value was divided by three to obtain a release factor of 0.003 (0.3 %) for the emissions to water from industrial use. The corresponding release factor to air is set to 0 following the OECD Emission Scenario Document.

OECD Emission Scenario Document, Series No. 22 Coating Industry (Paints, Lacquers and Varnishes), July 2009.

3.3. Worker CS 3: Mixing or blending in batch processes (PROC 5)

3.3.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] • Use of eye protection: Yes

Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands face (480 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

3.4. Worker CS 4: Industrial spraying <= 100% (PROC 7)

3.4.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 4.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 95%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: Yes (Respirator with APF of 10) [Effectiveness Inhalation: 90%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands and upper wrists (1500 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

3.5. Worker CS 5: Industrial spraying <= 25% (PROC 7)

3.5.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 25.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 95%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: Yes (Respirator with APF of 10) [Effectiveness Inhalation: 90%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] • Use of eye protection: Yes

Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands and upper wrists (1500 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

3.6. Worker CS 6: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)

3.6.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

3.7. Worker CS 7: Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)

3.7.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 95%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%]

<ul style="list-style-type: none"> • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

3.8. Worker CS 8: Roller application or brushing (PROC 10)

3.8.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

3.9. Worker CS 9: Treatment of articles by dipping and pouring (PROC 13)

3.9.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]

Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands face (480 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively.
Wear face/eye protection, gloves and protective clothing, when appropriate.

4. EXPOSURE SCENARIO 3: WIDESPREAD USE BY PROFESSIONAL WORKERS - PROFESSIONAL USE OF COATINGS AND ADHESIVES

Product category used: PC 1: Adhesives, Sealants; PC 9a: Coatings and Paints, Thinners, paint removers

Environment contributing scenario(s):		
CS 1	Professional use of coatings and adhesives	ERC 8a
CS 2	Professional use of coatings and adhesives	ERC 8c
CS 3	Professional use of coatings and adhesives	ERC 8f
Worker contributing scenario(s):		
CS 4	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities <=25%	PROC 8a
CS 5	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities <= 5%	PROC 8a
CS 6	Transfer of substance or mixture (charging and discharging) at dedicated facilities <= 100%	PROC 8b
CS 7	Roller application or brushing <= 25%	PROC 10
CS 8	Roller application or brushing <= 5%	PROC 10
CS 9	Non industrial spraying <= 5%	PROC 11
CS 10	Non industrial spraying <= 1%	PROC 11
CS 11	Treatment of articles by dipping and pouring <= 25%	PROC 13

4.1. Env CS 1: Professional use of coatings and adhesives (ERC 8a)

4.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.000017 tonnes/day
Conditions and measures related to biological sewage treatment plant
• Biological STP: Standard [Effectiveness Water: 87.65%]
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations

4.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100% Local release rate: 0.017 kg/day
Air	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100%
Non agricultural soil	ERC based	Release factor after on site RMM: 0%

4.2. Env CS 2: Professional use of coatings and adhesives (ERC 8c)

4.2.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.000017 tonnes/day
Conditions and measures related to biological sewage treatment plant
• Biological STP: Standard [Effectiveness Water: 87.65%]
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations

4.2.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 30% Release factor after on site RMM: 30% Local release rate: 4.95E-3 kg/day
Air	ERC based	Release factor before on site RMM: 15% Release factor after on site RMM: 15%
Non agricultural soil	ERC based	Release factor after on site RMM: 0%

4.3. Env CS 3: Professional use of coatings and adhesives (ERC 8f)

4.3.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.000017 tonnes/day
Conditions and measures related to biological sewage treatment plant
• Biological STP: Standard [Effectiveness Water: 87.65%]
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations

4.3.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 5% Release factor after on site RMM: 5% Local release rate: 8.25E-4 kg/day
Air	ERC based	Release factor before on site RMM: 15% Release factor after on site RMM: 15%
Non agricultural soil	ERC based	Release factor after on site RMM: 0.5%

4.4. Worker CS 4: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities <=25% (PROC 8a)

4.4.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 25.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 4.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Basic • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

4.5. Worker CS 5: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities <= 5% (PROC 8a)

4.5.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 5.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Basic • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

4.6. Worker CS 6: Transfer of substance or mixture (charging and discharging) at dedicated facilities <= 100% (PROC 8b)

4.6.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Basic• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C• Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

4.7. Worker CS 7: Roller application or brushing <= 25% (PROC 10)

4.7.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 25.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 1.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Basic• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C

- Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

4.8. Worker CS 8: Roller application or brushing <= 5% (PROC 10)

4.8.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 5.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Basic • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

4.9. Worker CS 9: Non industrial spraying <= 5% (PROC 11)

4.9.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 5.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 0.25 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Basic • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C

- Skin surface potentially exposed: Two hands and upper wrists (1500 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

4.10. Worker CS 10: Non industrial spraying <= 1% (PROC 11)

4.10.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 1.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 4.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Basic • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands and upper wrists (1500 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

4.11. Worker CS 11: Treatment of articles by dipping and pouring <= 25% (PROC 13)

4.11.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 25.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Basic • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure

- Place of use: Indoor
- Operating temperature: ≤ 40.0 °C
- Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively.
Wear face/eye protection, gloves and protective clothing, when appropriate.

5. EXPOSURE SCENARIO 4: CONSUMER USE - CONSUMER USE OF COATINGS AND ADHESIVES

Environment contributing scenario(s):		
CS 1	Consumer use of coatings and adhesives	ERC 8a
CS 2	Consumer use of coatings and adhesives	ERC 8c
CS 3	Consumer use of coatings and adhesives	ERC 8f
Consumer contributing scenario(s):		
CS 4	Glues, hobby use	PC 1
CS 5	Glues - DIY use	PC 1
CS 6	Glues - spray use	PC 1
CS 7	Sealants	PC 1
CS 8	Waterborne latex wall paint	PC 9a
CS 9	Solvent rich, high solid, water borne paint	PC 9a

Further description of the use:

Due to corrosive properties of the substance, its concentration in the products for consumer use should be **below** 3%.

5.1. Env CS 1: Consumer use of coatings and adhesives (ERC 8a)

5.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.000011 tonnes/day
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
• Biological STP: Standard [Effectiveness Water: 87.65%]

5.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100% Local release rate: 0.011 kg/day
Air	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100%
Non agricultural soil	ERC based	Release factor after on site RMM: 0%

5.2. Env CS 2: Consumer use of coatings and adhesives (ERC 8c)

5.2.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.000011 tonnes/day
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
• Biological STP: Standard [Effectiveness Water: 87.65%]

5.2.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 30% Release factor after on site RMM: 30% Local release rate: 3.3E-3 kg/day
Air	ERC based	Release factor before on site RMM: 15% Release factor after on site RMM: 15%
Non agricultural soil	ERC based	Release factor after on site RMM: 0%

5.3. Env CS 3: Consumer use of coatings and adhesives (ERC 8f)

5.3.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.000011 tonnes/day
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
• Biological STP: Standard [Effectiveness Water: 87.65%]

5.3.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 5% Release factor after on site RMM: 5% Local release rate: 5.5E-4 kg/day
Air	ERC based	Release factor before on site RMM: 15% Release factor after on site RMM: 15%
Non agricultural soil	ERC based	Release factor after on site RMM: 0.5%

5.4. Cons CS 4: Glues, hobby use (PC 1)

5.4.1. Conditions of use

The contributing scenario is based on a subcategory of ECETOC TRA Consumer: Glues, hobby use

Product (article) characteristics
<ul style="list-style-type: none">• Exposure via dermal route: Yes• Physical form of the used product: Liquid• Spray: No• Exposure via oral route: Oral exposure is considered to be not relevant• Percentage (w/w) of substance in mixture/article: $\leq 3.0\%$• Exposure via inhalation route: Yes
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Amount of product used per application: ≤ 9.0 g/event• Exposure time per event: = 4.0 h/event• Frequency of use over a year: Frequent• Frequency of use over a day: = 1.0 events per day
Information and behavioral advice for consumers
<ul style="list-style-type: none">• Place of use: Indoor• Adult/child assumed: Adult
Other conditions affecting consumers exposure
<ul style="list-style-type: none">• Body parts potentially exposed: Fingertips• Inhalation factor: = 1.0• Dermal transfer factor: = 1.0

Risk characterisation

Due to corrosive properties of the substance to eyes, its concentration in the products for consumer use should be below 3%.

5.5. Cons CS 5: Glues - DIY use (PC 1)

5.5.1. Conditions of use

The contributing scenario is based on a subcategory of ECETOC TRA Consumer: Glues DIY-use (carpet glue, tile glue, wood parquet glue)

Product (article) characteristics
<ul style="list-style-type: none">• Exposure via dermal route: Yes• Physical form of the used product: Liquid• Spray: No• Exposure via oral route: Oral exposure is considered to be not relevant• Percentage (w/w) of substance in mixture/article: $\leq 1.0\%$• Exposure via inhalation route: Yes
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Amount of product used per application: ≤ 15000 g/event• Exposure time per event: = 6.0 h/event• Frequency of use over a year: Frequent• Frequency of use over a day: = 1.0 events per day
Information and behavioral advice for consumers
<ul style="list-style-type: none">• Place of use: Indoor• Adult/child assumed: Adult
Other conditions affecting consumers exposure
<ul style="list-style-type: none">• Body parts potentially exposed: Inside hands / one hand / palm of hands• Inhalation factor: = 1.0• Dermal transfer factor: = 1.0

Risk characterisation

Due to corrosive properties of the substance to eyes, its concentration in the products for consumer use should be below 3%.

