SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Sales No. : 1028001
ADOXAL

Substance name : 2,6,10-TRIMETHYL-9-UNDECENAL
Identifier
CAS-No. : 141-13-9
EC-No. : 205-460-8
REACH Registration Number : 01-2120139915-49

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

Intended Use Fragrances : Perfumery ingredient

1.3 Details of the supplier of the safety data sheet

Company :
Givaudan Suisse SA
Chemin de la Parfumerie 5
CH-1214 VERNIER

Telephone : +41227809111
Telefax : +41227809150
E-mail address : global.sds_info@givaudan.com
Responsible/issuing person

1.4 Emergency Call

Givaudan 24/7 call : +33172110003

Please refer to section 16 for a full list of emergency phone numbers, from Givaudan's 24/7 provider.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin sensitisation, Sub-category 1B	H317: May cause an allergic skin reaction.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard,	H410: Very toxic to aquatic life with long lasting

Category 1 effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Warning

Hazard statements :	H317	May cause an allergic skin reaction.
	H410	Very toxic to aquatic life with long lasting effects.
Precautionary statements :	**Prevention:**	
	P261	Avoid breathing mist or vapours.
	P273	Avoid release to the environment.
	P280	Wear protective gloves.
	Response:	
	P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
	P362 + P364	Take off contaminated clothing and wash it before reuse.
	P391	Collect spillage.

Hazardous components which must be listed on the label:
- 2,6,10-trimethyl-9-undecenal 141-13-9

2.3 Other hazards

Hazards not Otherwise Classified. :

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3. Composition/information on ingredients

3.1 Substances

Chemical name	CAS-No. EC-No. REACH Registration Number	Concentration [Percent by weight]	M-Factor, SCL, ATE
2,6,10-trimethyl-9-undecenal	141-13-9 205-460-8 01-2120139915-49	>= 90 - <= 100	M-Factor (Acute aquatic toxicity):1 M-Factor (Chronic aquatic toxicity):1 Acute toxicity estimate Acute oral toxicity:> 5 000,00 mg/kg Acute dermal toxicity:> 5 000,00 mg/kg

SECTION 4. First aid measures

4.1 Description of first aid measures

General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : If on skin, rinse well with water.

In case of eye contact : Remove contact lenses.
Immediately flush eyes for at least 15 minutes. Get medical attention.

If swallowed : Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	no data available
Risks	:	May cause an allergic skin reaction.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	no data available

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Dry chemical Alcohol-resistant foam Carbon dioxide (CO2) Water spray
Unsuitable extinguishing media	:	High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.

5.3 Advice for firefighters

Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	no data available

6.2 Environmental precautions

Environmental precautions	:	Prevent product from entering drains. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

Not applicable

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Temperature class	:	no data available
Fire-fighting class	:	no data available
Dust explosion class	:	no data available

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards.
Further information on storage conditions	:	Store Ambient 10-30℃ (50-85℉) Dry, well ventilated, preferably full, hermetically sealed
Advice on common storage	:	Protect against light.Store under nitrogen
Storage class (TRGS 510)	:	10 Combustible liquids
Other data	:	No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Please refer to attached exposure scenarios.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

DNEL : End Use: Consumer use
Exposure routes: Dermal
Potential health effects: Acute local effects
Value: 0,0381 mg/cm2

DNEL : End Use: Consumer use
Exposure routes: Dermal
Potential health effects: Long-term local effects
Value: 0,0381 mg/cm2

DNEL : End Use: Consumer use
Exposure routes: Dermal
Potential health effects: Long-term systemic effects
Value: 3,35 mg/kg bw/day

DNEL : End Use: Consumer use
Exposure routes: Inhalation
Potential health effects: Acute local effects
Value: 14,57 mg/m3

DNEL : End Use: Consumer use
Exposure routes: Inhalation
Potential health effects: Acute systemic effects
Value: 5,83 mg/m3

DNEL : End Use: Consumer use
Exposure routes: Inhalation
Potential health effects: Long-term local effects
Value: 14,57 mg/m3