5.6. Cons CS 6: Glues - spray use (PC 1)

5.6.1. Conditions of use

The contributing scenario is based on a subcategory of ECETOC TRA Consumer: Glue from spray

Product (article) characteristics
<ul style="list-style-type: none">• Exposure via dermal route: Yes• Physical form of the used product: Liquid• Spray: Yes• Exposure via oral route: Oral exposure is considered to be not relevant• Percentage (w/w) of substance in mixture/article: ≤ 0.1 %• Exposure via inhalation route: Yes
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Amount of product used per application: ≤ 255.0 g/event• Exposure time per event: = 4.0 h/event• Frequency of use over a year: Frequent• Frequency of use over a day: = 1.0 events per day
Information and behavioral advice for consumers
<ul style="list-style-type: none">• Place of use: Indoor• Adult/child assumed: Adult
Other conditions affecting consumers exposure
<ul style="list-style-type: none">• Body parts potentially exposed: Fingertips• Inhalation factor: = 1.0• Dermal transfer factor: = 1.0

Risk characterisation

Due to corrosive properties of the substance to eyes, its concentration in the products for consumer use should be below 3%.

5.7. Cons CS 7: Sealants (PC 1)

5.7.1. Conditions of use

The contributing scenario is based on a subcategory of ECETOC TRA Consumer: Sealants

Product (article) characteristics
<ul style="list-style-type: none">• Exposure via dermal route: Yes• Physical form of the used product: Liquid• Spray: No• Exposure via oral route: Oral exposure is considered to be not relevant• Percentage (w/w) of substance in mixture/article: ≤ 5.0 %• Exposure via inhalation route: Yes
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Amount of product used per application: ≤ 390.0 g/event• Exposure time per event: = 4.0 h/event• Frequency of use over a year: Frequent• Frequency of use over a day: = 1.0 events per day
Information and behavioral advice for consumers
<ul style="list-style-type: none">• Place of use: Indoor• Adult/child assumed: Adult
Other conditions affecting consumers exposure

- Body parts potentially exposed: Fingertips
- Inhalation factor: = 1.0
- Dermal transfer factor: = 1.0

Risk characterisation

Due to corrosive properties of the substance to eyes, its concentration in the products for consumer use should be below 3%.

5.8. Cons CS 8: Waterborne latex wall paint (PC 9a)

5.8.1. Conditions of use

The contributing scenario is based on a subcategory of ECETOC TRA Consumer: Waterborne latex wall paint

Product (article) characteristics
<ul style="list-style-type: none"> • Exposure via dermal route: Yes • Physical form of the used product: Liquid • Spray: No • Exposure via oral route: Oral exposure is considered to be not relevant • Percentage (w/w) of substance in mixture/article: <= 1.0 % • Exposure via inhalation route: Yes
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Amount of product used per application: <= 3750 g/event • Exposure time per event: = 2.2 h/event • Frequency of use over a year: Frequent • Frequency of use over a day: = 1.0 events per day
Information and behavioral advice for consumers
<ul style="list-style-type: none"> • Place of use: Indoor • Adult/child assumed: Adult
Other conditions affecting consumers exposure
<ul style="list-style-type: none"> • Body parts potentially exposed: Inside hands / one hand / palm of hands • Inhalation factor: = 1.0 • Dermal transfer factor: = 1.0

Risk characterisation

Due to corrosive properties of the substance to eyes, its concentration in the products for consumer use should be below 3%.

5.9. Cons CS 9: Solvent rich, high solid, water borne paint (PC 9a)

5.9.1. Conditions of use

The contributing scenario is based on a subcategory of ECETOC TRA Consumer: Solvent rich, high solid, water borne paint

Product (article) characteristics
<ul style="list-style-type: none"> • Exposure via dermal route: Yes • Physical form of the used product: Liquid • Spray: No • Exposure via oral route: Oral exposure is considered to be not relevant • Percentage (w/w) of substance in mixture/article: <= 1.0 % • Exposure via inhalation route: Yes
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Amount of product used per application: <= 1300 g/event • Exposure time per event: = 2.2 h/event • Frequency of use over a year: Frequent • Frequency of use over a day: = 1.0 events per day
Information and behavioral advice for consumers

<ul style="list-style-type: none">• Place of use: Indoor• Adult/child assumed: Adult
Other conditions affecting consumers exposure
<ul style="list-style-type: none">• Body parts potentially exposed: Inside hands / one hand / palm of hands• Inhalation factor: = 1.0• Dermal transfer factor: = 1.0

Risk characterisation

Due to corrosive properties of the substance to eyes, its concentration in the products for consumer use should be below 3%.

6. EXPOSURE SCENARIO 5: FORMULATION OR RE-PACKING - FORMULATION OF CLEANING PRODUCTS

Product category formulated: PC 35: Washing and Cleaning Products (including solvent based products)

Environment contributing scenario(s):		
CS 1	Formulation of cleaning products	ERC 2
Worker contributing scenario(s):		
CS 2	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition	PROC 3
CS 3	Mixing or blending in batch processes	PROC 5
CS 4	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC 8a
CS 5	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC 8b
CS 6	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC 9
CS 7	Tabletting, compression, extrusion, pelletisation, granulation	PROC 14
CS 8	Use as laboratory reagent	PROC 15

6.1. Env CS 1: Formulation of cleaning products (ERC 2)

6.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
<ul style="list-style-type: none"> Annual use amount at site: ≤ 2.5 tonnes/year <p><i>Number of sites = 10</i></p> <ul style="list-style-type: none"> Daily use amount at site: ≤ 0.01 tonnes/day <p><i>As daily use amount, the indicative worst case value for the substance use rate per site (M_{sperc}) was selected. M_{sperc} can be used by the registrant when starting the environmental assessment. The M_{sperc} values have been estimated in dependence of the size of the operation, the number of days emitting, and the concentration of the substance in a finished product (i.e. mixture). 250 emission days per year are assumed.</i></p>
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Equipment cleaning: Equipment cleaning with minimized emissions to wastewater Process efficiency: Process optimized for highly efficient use of raw materials (II) Indoor/outdoor use: Indoor use Type of Process: Substance applied in aqueous process solution with negligible volatilization
Conditions and measures related to biological sewage treatment plant
<ul style="list-style-type: none"> Application of the STP sludge on agricultural soil: Yes Biological STP: Standard [Effectiveness Water: 87.65%] Discharge rate of STP: ≥ 2000 m³/day
Conditions and measures related to external treatment of waste (including article waste)
<ul style="list-style-type: none"> Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
<ul style="list-style-type: none"> General good practice: Trained staff, spill protection including waste reuse

6.1.2. Releases

The releases have been estimated on the basis of SPERC AISE 2.1g.v2: Industrial use in formulation of liquid cleaning and maintenance products: Low Viscosity (large scale)

(AISE 2.1g.v2: Formulation of liquid Detergents/ Maintenance Products: Low Viscosity (large scale);Formulation of liquid Detergents/ Maintenance Products: Low Viscosity (large scale))

Description of activities/processes covered by the SPERC

This SPERC describes SPERC parameters relevant to the manufacturing of water-borne liquid cleaning and maintenance products. Losses from the processes constitute losses of raw materials, which for economic reasons have to be avoided. Formulation of preparations requires optimized use of raw materials for inclusion into products. Losses of raw materials via volatilization are negligible. Significant losses to the environment can be the result of cleaning of mixing vessels, tubing, production/packaging lines. High viscosity products adhere more strongly to the walls of mixing vessels, tubing, production/packaging lines. They are less efficiently transferred into the packaging. Hence, emissions caused by equipment cleaning are higher and lower for high and low viscosity products, respectively. These losses occur irrespective of the physical-chemical properties of the detergent ingredient substances. For that reason, this SPERC pertains to all substances.

Product/substance domain: Covers the whole process of manufacturing water-borne mixtures for liquid cleaning and maintenance products. This includes storing, mixing, packaging of substances (as part of mixtures) and equipment cleaning, maintenance and associated laboratory activities.

Low viscosity products include the following: floor cleaner, all purpose cleaner, bathroom cleaner, kitchen cleaner, window cleaner, liquid WC-rim. Typically, the viscosity of these products is not specified and not adjusted.

The SPERCs are relevant for operations which discharge their wastewater to treatment by a municipal sewage treatment plant.

The SPERCs cover large operations, which produce more than 10.000 tons of finished products per year, respectively.

Substance Domain: All

The local releases to the environment are reported in the following table.

Local releases to the environment

Release	Explanations
Water	<p>Release factor: 0.01%</p> <p>Local release rate: 1E-3 kg/day</p> <p>Explanation: Releases to the wastewater can be the result of cleaning of mixing vessels, tubing, production/packaging lines with water. The spent cleaning water is discharged to the wastewater. The release factor originates from the Life Cycle Inventories (LCI, Franke et al., 1991). That publication formed the basis for the A/B Tables for detergent manufacturing in the EU Technical Guidance (EU TGD 2003). EU TGD 2003 Technical Guidance Document on Risk Assessment. Part II, Appendix 1 A Table A2 (p 226) Franke et al., 1995 Ökobilanzierung- Sachbilanz für die Waschmittel-Konfektionierung Tenside Surf. Det, 32:(508-514) Royal Haskoning 2009 Review and evaluation of environmental emission scenarios for fragrance materials during compounding of perfume oils and formulation of consumer products (Research Institute for Fragrance Materials. Ref.:9S3975.01/R0007/Nijm, 2009).</p>
Air	<p>Release factor: 0%</p> <p>Local release rate: 0 kg/day</p> <p>Explanation: Releases of raw materials via volatilization are quantitatively very low. For that reason, the study by Royal Haskoning (2009) does not consider to establish release factors for the use of fragrance materials in the manufacturing of detergent products. For that reason, the release factor is set to zero. EU TGD 2003 Technical Guidance Document on Risk Assessment. Part II, Appendix 1 A Table A2 (p 226) Franke et al., 1995 Ökobilanzierung- Sachbilanz für die Waschmittel-Konfektionierung Tenside Surf. Det, 32:(508-514) Royal Haskoning 2009 Review and evaluation of environmental emission scenarios for fragrance materials during compounding of perfume oils and formulation of consumer products (Research Institute for Fragrance Materials. Ref.:9S3975.01/R0007/Nijm, 2009).</p>
Non agricultural soil	<p>Release factor: 0%</p> <p>Local release rate: - kg/day</p>

Release	Explanations
	<p>Explanation: Must be avoided EU TGD 2003 Technical Guidance Document on Risk Assessment. Part II, Appendix 1 A Table A2 (p 226) Franke et al., 1995 Ökobilanzierung- Sachbilanz für die Waschmittel-Konfektionierung Tenside Surf. Det, 32:(508-514) Royal Haskoning 2009 Review and evaluation of environmental emission scenarios for fragrance materials during compounding of perfume oils and formulation of consumer products (Research Institute for Fragrance Materials. Ref.:9S3975.01/R0007/Nijm, 2009).</p>

Releases to waste

Release factor to external waste: 0 %

Not relevant – no obligatory RMM which divert substances to waste.

EU TGD 2003 Technical Guidance Document on Risk Assessment. Part II, Appendix 1 A Table A2 (p 226)

Franke et al., 1995 Ökobilanzierung- Sachbilanz für die Waschmittel-Konfektionierung Tenside Surf. Det, 32:(508-514)

Royal Haskoning 2009 Review and evaluation of environmental emission scenarios for fragrance materials during compounding of perfume oils and formulation of consumer products (Research Institute for Fragrance Materials. Ref.:9S3975.01/R0007/Nijm, 2009).

6.2. Worker CS 2: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC 3)

6.2.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Closed batch process with occasional controlled exposure • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: One hand face only (240 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively.

Wear face/eye protection, gloves and protective clothing, when appropriate.

6.3. Worker CS 3: Mixing or blending in batch processes (PROC 5)

6.3.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C• Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

6.4. Worker CS 4: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)

6.4.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C• Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

6.5. Worker CS 5: Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)

6.5.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 95%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

6.6. Worker CS 6: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)

6.6.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands face (480 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

6.7. Worker CS 7: Tableting, compression, extrusion, pelletisation, granulation (PROC 14)

6.7.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C• Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

6.8. Worker CS 8: Use as laboratory reagent (PROC 15)

6.8.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C

• Skin surface potentially exposed: One hand face only (240 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively.
Wear face/eye protection, gloves and protective clothing, when appropriate.

7. EXPOSURE SCENARIO 6: USE AT INDUSTRIAL SITES - INDUSTRIAL USE OF CLEANING PRODUCTS

Product category used: PC 35: Washing and Cleaning Products (including solvent based products)

Environment contributing scenario(s):		
CS 1	Industrial use of cleaning products	ERC 4
Worker contributing scenario(s):		
CS 2	Industrial spraying <= 25%	PROC 7
CS 3	Industrial spraying <= 5%	PROC 7
CS 4	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC 8a
CS 5	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC 8b
CS 6	Roller application or brushing	PROC 10
CS 7	Treatment of articles by dipping and pouring	PROC 13

7.1. Env CS 1: Industrial use of cleaning products (ERC 4)

7.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
<ul style="list-style-type: none"> Annual use amount at site: <= 1.5 tonnes/year <i>Number of sites =10</i> <ul style="list-style-type: none"> Daily use amount at site: <= 0.007 tonnes/day <i>As default tonnage, the typical maximum site tonnage, based on sector knowledge was taken. The continuous release (M_{sperc}) is 50 kg/day. Optional are intermittent release. 220 emission days per year are assumed.</i>
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Process efficiency: Optimized water use due to e.g.: Re-use of rinsing water Indoor/outdoor use: Indoor use Type of Process: Substance applied in aqueous process solution with negligible volatilization
Conditions and measures related to biological sewage treatment plant
<ul style="list-style-type: none"> Application of the STP sludge on agricultural soil: No Biological STP: Site specific [Effectiveness Water: 87.65%] Discharge rate of STP: >= 2000 m³/day
Conditions and measures related to external treatment of waste (including article waste)
<ul style="list-style-type: none"> Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
<ul style="list-style-type: none"> Chemical waste - continuous generation: Spent fluid discharged to wastewater. Chemical waste - discontinuous generation: Spent fluid discharged to wastewater.

Fate (release percentage) in the biological sewage treatment plant

The biological STP is site specific and the releases to the various compartments have been set by the assessor. They are distributed in the following way:

Release to water	12.35%
Release to air	6.11E-3%
Release to sludge	2.752%
Release degraded	84.9%

7.1.2. Releases

The releases have been estimated on the basis of SPERC AISE 4.1.v2: Industrial use of water-borne Processing

Aids - no RMM

(AISE 4.1.v2: Industrial use of Water Borne processing Aids – no RMM; Industrial use of Water Borne processing Aids – no RMM)

Description of activities/processes covered by the SPERC

Industrial applications of water borne processing aids can typically be described as follows.

The application fluid is kept in a reservoir. It is pumped to dedicated machine(s) in order to be applied to the substrate or it is kept in a bath. This type of application includes vehicle cleaning, metal working fluids, etc. With each piece of substrate a fraction of the application fluid is carried-over from the treatment bath. Via a sequence of rinsing steps this fraction of the application fluid is continuously emitted to the wastewater. The reservoir is continuously replenished.

The application fluid in the reservoir can be disposed off periodically. This may or may not involve on-site pre-treatment or disposal to the wastewater. As a result, constituents of the application fluid are removed during the on-site treatment according to the efficiency of the selected emission reduction. In addition, raw materials may be recovered. The choice of suitable emission reduction (or RMM) technology depends on the process.

In addition, the process can be closed with regards to emissions to the environment. Spent application fluid is not released to the environment. It is disposed of periodically as waste (with or without prior treatment). This type of application includes several surface finishing, water conditioning etc. applications. No emissions to the wastewater occur. The local waste handling regulations have to be followed. Additional instructions for handling waste may be included in the safety data sheet.

Product/substance domain: Industrial uses in water borne processing aid. This definition covers substances in a broad range of specific applications, e.g. surface cleaning, surface treatment, metal treatment, surface finishing, corrosion inhibition, vehicle cleaning, industrial laundry etc.

The local releases to the environment are reported in the following table.

Local releases to the environment

Release	Explanations
Water	Release factor: 100% Local release rate: 7 kg/day Explanation: Water-borne processing aids are disposed off quantitatively to the process wastewater. Prior to discharging, the spent process water may be treated on-site.
Air	Release factor: 0% Local release rate: 0 kg/day Explanation: Processing aids in aqueous solutions are not volatile and are intended to remain in the application solution. Spray applications are housed-in
Non agricultural soil	Release factor: 0% Local release rate: - kg/day Explanation: Water-borne processing aids are disposed off quantitatively to the process wastewater. Releases to soil do not occur during normal operation.

Releases to waste

Release factor to external waste: 0 %

Water-borne processing aids are disposed off quantitatively to the process wastewater. Releases to waste do not occur during normal operation.

7.2. Worker CS 2: Industrial spraying <= 25% (PROC 7)

7.2.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> Percentage (w/w) of substance in mixture/article: <= 25.0 % Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Occupational Health and Safety Management System: Advanced General ventilation: Enhanced general ventilation (5-10 air changes per hour) [Effectiveness Inhalation: 70%] Local exhaust ventilation: Yes [Effectiveness Inhalation: 95%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> Respiratory Protection: No [Effectiveness Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> Place of use: Indoor Operating temperature: <= 40.0 °C Skin surface potentially exposed: Two hands and upper wrists (1500 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

7.3. Worker CS 3: Industrial spraying <= 5% (PROC 7)

7.3.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> Percentage (w/w) of substance in mixture/article: <= 5.0 % Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Occupational Health and Safety Management System: Advanced General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] Local exhaust ventilation: Yes [Effectiveness Inhalation: 95%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> Respiratory Protection: No [Effectiveness Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> Place of use: Indoor Operating temperature: <= 40.0 °C Skin surface potentially exposed: Two hands and upper wrists (1500 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

7.4. Worker CS 4: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)

7.4.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

7.5. Worker CS 5: Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)

7.5.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 95%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively.
Wear face/eye protection, gloves and protective clothing, when appropriate.

7.6. Worker CS 6: Roller application or brushing (PROC 10)

7.6.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C• Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively.
Wear face/eye protection, gloves and protective clothing, when appropriate.

7.7. Worker CS 7: Treatment of articles by dipping and pouring (PROC 13)

7.7.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C

• Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively.
Wear face/eye protection, gloves and protective clothing, when appropriate.