DNEL : End Use: Consumer use
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 5,83 mg/m3

DNEL : End Use: Consumer use
Exposure routes: Oral
Potential health effects: Long-term systemic effects
Value: 3,35 mg/kg bw/day

DNEL : End Use: Workers
Exposure routes: Dermal
Potential health effects: Acute local effects
Value: 0,13333 mg/cm2

DNEL : End Use: Workers
Exposure routes: Dermal

Potential health effects: Acute systemic effects
Value: 160,0 mg/kg bw/day

DNEL : End Use: Workers
Exposure routes: Dermal
Potential health effects: Long-term local effects
Value: 0,133 mg/cm2

DNEL : End Use: Workers
Exposure routes: Dermal
Potential health effects: Long-term systemic effects
Value: 6,7 mg/kg bw/day

DNEL : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Acute local effects
Value: 59,07 mg/m3

DNEL : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Acute systemic effects
Value: 23,63 mg/m3

DNEL : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term local effects
Value: 59,07 mg/m3

DNEL : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 23,63 mg/m3

PNEC : Fresh water
Value: 0,000588 mg/l

PNEC : Marine water
Value: 0,000059 mg/l

PNEC : Oral
Value: 74,0 mg/kg

PNEC : Fresh water sediment
Value: 0,427 mg/kg dry weight (d.w.)

PNEC : Marine sediment
Value: 0,0427 mg/kg dry weight (d.w.)

PNEC	:	Soil Value: 0,0926 mg/kg dry weight (d.w.)
PNEC	:	Sewage treatment plant Value: 10,0 mg/l

8.2 Exposure controls

Exposure assessment: Exposures are dependent on the product being handled, the potential for chemical release, and any resulting airborne concentrations or dermal contact. Since product handling and release scenarios vary, and no two workplaces are exactly alike, it is recommended that the potential for exposure be assessed prior to the prod-uct's use or introduction. Exposure assessments should be performed by an occupational hygienist, industrial hygienist, or other qualified occupational or environmental health professional. An exposure assessment should be conducted to determine the efficacy of any ventilation and the need for additional PPE. The PPE indicated below are recommendations for worst-case scenario exposures. An exposure assessment will identify more applicable measures to be implemented. EN and ANSI standards are mentioned in the following recommendations, consult equivalent local standards when required.
PPE is always the last resort to avoid exposure. In any case technical and organisational measures have to be explored and used prior to the selection of PPE. The PPE selection is for operators trained to work with chemicals according to good industrial hygiene and safety practice. Operators have to be trained on the use of PPE.

8.2.1 Engineering measures

Use engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use the product only with adequate ventilation.

8.2.2 Personal protective equipment

Eye/face protection	:	Use safety goggles tested according to EN 166/ ANSI Z87.1 or equivalent local standard.
Hand protection	:	Use gloves when handling substance in open systems. Inspect gloves prior to use. Train operators for proper use.If only incidental exposure is expected: (work without direct contact to substance) use gloves tested according EN 16523-1/ASTM F739 or equivalent local standard breakthrough times at least 10 minutes, tested for chemicals indicated in chapter 3 of this SDS. Change gloves frequently. If direct skin contact is expected: use gloves tested according to EN 16523-1/ASTM F739 or equivalent local standard, tested for chemicals indicated in chapter 3 of this SDS. Permeation time must exceed contact time.

Other skin protection	:	Wear working clothes covering arms and legs. The type of protective equipment must be selected according to the concentration and amount of the hazardous substance at the specific workplace. Use apron and sleeve covers or complete chemical suit if exposure is expected.
Respiratory protection	:	Respiratory protection should be worn when workplace exposures exceed exposure limit requirements or guidelines. If there are no applicable exposure limits or guidelines, use an approved respirator where there is a potential for adverse effects, including but not limited to respiratory irritation or odor, or where indicated by the exposure assessment. Selection of air-purifying or positive-pressure supplied-air will depend on the results of the exposure assessment which includes an evaluation of the specific operations and the potential airborne concentrations. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In case a risk analysis proved the cartridge respirator as acceptable, use type: ABEK-P3 (EN 14387) OR Combination Multi-gas/P100 (42CFR84.193; ANSI Z88.7 or equivalent local standard) as a backup to engineering controls. In absence of engineering controls, use self-contained breathing apparatus or full face supplied air respirators. Use respirators and components tested and approved under appropriate government standards such as CEN (EU) or NIOSH 42 CFR 84(US).
Thermal hazards	:	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	:	Remove contaminated clothing and protective equipment before entering eating areas. Do not eat, drink or smoke during work. Wash hands any time after handling the product.