8. EXPOSURE SCENARIO 7: WIDESPREAD USE BY PROFESSIONAL WORKERS - PROFESSIONAL USE OF CLEANING PRODUCTS

Product category used: PC 35: Washing and Cleaning Products (including solvent based products)

Environment contributing scenario(s):		
CS 1	Professional use of cleaning products	ERC 8a
Worker contributing scenario(s):		
CS 2	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities <= 25%	PROC 8a
CS 3	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities <= 5%	PROC 8a
CS 4	Transfer of substance or mixture (charging and discharging) at dedicated facilities <= 100%	PROC 8b
CS 5	Roller application or brushing <= 25%	PROC 10
CS 6	Roller application or brushing <= 5%	PROC 10
CS 7	Non industrial spraying <= 1%	PROC 11
CS 8	Treatment of articles by dipping and pouring <= 25%	PROC 13

8.1. Env CS 1: Professional use of cleaning products (ERC 8a)

8.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.0000027 tonnes/day
Conditions and measures related to biological sewage treatment plant
• Biological STP: Standard [Effectiveness Water: 87.65%]
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations

8.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100% Local release rate: 2.75E-3 kg/day
Air	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100%
Non agricultural soil	ERC based	Release factor after on site RMM: 0%

8.2. Worker CS 2: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities <= 25% (PROC 8a)

8.2.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 25.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 4.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Basic • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

8.3. Worker CS 3: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities <= 5% (PROC 8a)

8.3.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 5.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Basic • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

8.4. Worker CS 4: Transfer of substance or mixture (charging and discharging) at dedicated facilities <= 100% (PROC 8b)

8.4.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Basic• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C• Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

8.5. Worker CS 5: Roller application or brushing <= 25% (PROC 10)

8.5.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 25.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 1.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Basic• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C

- Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

8.6. Worker CS 6: Roller application or brushing <= 5% (PROC 10)

8.6.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 5.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Basic • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

8.7. Worker CS 7: Non industrial spraying <= 1% (PROC 11)

8.7.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 1.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 4.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Basic • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C

- Skin surface potentially exposed: Two hands and upper wrists (1500 cm²)

Risk characterisation

Substance is irritant to skin and eyes in concentrations above or equal to 1%.
Wear eye protection and gloves, when appropriate.

8.8. Worker CS 8: Treatment of articles by dipping and pouring <= 25% (PROC 13)

8.8.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 25.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Basic • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 80%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively.
Wear face/eye protection, gloves and protective clothing, when appropriate.

9. EXPOSURE SCENARIO 8: CONSUMER USE - CONSUMER USE OF CLEANING PRODUCTS

Environment contributing scenario(s):		
CS 1	Consumer use of cleaning products	ERC 8a
Consumer contributing scenario(s):		
CS 2	Laundry and dishwashing products	PC 35
CS 3	Cleaners, liquids	PC 35
CS 4	Cleaners, trigger sprays	PC 35

Further description of the use:

Due to corrosive properties of the substance, its concentration in the products for consumer use should be **below** 3%.

9.1. Env CS 1: Consumer use of cleaning products (ERC 8a)

9.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: ≤ 0.0000027 tonnes/day
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
• Biological STP: Standard [Effectiveness Water: 87.65%]

9.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100% Local release rate: $2.75E-3$ kg/day
Air	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100%
Non agricultural soil	ERC based	Release factor after on site RMM: 0%

9.2. Cons CS 2: Laundry and dishwashing products (PC 35)

9.2.1. Conditions of use

The contributing scenario is based on a subcategory of ECETOC TRA Consumer: Laundry and dish washing products

Product (article) characteristics
<ul style="list-style-type: none"> • Exposure via dermal route: Yes • Physical form of the used product: Liquid • Spray: No • Exposure via oral route: Oral exposure is considered to be not relevant • Percentage (w/w) of substance in mixture/article: ≤ 0.8 % • Exposure via inhalation route: Yes

Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Amount of product used per application: ≤ 50.0 g/event • Exposure time per event: = 1.0 h/event • Frequency of use over a year: Frequent • Frequency of use over a day: = 1.0 events per day
Information and behavioral advice for consumers
<ul style="list-style-type: none"> • Place of use: Indoor • Adult/child assumed: Adult
Other conditions affecting consumers exposure
<ul style="list-style-type: none"> • Body parts potentially exposed: Hands • Inhalation factor: = 1.0 • Dermal transfer factor: = 1.0

Risk characterisation

Concentrations below 1% are considered to be safe based on the qualitative risk assessment.

9.3. Cons CS 3: Cleaners, liquids (PC 35)

9.3.1. Conditions of use

The contributing scenario is based on a subcategory of ECETOC TRA Consumer: Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

Product (article) characteristics
<ul style="list-style-type: none"> • Exposure via dermal route: Yes • Physical form of the used product: Liquid • Spray: No • Exposure via oral route: Oral exposure is considered to be not relevant • Percentage (w/w) of substance in mixture/article: ≤ 0.8 % • Exposure via inhalation route: Yes
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Amount of product used per application: ≤ 250.0 g/event • Exposure time per event: = 0.33 h/event • Frequency of use over a year: Frequent • Frequency of use over a day: = 1.0 events per day
Information and behavioral advice for consumers
<ul style="list-style-type: none"> • Place of use: Indoor • Adult/child assumed: Adult
Other conditions affecting consumers exposure
<ul style="list-style-type: none"> • Body parts potentially exposed: Hands • Inhalation factor: = 1.0 • Dermal transfer factor: = 1.0

Risk characterisation

Concentrations below 1% are considered to be safe based on the qualitative risk assessment.

9.4. Cons CS 4: Cleaners, trigger sprays (PC 35)

9.4.1. Conditions of use

The contributing scenario is based on a subcategory of ECETOC TRA Consumer: Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

Product (article) characteristics
<ul style="list-style-type: none"> • Exposure via dermal route: Yes • Physical form of the used product: Liquid • Spray: Yes

<ul style="list-style-type: none"> • Exposure via oral route: Oral exposure is considered to be not relevant • Percentage (w/w) of substance in mixture/article: $\leq 0.4\%$ • Exposure via inhalation route: Yes
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Amount of product used per application: ≤ 35.0 g/event • Exposure time per event: = 4.0 h/event • Frequency of use over a year: Frequent • Frequency of use over a day: = 1.0 events per day
Information and behavioral advice for consumers
<ul style="list-style-type: none"> • Place of use: Indoor • Adult/child assumed: Adult
Other conditions affecting consumers exposure
<ul style="list-style-type: none"> • Body parts potentially exposed: Hands • Inhalation factor: = 1.0 • Dermal transfer factor: = 1.0

Risk characterisation

Concentrations below 1% are considered to be safe based on the qualitative risk assessment.

10. EXPOSURE SCENARIO 9: FORMULATION OR RE-PACKING - MANUFACTURE OF PLASTICS

Product category formulated: PC 32: Polymer Preparations and Compounds

Environment contributing scenario(s):		
CS 1	Manufacture of plastics	ERC 3
Worker contributing scenario(s):		
CS 2	Chemical production where opportunity for exposure arises	PROC 4
CS 3	Mixing or blending in batch processes	PROC 5
CS 4	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC 8a
CS 5	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC 8b
CS 6	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC 9
CS 7	Roller application or brushing	PROC 10
CS 8	Use of blowing agents in manufacture of foam	PROC 12
CS 9	Treatment of articles by dipping and pouring	PROC 13
CS 10	Tabletting, compression, extrusion, pelletisation, granulation	PROC 14

10.1. Env CS 1: Manufacture of plastics (ERC 3)

10.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
<ul style="list-style-type: none"> Daily use amount at site: ≤ 0.025 tonnes/day <i>A minimum of 200 emission days per year are assumed.</i> Annual use amount at site: ≤ 5.0 tonnes/year <i>Number of sites = 10</i>
Conditions and measures related to biological sewage treatment plant
<ul style="list-style-type: none"> Biological STP: Standard [Effectiveness Water: 87.65%] Discharge rate of STP: ≥ 2000 m³/day Application of the STP sludge on agricultural soil: Yes
Conditions and measures related to external treatment of waste (including article waste)
<ul style="list-style-type: none"> Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
<ul style="list-style-type: none"> Receiving surface water flow rate: ≥ 18000 m³/day

10.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 0.2% Release factor after on site RMM: 0.2% Local release rate: 0.05 kg/day
Air	ERC based	Release factor before on site RMM: 30% Release factor after on site RMM: 30% Local release rate: 7.5 kg/day

Release	Release estimation method	Explanations
Non agricultural soil	ERC based	Release factor after on site RMM: 0.1%

10.2. Worker CS 2: Chemical production where opportunity for exposure arises (PROC 4)

10.2.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> Percentage (w/w) of substance in mixture/article: <= 100.0 % Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Occupational Health and Safety Management System: Advanced General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> Respiratory Protection: No [Effectiveness Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> Place of use: Indoor Operating temperature: <= 40.0 °C Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

10.3. Worker CS 3: Mixing or blending in batch processes (PROC 5)

10.3.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> Percentage (w/w) of substance in mixture/article: <= 100.0 % Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Occupational Health and Safety Management System: Advanced General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> Respiratory Protection: No [Effectiveness Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] Use of eye protection: Yes
Other conditions affecting workers exposure

- Place of use: Indoor
- Operating temperature: <= 40.0 °C
- Skin surface potentially exposed: Two hands face (480 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

10.4. Worker CS 4: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)

10.4.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

10.5. Worker CS 5: Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)

10.5.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 95%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training)

and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
• Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively.
Wear face/eye protection, gloves and protective clothing, when appropriate.

10.6. Worker CS 6: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)

10.6.1. Conditions of use

Product (Article) characteristics
• Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
• Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
• Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
• Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands face (480 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively.
Wear face/eye protection, gloves and protective clothing, when appropriate.