8.2.3 Environmental exposure controls

General advice	:	Prevent product from entering drains. If the product contaminates rivers and lakes or drains inform respective authorities.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Form	:	liquid
Colour	:	colorless to Pale yellow
Taste	:	not determined
Odour	:	Aldehydic, Marine, Powerful, Waxy
Odour Threshold	:	5,38 ng/l
Flash point	:	120 ℃ Method: closed cup ISO 3679
Lower explosion limit	:	not determined
Upper explosion limit	:	not determined
Flammability	:	Not flammable
Particle size	:	no data available
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Auto-ignition temperature	:	228 ℃ Method: DIN 51794
Decomposition temperature	:	no data available
Molecular weight	:	210,40 g/mol
pH	:	no data available
Melting point	:	< 60 ℃
Boiling point	:	260 ℃ at 1 013 hPa
Vapour pressure	:	0,0031 hPa at 20 ℃ Method: OECD Test Guideline 104
Density	:	850,46 kg/m3 at 20 ℃
Bulk density	:	Not applicable
Water solubility	:	0,67 mg/l at 20 ℃
Solubility/qualitative	:	practically insoluble
Partition coefficient: n-octanol/water	:	log Pow: 6,2 Method: OECD Test Guideline 117
Viscosity, kinematic	:	no data available
Relative vapour density	:	no data available
Surface tension	:	72,3 mN/m at 20 ℃ Method: OECD Test Guideline 115
Evaporation rate	:	no data available
Explosive properties	:	Not explosive

9.2 Other information

Not applicable

SECTION 10. Stability and reactivity

10.1 Reactivity

none

10.2 Chemical stability

The product is chemically stable.

10.3 Possibility of hazardous reactions

Hazardous reactions : No decomposition if stored and applied as directed.

10.4 Conditions to avoid

Conditions to avoid : no data available

10.5 Incompatible materials

Materials to avoid : no data available

10.6 Hazardous decomposition products

Hazardous decomposition products : no data available

Thermal decomposition : no data available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity : LD50 Rat
Dose: > 5 000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : This information is not available.

Acute dermal toxicity : LD50 Rabbit
Dose: > 5 000 mg/kg

Acute toxicity (other routes of administration) : No data is available on the product itself.

Skin corrosion/irritation

Skin irritation : Species: human skin
No skin irritation
Method: OECD Test Guideline 439
Species: Guinea pig
No skin irritation

Serious eye damage/eye irritation

Eye irritation : Species: Bovine cornea
No eye irritation
Method: OECD Test Guideline 437
Species: Rabbit
No eye irritation

Respiratory or skin sensitisation

Sensitisation : LLNA Mouse
Result: The product is a skin sensitiser, sub-category 1B.
Method: OECD Test Guideline 429

Germ cell mutagenicity

Genotoxicity in vitro : Ames test
negative
Method: Mutagenicity (Escherichia coli - reverse mutation assay)

Ames test
negative
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)

In vitro mammalian cell gene mutation test
negative
Method: OECD Test Guideline 476
Test substance: 3,7-Dimethyl-2,6-Octadienal (Cis & Trans)
Based on data from similar materials

Genotoxicity in vivo : In vivo micronucleus test Species: Mouse
Test substance: 3,7-Dimethyl-2,6-Octadienal (Cis & Trans)
negative
Based on data from similar materials

Carcinogenicity

Carcinogenicity : No data is available on the product itself.