10.7. Worker CS 7: Roller application or brushing (PROC 10)

10.7.1. Conditions of use

Product (Article) characteristics
• Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
• Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation

<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

10.8. Worker CS 8: Use of blowing agents in manufacture of foam (PROC 12)

10.8.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: One hand face only (240 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

10.9. Worker CS 9: Treatment of articles by dipping and pouring (PROC 13)

10.9.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced

<ul style="list-style-type: none"> • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands face (480 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

10.10. Worker CS 10: Tableting, compression, extrusion, pelletisation, granulation (PROC 14)

10.10.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands face (480 cm2)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

11. EXPOSURE SCENARIO 10: SERVICE LIFE (CONSUMERS) - PLASTIC ARTICLES

Environment contributing scenario(s):		
CS 1	Consumer use of plastic articles	ERC 10a
CS 2	Consumer use of plastic articles	ERC 11a
Consumer contributing scenario(s):		
CS 3	Plastic articles	AC 13

11.1. Env CS 1: Consumer use of plastic articles (ERC 10a)

11.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.000028 tonnes/day
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
• Biological STP: Standard [Effectiveness Water: 87.65%]

11.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 3.2% Release factor after on site RMM: 3.2% Local release rate: 8.8E-4 kg/day
Air	ERC based	Release factor before on site RMM: 0.05% Release factor after on site RMM: 0.05%
Non agricultural soil	ERC based	Release factor after on site RMM: 3.2%

11.2. Env CS 2: Consumer use of plastic articles (ERC 11a)

11.2.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.000028 tonnes/day
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
• Biological STP: Standard [Effectiveness Water: 87.65%]

11.2.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 0.05% Release factor after on site RMM: 0.05% Local release rate: 1.38E-5 kg/day
Air	ERC based	Release factor before on site RMM: 0.05% Release factor after on site RMM: 0.05%
Non agricultural soil	ERC based	Release factor after on site RMM: 0%

11.3. Cons CS 3: Plastic articles (AC 13)

11.3.1. Conditions of use

The contributing scenario is based on a subcategory of ECETOC TRA Consumer: Plastic, larger articles (plastic chair, PVC-flooring, lawn mower, PC)

Product (article) characteristics
<ul style="list-style-type: none"> • Exposure via dermal route: Yes • Physical form of the used product: Liquid • Exposure via oral route: Oral exposure is considered to be not relevant • Percentage (w/w) of substance in mixture/article: $\leq 0.7\%$ • Exposure via inhalation route: Yes
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Amount of product used per application: ≤ 8000 g/event • Exposure time per event: = 8.0 h/event • Frequency of use over a year: Frequent • Frequency of use over a day: = 1.0 events per day
Information and behavioral advice for consumers
<ul style="list-style-type: none"> • Place of use: Indoor • Adult/child assumed: Adult
Other conditions affecting consumers exposure
<ul style="list-style-type: none"> • Body parts potentially exposed: Upper part of the body • Inhalation factor: = 1.0 • Dermal transfer factor: = 1.0

Risk characterisation

Concentrations below 1% are considered to be safe based on qualitative risk assessment.

12. EXPOSURE SCENARIO 11: FORMULATION OR RE-PACKING - FORMULATION OF COSMETIC PRODUCTS

Product category formulated: PC 39: Cosmetics, personal care products

Environment contributing scenario(s):		
CS 1	Formulation of cosmetic products	ERC 2
Worker contributing scenario(s):		
CS 2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC 1
CS 3	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions	PROC 2
CS 4	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition	PROC 3
CS 5	Mixing or blending in batch processes	PROC 5
CS 6	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC 8a
CS 7	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC 8b
CS 8	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC 9
CS 9	Tabletting, compression, extrusion, pelletisation, granulation	PROC 14
CS 10	Use as laboratory reagent	PROC 15

12.1. Env CS 1: Formulation of cosmetic products (ERC 2)

12.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
<ul style="list-style-type: none"> Daily use amount at site: ≤ 0.01 tonnes/day <i>250 emission days are assumed, based on sector knowledge.</i> Annual use amount at site: ≤ 2.5 tonnes/year <i>Number of sites = 10</i>
Conditions and measures related to biological sewage treatment plant
<ul style="list-style-type: none"> Biological STP: Standard [Effectiveness Water: 87.65%] Discharge rate of STP: ≥ 2000 m³/day Application of the STP sludge on agricultural soil: Yes
Conditions and measures related to external treatment of waste (including article waste)
<ul style="list-style-type: none"> Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
<ul style="list-style-type: none"> Receiving surface water flow rate: ≥ 18000 m³/day

12.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 2% Release factor after on site RMM: 2% Local release rate: 0.2 kg/day
Air	ERC based	Release factor before on site RMM: 2.5% Release factor after on site RMM: 2.5% Local release rate: 0.25 kg/day
Non agricultural soil	ERC based	Release factor after on site RMM: 0.01%

12.2. Worker CS 2: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC 1)

12.2.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Closed process without likelihood of exposure • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: No [Effectiveness Inhalation: 0%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: One hand face only (240 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

12.3. Worker CS 3: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC 2)

12.3.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure

• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Closed continuous process with occasional controlled exposure • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

12.4. Worker CS 4: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC 3)

12.4.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Closed batch process with occasional controlled exposure • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: One hand face only (240 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

12.5. Worker CS 5: Mixing or blending in batch processes (PROC 5)

12.5.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> Percentage (w/w) of substance in mixture/article: <= 100.0 % Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Occupational Health and Safety Management System: Advanced General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> Respiratory Protection: No [Effectiveness Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> Place of use: Indoor Operating temperature: <= 40.0 °C Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

12.6. Worker CS 6: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)

12.6.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> Percentage (w/w) of substance in mixture/article: <= 100.0 % Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Occupational Health and Safety Management System: Advanced General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> Respiratory Protection: No [Effectiveness Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> Place of use: Indoor Operating temperature: <= 40.0 °C Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

12.7. Worker CS 7: Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)

12.7.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 95%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

12.8. Worker CS 8: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)

12.8.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

12.9. Worker CS 9: Tableting, compression, extrusion, pelletisation, granulation (PROC 14)

12.9.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C• Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

12.10. Worker CS 10: Use as laboratory reagent (PROC 15)

12.10.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C

• Skin surface potentially exposed: One hand face only (240 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively.
Wear face/eye protection, gloves and protective clothing, when appropriate.

13. EXPOSURE SCENARIO 12: WIDESPREAD USE BY PROFESSIONAL WORKERS - PROFESSIONAL USE OF COSMETIC PRODUCTS

Product category used: PC 39: Cosmetics, personal care products

Environment contributing scenario(s):		
CS 1	Professional use of cosmetic products	ERC 8a

13.1. Env CS 1: Professional use of cosmetic products (ERC 8a)

13.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: ≤ 0.0000069 tonnes/day
Conditions and measures related to biological sewage treatment plant
• Biological STP: Standard [Effectiveness Water: 87.65%]
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations

13.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100% Local release rate: 6.88E-3 kg/day
Air	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100%
Non agricultural soil	ERC based	Release factor after on site RMM: 0%

14. EXPOSURE SCENARIO 13: CONSUMER USE - CONSUMER USE OF COSMETIC PRODUCTS

Environment contributing scenario(s):		
CS 1	Consumer use of cosmetic products	ERC 8a
CS 2	Consumer use of cosmetic products	ERC 8d

14.1. Env CS 1: Consumer use of cosmetic products (ERC 8a)

14.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.0000069 tonnes/day
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
• Biological STP: Standard [Effectiveness Water: 87.65%]

14.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100% Local release rate: 6.88E-3 kg/day
Air	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100%
Non agricultural soil	ERC based	Release factor after on site RMM: 0%

14.2. Env CS 2: Consumer use of cosmetic products (ERC 8d)

14.2.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.0000069 tonnes/day
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
• Biological STP: Standard [Effectiveness Water: 87.65%]

14.2.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100% Local release rate: 6.88E-3 kg/day
Air	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100%
Non agricultural soil	ERC based	Release factor after on site RMM: 20%

15. EXPOSURE SCENARIO 14: FORMULATION OR RE-PACKING - FORMULATION OF AGROCHEMICAL PRODUCTS

Product category formulated: PC 27: Plant Protection Products

Environment contributing scenario(s):		
CS 1	Formulation of agrochemical products	ERC 2
Worker contributing scenario(s):		
CS 2	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition	PROC 3
CS 3	Mixing or blending in batch processes	PROC 5
CS 4	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC 8b
CS 5	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC 9

15.1. Env CS 1: Formulation of agrochemical products (ERC 2)

15.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
<ul style="list-style-type: none"> Daily use amount at site: ≤ 0.08 tonnes/day <p><i>The number of emission days for use in agrochemical formulations have been set at ≥ 125 per year.</i></p> <ul style="list-style-type: none"> Annual use amount at site: ≤ 10.0 tonnes/year <p><i>Number of sites = 10</i></p>
Conditions and measures related to biological sewage treatment plant
<ul style="list-style-type: none"> Biological STP: Standard [Effectiveness Water: 87.65%] Discharge rate of STP: ≥ 2000 m³/day Application of the STP sludge on agricultural soil: Yes
Conditions and measures related to external treatment of waste (including article waste)
<ul style="list-style-type: none"> Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
<ul style="list-style-type: none"> Receiving surface water flow rate: ≥ 18000 m³/day

15.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 2% Release factor after on site RMM: 2% Local release rate: 1.6 kg/day
Air	ERC based	Release factor before on site RMM: 2.5% Release factor after on site RMM: 2.5% Local release rate: 2 kg/day
Non agricultural soil	ERC based	Release factor after on site RMM: 0.01%

15.2. Worker CS 2: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC 3)

15.2.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Closed batch process with occasional controlled exposure • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: One hand face only (240 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

15.3. Worker CS 3: Mixing or blending in batch processes (PROC 5)

15.3.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

15.4. Worker CS 4: Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)

15.4.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 95%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C• Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

15.5. Worker CS 5: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)

15.5.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure

- Place of use: Indoor
- Operating temperature: ≤ 40.0 °C
- Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively.
Wear face/eye protection, gloves and protective clothing, when appropriate.

16. EXPOSURE SCENARIO 15: WIDESPREAD USE BY PROFESSIONAL WORKERS - USE AS A CO-FORMULANT IN PLANT PROTECTION PRODUCTS, SPRAY APPLICATIONS BY PROFESSIONALS

Product category used: PC 27: Plant Protection Products

Environment contributing scenario(s):		
CS 1	Use as a co-formulant in plant protection products, spray applications by professionals	ERC 8d
Worker contributing scenario(s):		
CS 2	Mixing and loading of plant protection products into delivery equipment	PROC 8a
CS 3	Delivery and dispersion of plant protection products	PROC 11

16.1. Env CS 1: Use as a co-formulant in plant protection products, spray applications by professionals (ERC 8d)

16.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: ≤ 0.000019 tonnes/day
Conditions and measures related to biological sewage treatment plant
• Biological STP: Standard [Effectiveness Water: 87.65%]
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
• Type of process: Spray application of plant protection products

16.1.2. Releases

The releases have been estimated on the basis of SPERC ECPA SPERC 8d.2.v2 : Spray application of plant protection products containing co-formulants (indoor or outdoor)_professional use (ECPA SpERC 8d.2.v2 – VP > 0.01: Spray application of plant protection products containing co-formulants (indoors or outdoors). Vapour pressure = > 0.01 Pa)

Description of activities/processes covered by the SPERC

Covers the indoor and outdoor spray application of substances as co-formulants in plant protection products by professional users. Farmers are considered professional users.

The SPERC considers direct emissions to soil and/or air, which for wide dispersive uses are considered only at the regional scale in the existing exposure estimation framework (as described in ECHA R.16 and implemented in the ECETOC TRA). The SPERCs are not intended to provide a definitive estimate of environmental exposure at the local scale.

Product/substance domain: Plant protection products, co-formulants, spray, professional use

The local releases to the environment are reported in the following table.

Local releases to the environment

Release	Explanations
Water	<p>Release factor: 0%</p> <p>Local release rate: 0 kg/day</p> <p>Explanation: Plant protection products approvals under 91/414/EEC (now Regulation (EC) 1107/2009) include specific labeling instructions designed to prevent emission to wastewater/water. Therefore, no direct emission to surface water or waste water is expected.</p>

Release	Explanations
Air	<p>Release factor: 100%</p> <p>Local release rate: - kg/day</p> <p>Explanation: For co-formulants included in spray formulations the fraction emitted to air during spraying is estimated on the basis of vapour pressure of the co-formulant. The emission fractions to air are taken from the pesticides field application module in USES 4.0 (RIVM, 2002). It is assumed that the release fractions do not account for re-volatilization from soil to air. It is expected that emission to air may be lower in indoor situations. However, it is assumed that these emission fractions apply for both indoor and outdoor use.</p>
Non agricultural soil	<p>Release factor: 0%</p> <p>Local release rate: - kg/day</p> <p>Explanation: For co-formulants included in spray formulations the dose which reaches the soil can be significantly reduced due to drift or volatilization of spray droplets. The emission fractions to air are taken from the pesticides field application module in USES 4.0 (RIVM, 2002) and the remaining fraction estimates emissions to soil. It is assumed that these emission fractions apply for both indoor and outdoor use.</p>

Releases to waste

Release factor to external waste: 0.01 %

Fraction becoming waste determined on basis of worst-case residue remaining in plastic pesticide container following manual triple rinsing or mechanical integrated pressure rinsing (< 0.01 %) (ECPA, 2007).

16.2. Worker CS 2: Mixing and loading of plant protection products into delivery equipment (PROC 8a)

16.2.1. Conditions of use

PROC 8a: Mixing and loading of plant protection products into delivery equipment	
Further specification: The transfer (and inherent diluting and mixing) of solid and liquid PPPs which occurs during loading of tractor mounted/trailed boom sprayers, loading of tractor mounted/trailed broadcast air-assisted sprayers, and loading of hand-held spray equipment.	
Product characteristics	
Substance in preparation: yes, up to 100%	
Liquid	
Amounts used, frequency and duration of use/exposure	
Tractor mounted spraying:	Area application rate: 0.933 kg/ha. For boom sprayers (20 ha/day): 18.66 kg/day. For orchard sprayers (8 ha/day): 7.46 kg/day. Duration: 8 h/day
Hand-held spraying:	1.02 kg/ha; 1.02 kg/day; 8 h/day
Technical and organisational conditions and measures	
None specified	
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protective equipment (PPE):	
Tractor mounted spraying:	Gloves PF100
Hand-held spraying:	Gloves PF100
Respiratory protective equipment (RPE):	
Tractor mounted spraying:	no RPE
Hand-held spraying:	no RPE
Other conditions affecting workers exposure	
Ventilation conditions at workplace: Good natural ventilation	
Place of use: Outdoors and indoors	
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
All label instructions on the plant protection product must be followed. Preparation of the spray mixture should only be carried out by trained personnel. The above exposure scenario may be scaled using the ECPA OWB tool and using the parameters: application rate, personal protection (PPE), and respiratory protection (RPE).	

16.3. Worker CS 3: Delivery and dispersion of plant protection products (PROC 11)

16.3.1. Conditions of use

PROC 11: Delivery and dispersion of plant protection products	
Further specification: The spray application of PPPs using tractor mounted/trailed boom sprayers, tractor mounted/trailed broadcast air-assisted sprayers, and hand-held spray equipment (knapsack sprayers and mist blowers) for high-level targets, indoor greenhouse spraying, as well as the indirect exposure of workers on field re-entry and bystanders.	
Product characteristics	
Substance in preparation: yes, up to 100%	
Liquid	
Amounts used, frequency and duration of use/exposure	
Tractor mounted spraying:	Area application rate: 0.933 kg/ha. For boom sprayers (20 ha/day): 18.66 kg/day. For orchard sprayers (8 ha/day): 7.46 kg/day. Duration: 8 h/day
Hand-held spraying:	1.02 kg/ha = 1.02 kg/day; 1 ha/day; 8 h/day, 6 h/day for greenhouses
Technical and organisational conditions and measures	
None specified	
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protective equipment (PPE):	
Tractor mounted spraying:	Gloves PF100
Hand-held spraying:	Gloves PF100
Respiratory protective equipment (RPE):	
Tractor mounted spraying:	no RPE
Hand-held spraying:	no RPE
Other conditions affecting workers exposure	
Ventilation conditions at workplace: Good natural ventilation; 1 air change per hour for greenhouses.	
Place of use: Outdoors and indoors	
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
All label instructions on the plant protection product must be followed. Preparation of the spray mixture should only be carried out by trained personnel. The above exposure scenario may be scaled using the ECPA OWB tool and using the parameters: application rate, personal protection (PPE), respiratory protection (RPE), and local exhaust ventilation (LEV).	

17. EXPOSURE SCENARIO 16: WIDESPREAD USE BY PROFESSIONAL WORKERS - USE AS A CO-FORMULANT IN PLANT PROTECTION PRODUCTS, SEED AND GRANULAR APPLICATIONS BY PROFESSIONALS

Product category used: PC 27: Plant Protection Products

Environment contributing scenario(s):		
CS 1	Use as a co-formulant in plant protection products, spray applications by professionals	ERC 8d
Worker contributing scenario(s):		
CS 2	Mixing and loading of plant protection products into delivery equipment	PROC 8a
CS 3	Transfer of treated seeds from batch treater into bags	PROC 8b
CS4	Delivery and dispersion of agrochemical plant protection products	PROC 8a

17.1. Env CS 1: Use as a co-formulant in plant protection products, seed and granular applications by professionals (ERC 8d)

17.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.000019 tonnes/day
Conditions and measures related to biological sewage treatment plant
• Biological STP: Standard [Effectiveness Water: 87.65%]
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
• Type of process: Direct application of plant protection products (e.g. granules or treated seeds) to soil

17.1.2. Releases

The releases have been estimated on the basis of SPERC ECPA SPERC 8d.1.v2 : Direct application of plant protection products (granule or treated seeds) containing co-formulants to soil (indoor or outdoor)_professional use

(ECPA SpERC 8d.1.v2 : Direct application of plant protection products (granule or treated seeds) containing co-formulants to soil (indoor or outdoor);Covers the direct application to soil of substances as co-formulants in solid plant protection product formulations (e.g. granules, treated seeds) by consumers and professional users. Farmers are considered professional users. Substance Domain: ECPA SPERC 8d.1.v2: Use of solid plant protection product formulations (granules or treated seeds) The ECPA SPERCs provide release information based on substance characteristics and application method, which is only intended for use in estimating exposure at the regional scale, including humans via the environment and predators exposed via the food chain (secondary poisoning), where necessary. The ECPA SPERCs are not intended to facilitate estimation of direct exposure to environmental compartments.at the local scale. For further details, please see the ECPA website. Formulation of crop protection products is not addressed by the ECPA SPERCs. The ECPA SPERCs are limited to estimating direct releases to soil and air at the regional scale (wide-dispersive use) and therefore do not cover the process of on-farm seed treatment by professional operators, which is considered to represent an ‘industrial’ use since the potential for environmental release is localised.)

Description of activities/processes covered by the SPERC

Covers the direct application to soil of substances as co-formulants in solid plant protection product formulations (e.g. granules, treated seeds) by professional users. Farmers are considered professional users. The SPERC considers direct emissions to soil which for wide dispersive uses are considered only at the regional

scale in the existing exposure estimation framework. The SPERC is not intended to provide a definitive estimate of environmental exposure at the local scale.

Product/substance domain: Plant protection products, co-formulants, granules, seeds, professional use

The local releases to the environment are reported in the following table.

Local releases to the environment

Release	Explanations
Water	Release factor: 0% Local release rate: 0 kg/day Explanation: Plant protection products approvals under 91/414/EEC (now Regulation (EC) 1107/2009) include specific labeling instructions designed to prevent emission to wastewater/water. Therefore, no direct emission to surface water or waste water is expected.
Air	Release factor: 0% Local release rate: - kg/day Explanation: For co-formulants included in solid formulations (granules or treated seeds) the emission fraction to air is 0. This emission fraction applies to both indoor and outdoor use.
Non agricultural soil	Release factor: 100% Local release rate: - kg/day Explanation: For co-formulants included in solid formulations (granules or treated seeds) the emission fraction to soil is assumed to be 1. This emission fraction applies to both indoor and outdoor use.