Reproductive toxicity

Not classified based on available information.

Target Organ Systemic Toxicant - Single exposure

Target Organ Systemic Toxicant - Single exposure : No data is available on the product itself.

Target Organ Systemic Toxicant - Repeated exposure

Target Organ Systemic Toxicant - Repeated : Species: Rat, females
Application Route: Oral

exposure		Exposure time: 14 weeks () NOAEL: 335 mg/kg Test substance: 3,7-Dimethyl-2,6-Octadienal (Cis & Trans) Based on data from similar materials
Target Organ Systemic Toxicant - Repeated exposure	:	Species: Rat, males Application Route: Oral Exposure time: 14 weeks () NOAEL: 345 mg/kg Test substance: 3,7-Dimethyl-2,6-Octadienal (Cis & Trans) Based on data from similar materials

Aspiration hazard

Aspiration toxicity : No data is available on the product itself.

Phototoxicity

Phototoxicity : UV-VIS absorption spectra
Result:negative

Further information : no data available

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Product:

Remarks : no data available

SECTION 12. Ecological information

12.1 Toxicity

Product:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 0,6087 mg/l

Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 0,9 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (algae)): > 0,5877 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

ErC10 (Pseudokirchneriella subcapitata (algae)): 0,288 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Components:

2,6,10-trimethylundec-9-enal:

M-Factor (Acute aquatic toxicity) : 1

M-Factor (Chronic aquatic toxicity) : 1

12.2 Persistence and degradability

Product:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 84 %
Exposure time: 28 d
Method: OECD Test Guideline 301 F
GLP: yes

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

Product:

Distribution among environmental compartments : log Koc: 3,9
Method: OECD Test Guideline 121

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

SECTION 13. Disposal considerations

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

Dispose of in accordance with local regulations.

SECTION 14. Transport information

14.1 UN number

ADR	:	UN 3082
RID	:	UN 3082
IMDG	:	UN 3082
IATA	:	UN 3082

14.2 UN proper shipping name

ADR	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,6,10-trimethylundecenal)
RID	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,6,10-trimethylundecenal)
IMDG	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,6,10-trimethylundecenal)
IATA	:	Environmentally hazardous substance, liquid, n.o.s. (2,6,10-trimethylundecenal)

14.3 Transport hazard class(es)

ADR	:	9
RID	:	9
IMDG	:	9
IATA	:	9

14.4 Packing group

ADR	:	III
RID	:	III
IMDG	:	III
IATA	:	III

14.5 Environmental hazards

ADR		
Environmentally hazardous	:	yes
RID		
Environmentally hazardous	:	yes
IMDG		
Marine pollutant	:	yes
IATA (Passenger)		
Environmentally hazardous	:	yes

IATA (Cargo)
Environmentally hazardous : yes

14.6 Special precautions for user

ADR
Tunnel restriction code : (-)

IMDG
IMDG Code Segregation Group : None

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15. Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Neither banned nor restricted

Major Accident Hazard Legislation : ENVIRONMENTAL HAZARDS
E1
Quantity 1: 100 t
Quantity 2: 200 t

Water hazard class (Germany) : WGK 2 obviously hazardous to water
Code Number: 6 652
Classification according to AwSV, Annex 1 (4)

15.2 Chemical safety assessment

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

SECTION 16. Other information

Full list of Emergency response numbers worldwide.

	Country	Phone nr		Country	Phone nr
Europe	All Europe	+44 1235 239670	APAC	All East/South East Asia	+65 3158 1074
	France	+33 1 72 11 00 03		Sri Lanka	+65 3158 1195

Administrative information:
Report Information: SDS_EU/EN/GHS_SDS_EU_REGION/40
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 29 206 606/24 774 809