Releases to waste

Release factor to external waste: 0.01 %

Specific estimates of residues remaining in packaging for solid formulations (granules or treated seeds) are not available. Therefore, it is proposed to assume the default provided in the emission scenario document for plastic additives (OECD, 2009), which suggests that 0.01 % could be expected to remain in packaging and be sent to waste (for powders of particle size > 40 µm).

17.2. Worker CS 2: Mixing and loading of plant protection products into seed treatment or delivery equipment (PROC 8a)

17.2.1. Conditions of use

PROC 8a: mixing and loading of plant protection products into seed treatment or delivery equipment	
Further specification: The transfer of treated seed and granular PPPs which occurs during loading of tractor mounted broadcast spreaders, and the loading of mechanical equipment with solid and liquid PPPs for the treatment of seeds.	
Product characteristics	
Substance in preparation: yes, up to 100.0%	
Liquid	
Amounts used, frequency and duration of use/exposure	
Loading for seed treatment:	10.0 kg/day; 8 h/day
Loading for tractor delivery/dispersal:	77.6 kg/day; 8 h/day
Loading for manual delivery/dispersal:	3.88 kg/day; 8 h/day
Technical and organisational conditions and measures	
Level of containment: open process	
Local Exhaust Ventilation: No	
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protective equipment (PPE):	
Seed treatment:	Gloves PF100
Granular applications:	Gloves PF10
Respiratory protective equipment (RPE):	
Seed treatment:	no RPE
Granular applications:	no RPE
Working clothes (long-sleeve shirt, long pants, shoes plus socks).	
Other conditions affecting workers exposure	
Ventilation conditions at workplace: Natural ventilation	
Place of use: Outdoors and indoors	
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply	
All label instructions on the plant protection product must be followed. Preparation of the spray mixture should only be carried out by trained personnel. The above exposure scenario may be scaled using the ECPA OWB tool and using the parameters: application rate, personal protection (PPE), and respiratory protection (RPE).	

17.3. Worker CS 3: Transfer of treated seeds from batch treater into bags (PROC 8b)

17.3.1. Conditions of use

PROC 8b: Transfer of treated seeds from batch treater into bags
Further specification: Transfer of treated seeds from batch treater into bags.
Product characteristics
Substance content in seed dust: 50.0%
Substance form: dusty
Amounts used, frequency and duration of use/exposure
10.0 kg/day; 8 h/day
Technical and organisational conditions and measures
Level of containment: semi-enclosed
Local Exhaust Ventilation: yes, 95% efficiency
Conditions and measures related to personal protection, hygiene and health evaluation
Personal protective equipment (PPE): Gloves PF20
Respiratory protective equipment (RPE): no RPE
Other conditions affecting workers exposure
Ventilation conditions at workplace: natural ventilation
Place of use: Indoors or outdoors
Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply
All label instructions on the plant protection product must be followed. The PPP should only be used by trained personnel.
The above exposure scenario may be scaled using the ECPA OWB tool and using the parameters: application rate, personal protection (PPE), respiratory protection (RPE), and local exhaust ventilation (LEV).

17.4. Worker CS 4: Delivery and dispersion of granular plant protection products or treated seeds (PROC 8a)

17.4.1. Conditions of use

PROC 8a: Delivery and dispersion of granular plant protection products or treated seeds
Further specification: Delivery and dispersion of granular plant protection products or treated seeds by open-cab solid broadcast spreaders, push type rotary spreaders, belly grinders, or by hand.
Product characteristics
Substance in preparation: yes, up to 100%
Amounts used, frequency and duration of use/exposure
Tractor delivery/dispersal: 3.88 kg/ha = 77.6 kg/day; area: 20 ha; 8 h/day
Manual delivery/dispersal: 3.88 kg/ha = 3.88 kg/day; area: 200 m ² or 1 ha; 8 h/day
Technical conditions and measures at process level (source) to prevent release
Level of containment: open process
Local Exhaust Ventilation: No
Conditions and measures related to personal protection, hygiene and health evaluation
Personal protective equipment (PPE): Gloves PF100
Respiratory protective equipment (RPE): no RPE

Working clothes (long-sleeve shirt, long pants, shoes plus socks).

Other conditions affecting workers exposure

Ventilation conditions at workplace: Good natural ventilation

Place of use: Indoors or outdoors

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply

All label instructions on the plant protection product must be followed. Preparation of the spray mixture should only be carried out by trained personnel.

The above exposure scenario may be scaled using the ECPA OWB tool and using the parameters: application rate, personal protection (PPE), and respiratory protection (RPE).

18. EXPOSURE SCENARIO 17: CONSUMER USE - USE AS A CO-FORMULANT IN PLANT PROTECTION PRODUCTS, SPRAY APPLICATIONS BY CONSUMERS

Environment contributing scenario(s):		
CS 1	Use as a co-formulant in plant protection products, spray applications by consumers	ERC 8d
Consumer contributing scenario(s):		
CS 2	Plant protection product	PC 27

18.1. Env CS 1: Use as a co-formulant in plant protection products, spray applications by consumers (ERC 8d)

18.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: ≤ 0.0000083 tonnes/day
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
• Biological STP: Standard [Effectiveness Water: 87.65%] • Type of process: Spray application of plant protection products

18.1.2. Releases

The releases have been estimated on the basis of SPERC ECPA SPERC 8d.2.v2: Spray application of plant protection products containing co-formulants (indoor or outdoor)_consumer use (ECPA SpERC 8d.2.v2 – VP > 0.01: Spray application of plant protection products containing co-formulants (indoors or outdoors). Vapour pressure = > 0.01 Pa)

Description of activities/processes covered by the SPERC

Covers the indoor and outdoor spray application of substances as co-formulants in plant protection products by consumers. The SPERC considers direct emissions to soil and/or air, which for wide dispersive uses are considered only at the regional scale in the existing exposure estimation framework (as described in ECHA R.16 and implemented in the ECETOC TRA). The SPERCs are not intended to provide a definitive estimate of environmental exposure at the local scale.

Product/substance domain: Plant protection products, co-formulants, spray, consumer use

The local releases to the environment are reported in the following table.

Local releases to the environment

Release	Explanations
Water	<p>Release factor: 0%</p> <p>Local release rate: 0 kg/day</p> <p>Explanation: Plant protection products approvals under 91/414/EEC (now Regulation (EC) 1107/2009) include specific labeling instructions designed to prevent emission to wastewater/water. Therefore, no direct emission to surface water or waste water is expected.</p>
Air	<p>Release factor: 100%</p> <p>Local release rate: - kg/day</p> <p>Explanation: For co-formulants included in spray formulations the fraction emitted to air during spraying is estimated on the basis of vapour pressure of the co-formulant. The emission fractions to air are taken from the pesticides field application module in USES 4.0 (RIVM, 2002). It is assumed that the release fractions do not account for re-volatilization from soil to air. It is expected that emission to air may be lower in indoor situations. However, it is assumed that these emission fractions apply for both indoor and outdoor use.</p>

Release	Explanations
Non agricultural soil	<p>Release factor: 0%</p> <p>Local release rate: - kg/day</p> <p>Explanation: For co-formulants included in spray formulations the dose which reaches the soil can be significantly reduced due to drift or volatilization of spray droplets. The emission fractions to air are taken from the pesticides field application module in USES 4.0 (RIVM, 2002) and the remaining fraction estimates emissions to soil. It is assumed that these emission fractions apply for both indoor and outdoor use.</p>

Releases to waste

Release factor to external waste: 0.01 %

Fraction becoming waste determined on basis of worst-case residue remaining in plastic pesticide container following manual triple rinsing or mechanical integrated pressure rinsing (< 0.01 %) (ECPA, 2007).

18.2. Cons CS 2: Consumer use of agrochemicals

18.2.1. Conditions of use

Further specification: Mixing and loading of plant protection products into hand-held sprayers, and hand-held spraying to high- and low-level targets.
Product characteristics
Substance in preparation: yes, up to 100%
Liquid
Amounts used, frequency and duration of use
1.87 kg/ha = 37 g/day; area: 200 m ² ; once per day
Measures related to information and behavioural advice to consumers including personal protection and hygiene
All instructions on the plant protection product label must be followed.
Other conditions affecting consumer exposure
Ventilation conditions: natural ventilation
Place of use: outdoors or indoors

19. EXPOSURE SCENARIO 18: CONSUMER USE - USE AS A CO-FORMULANT IN PLANT PROTECTION PRODUCTS, SEED AND GRANULAR APPLICATIONS BY CONSUMERS

Environment contributing scenario(s):		
CS 1	Use as a co-formulant in plant protection products, seed and granular applications by consumers	ERC 8d
Consumer contributing scenario(s):		
CS 2	Plant protection product	PC 27

19.1. Env CS 1: Use as a co-formulant in plant protection products, seed and granular applications by consumers (ERC 8d)

19.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: <= 0.0000083 tonnes/day
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
• Biological STP: Standard [Effectiveness Water: 87.65%] • Type of process: Direct application of plant protection products (e.g. granules or treated seeds) to soil

19.1.2. Releases

The releases have been estimated on the basis of SPERC ECPA SPERC 8d.1.v2: Direct application of plant protection products (granule or treated seeds) containing co-formulants to soil (indoor or outdoor)_consumer use

(ECPA SpERC 8d.1.v2 : Direct application of plant protection products (granule or treated seeds) containing co-formulants to soil (indoor or outdoor);Covers the direct application to soil of substances as co-formulants in solid plant protection product formulations (e.g. granules, treated seeds) by consumers and professional users. Farmers are considered professional users. Substance Domain: ECPA SPERC 8d.1.v2: Use of solid plant protection product formulations (granules or treated seeds) The ECPA SPERCs provide release information based on substance characteristics and application method, which is only intended for use in estimating exposure at the regional scale, including humans via the environment and predators exposed via the food chain (secondary poisoning), where necessary. The ECPA SPERCs are not intended to facilitate estimation of direct exposure to environmental compartments.at the local scale. For further details, please see the ECPA website. Formulation of crop protection products is not addressed by the ECPA SPERCs. The ECPA SPERCs are limited to estimating direct releases to soil and air at the regional scale (wide-dispersive use) and therefore do not cover the process of on-farm seed treatment by professional operators, which is considered to represent an 'industrial' use since the potential for environmental release is localised.)

Description of activities/processes covered by the SPERC

Covers the direct application to soil of substances as co-formulants in solid plant protection product formulations (e.g. granules, treated seeds) by consumers.

The SPERC considers direct emissions to soil which for wide dispersive uses are considered only at the regional scale in the existing exposure estimation framework. The SPERC is not intended to provide a definitive estimate of environmental exposure at the local scale.

Product/substance domain: Plant protection products, co-formulants, granules, seeds, consumer use

The local releases to the environment are reported in the following table.

Local releases to the environment

Release	Explanations
Water	Release factor: 0% Local release rate: 0 kg/day Explanation: Plant protection products approvals under 91/414/EEC (now Regulation (EC) 1107/2009) include specific labeling instructions designed to prevent emission to wastewater/water. Therefore, no direct emission to surface water or waste water is expected.
Air	Release factor: 0% Local release rate: - kg/day Explanation: For co-formulants included in solid formulations (granules or treated seeds) the emission fraction to air is 0. This emission fraction applies to both indoor and outdoor use.
Non agricultural soil	Release factor: 100% Local release rate: - kg/day Explanation: For co-formulants included in solid formulations (granules or treated seeds) the emission fraction to soil is assumed to be 1. This emission fraction applies to both indoor and outdoor use.

Releases to waste

Release factor to external waste: 0.01 %

Specific estimates of residues remaining in packaging for solid formulations (granules or treated seeds) are not available. Therefore, it is proposed to assume the default provided in the emission scenario document for plastic additives (OECD, 2009), which suggests that 0.01 % could be expected to remain in packaging and be sent to waste (for powders of particle size > 40 µm).

19.2. Cons CS 2: Consumer use of agrochemicals

19.2.1. Conditions of use

Further specification: Delivery and dispersion of granular plant protection products or treated seeds by push type rotary spreaders, belly grinders, or by hand.
Product characteristics
Substance in preparation: yes, up to 100% Granules or treated seeds
Amounts used, frequency and duration of use
1.46 kg/ha = 29.15 g/day; area: 200 m ² ; once per day
Measures related to information and behavioural advice to consumers including personal protection and hygiene
All instructions on the plant protection product label must be followed.
Other conditions affecting consumer exposure
Ventilation conditions: natural ventilation Place of use: outdoors or indoors

20. EXPOSURE SCENARIO 19: FORMULATION OR RE-PACKING - MANUFACTURE OF RUBBER GOODS INCLUDING TYRES

Product category formulated: PC 32: Polymer Preparations and Compounds

Environment contributing scenario(s):		
CS 1	Manufacture of rubber goods including tyres	ERC 3
Worker contributing scenario(s):		
CS 2	Mixing or blending in batch processes	PROC 5
CS 3	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC 8b
CS 4	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC 9
CS 5	Roller application or brushing	PROC 10
CS 6	Use of blowing agents in manufacture of foam	PROC 12
CS 7	Treatment of articles by dipping and pouring	PROC 13
CS 8	Tabletting, compression, extrusion, pelletisation, granulation	PROC 14

20.1. Env CS 1: Manufacture of rubber goods including tyres (ERC 3)

20.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
<ul style="list-style-type: none"> Daily use amount at site: ≤ 0.025 tonnes/day <i>This theoretical default daily-use amount is the substance maximum use rate typical for use as a surfactant in manufacture of rubber goods. A minimum of 200 emission days per year are assumed.</i> Annual use amount at site: ≤ 5.0 tonnes/year <i>Number of sites = 10</i>
Conditions and measures related to biological sewage treatment plant
<ul style="list-style-type: none"> Biological STP: Standard [Effectiveness Water: 87.65%] Discharge rate of STP: ≥ 2000 m³/day Application of the STP sludge on agricultural soil: Yes
Conditions and measures related to external treatment of waste (including article waste)
<ul style="list-style-type: none"> Particular considerations on the waste treatment operations
Other conditions affecting environmental exposure
<ul style="list-style-type: none"> Receiving surface water flow rate: ≥ 18000 m³/day

20.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 0.2% Release factor after on site RMM: 0.2% Local release rate: 0.05 kg/day
Air	ERC based	Release factor before on site RMM: 30% Release factor after on site RMM: 30% Local release rate: 7.5 kg/day
Non agricultural soil	ERC based	Release factor after on site RMM: 0.1%

20.2. Worker CS 2: Mixing or blending in batch processes (PROC 5)

20.2.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> Percentage (w/w) of substance in mixture/article: <= 100.0 % Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Occupational Health and Safety Management System: Advanced General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> Respiratory Protection: No [Effectiveness Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> Place of use: Indoor Operating temperature: <= 40.0 °C Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

20.3. Worker CS 3: Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)

20.3.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> Percentage (w/w) of substance in mixture/article: <= 100.0 % Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> Occupational Health and Safety Management System: Advanced General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] Local exhaust ventilation: Yes [Effectiveness Inhalation: 95%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> Respiratory Protection: No [Effectiveness Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> Place of use: Indoor Operating temperature: <= 40.0 °C Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

20.4. Worker CS 4: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)

20.4.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

20.5. Worker CS 5: Roller application or brushing (PROC 10)

20.5.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness Dermal: 95%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands (960 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

20.6. Worker CS 6: Use of blowing agents in manufacture of foam (PROC 12)

20.6.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: One hand face only (240 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

20.7. Worker CS 7: Treatment of articles by dipping and pouring (PROC 13)

20.7.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none"> • Percentage (w/w) of substance in mixture/article: <= 100.0 % • Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • Occupational Health and Safety Management System: Advanced • General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%] • Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Respiratory Protection: No [Effectiveness Inhalation: 0%] • Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%] • Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Operating temperature: <= 40.0 °C • Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

20.8. Worker CS 8: Tableting, compression, extrusion, pelletisation, granulation (PROC 14)

20.8.1. Conditions of use

Product (Article) characteristics
<ul style="list-style-type: none">• Percentage (w/w) of substance in mixture/article: <= 100.0 %• Physical form of the used product: Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: <= 8.0 h/day
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Occupational Health and Safety Management System: Advanced• General ventilation: Good general ventilation (3-5 air changes per hour) [Effectiveness Inhalation: 30%]• Local exhaust ventilation: Yes [Effectiveness Inhalation: 90%, Dermal: 0%]
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Respiratory Protection: No [Effectiveness Inhalation: 0%]• Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness Dermal: 90%]• Use of eye protection: Yes
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Indoor• Operating temperature: <= 40.0 °C• Skin surface potentially exposed: Two hands face (480 cm²)

Risk characterisation

Substance is corrosive to skin and eyes in concentrations above or equal to 5% and 3%, respectively. Wear face/eye protection, gloves and protective clothing, when appropriate.

21. EXPOSURE SCENARIO 20: SERVICE LIFE (CONSUMERS) - CONSUMER USE OF RUBBER GOODS

Environment contributing scenario(s):		
CS 1	Consumer use of rubber goods	ERC 10b, ERC 10a; ERC 11a; ERC 11b
Consumer contributing scenario(s):		
CS 2	Rubber articles	AC 10

21.1. Env CS 1: Consumer use of rubber goods (ERC 10b)

21.1.1. Conditions of use

Amount used, frequency and duration of use (or from service life)
• Daily local widespread use amount: ≤ 0.000028 tonnes/day
Conditions and measures related to external treatment of waste (including article waste)
• Particular considerations on the waste treatment operations: No (low risk) <i>ERC based assessment demonstrating control of risk with default conditions. Low risk assumed for waste life stage. Waste disposal according to national/local legislation is sufficient.</i>
Other conditions affecting environmental exposure
• Biological STP: Standard [Effectiveness Water: 87.65%]

21.1.2. Releases

The local releases to the environment are reported in the following table. Note that the releases reported do not account for the removal in the modelled biological STP.

Local releases to the environment

Release	Release estimation method	Explanations
Water	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100% Local release rate: 0.028 kg/day
Air	ERC based	Release factor before on site RMM: 100% Release factor after on site RMM: 100%
Non agricultural soil	ERC based	Release factor after on site RMM: 100%

21.2. Cons CS 2: Rubber articles (AC 10)

21.2.1. Conditions of use

The contributing scenario is based on a subcategory of ECETOC TRA Consumer: Rubber handles, tyres

Product (article) characteristics
• Exposure via dermal route: Yes • Physical form of the used product: Liquid • Exposure via oral route: Oral exposure is considered to be not relevant • Percentage (w/w) of substance in mixture/article: ≤ 0.9 % • Exposure via inhalation route: Yes
Amount used (or contained in articles), frequency and duration of use/exposure
• Amount of product used per application: ≤ 4000 g/event • Exposure time per event: = 4.0 h/event

<ul style="list-style-type: none"> • Frequency of use over a year: Frequent • Frequency of use over a day: = 1.0 events per day
Information and behavioral advice for consumers
<ul style="list-style-type: none"> • Place of use: Indoor • Adult/child assumed: Adult
Other conditions affecting consumers exposure
<ul style="list-style-type: none"> • Body parts potentially exposed: Inside hands / one hand / palm of hands • Inhalation factor: = 1.0 • Dermal transfer factor: = 1.0

Risk characterisation

Concentrations below 1% are considered to be safe based on qualitative risk assessment.