	Germany	+49 89 220 61012		Taiwan	+886 2 8793 3212
	Spain	+34 91 114 2520		Japan	0120 015 230
	Italy	800 699 792		Indonesia	007 803 011 0293
	Netherlands	+31 10 713 8195		Malaysia	+60 3 6207 4347
	Turkey	0800 621 2139 +44 1235 239670		Thailand	001 800 120 666 751
	Norway	+47 2103 4452		India	+65 3158 1198 000 800 100 7479
	Greece	+30 21 1198 3182		Pakistan	+65 3158 1329
	Portugal	+351 30880 4750		Bangladesh	+65 3158 1200
	Denmark	+45 8988 2286		Philippines	+63 2 8231 2149
	Sweden	+46 8 566 42573		Vietnam	+84 28 4458 2388
	Poland	+48 22 307 3690		Korea	+65 3158 1285
	Czech replublic	+420 228 882 830		South Korea	+82 2 3479 8401
	Finland	+358 9 7479 0199		Australia	+61 2 8014 4558
Middle East/Africa	All Middle East/Africa	+44 1235 239671		New Zealand	+64 9 929 1483
	Bahrain and Middle East	+44 1235 239671		China	+86 532 8388 9090
	Africa/South Africa	+27 21 300 2732	LATAM	Mexico	+52 55 5004 8763
NOAM	USA and Canada	+1 866 928 0789		Brazil	+55 11 3197 5891
	USA and Canada	+1 215 207 0061		Chile	+56 2 2582 9336
	USA and Canada	+1 202 464 2554		Colombia	+57 1 508 7337
Global	Global	+44 1865 407333		Argentina	+54 11 5984 3690

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

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Information displayed in section 3 (Composition/information on ingredients) is additional information to understand the hazards of the product and ensure safe handling, storage and transportation. This information, including CAS numbers, is not meant to be used for registration, notification or any other purposes. Any additional information and documentation needed may be provided by Givaudan.

Annex

Exposure Scenario

Number	Title
ES1	Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds)
ES2	Formulation of fragranced end-products (mixing of fragrance compounds into fragranced end-products)
ES3	Industrial end-use of washing and cleaning products
ES4	Professional end-use of washing and cleaning products
ES5	Professional end-use of polishes and wax blends
ES6	Consumer end-use of washing and cleaning products
ES7	Consumer end-use of air care products
ES8	Consumer end-use of biocides
ES9	Consumer end-use of polishes and wax blends
ES10	Consumer (and Professional) end-use of cosmetics

1. ES 1: Formulation or re-packing; Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds)

1.1. Title section

ES name: GES 1; Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds)

Environment	
1: GES 1; Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds); medium; Large scale; AISE SPERC 2.1.a.v1	ERC 2
2: GES 1; Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds); Small scale; AISE SPERC 2.1.b.v1	ERC 2
Worker	
3: CS1; Transfer of substance or mixture (charging/discharging) at dedicated facilities; IFRA F-1	PROC 8b
4: CS2; Storage; IFRA F-2	PROC 1
5: CS3; Mixing operations; Closed systems; Filling of articles/equipment; With sample collection; IFRA F-3	PROC 3
6: CS4; Mixing operations; Open systems; Filling of articles/equipment; With sample collection; IFRA F-4	PROC 5
7: CS5; Laboratory activities; Use as laboratory reagent; IFRA F-5	PROC 15
8: CS6; Transfer of substance or mixture into small containers (dedicated filling line, including weighing); IFRA F-6	PROC 9
9: CS7; Equipment cleaning and maintenance; IFRA F-7	PROC 8a

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: GES 1; Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds); medium; Large scale; AISE SPERC 2.1.a.v1 (ERC 2)

Amount used, frequency and duration of use (or from service life)
Annual amount per site <= 0.72 tonnes/year
Daily amount per site <= 2.88E-3 tonnes/day
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
application of the STP sludge on agricultural soil; Yes
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

1.2.2. Control of environmental exposure: GES 1; Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds); Small scale; AISE SPERC 2.1.b.v1 (ERC 2)

Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 4E-4 tonnes/day
Annual amount per site <= 0.1 tonnes/year
Conditions and measures related to biological sewage treatment plant
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
application of the STP sludge on agricultural soil; Yes
Municipal sewage treatment plant is assumed.
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

1.2.3. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Product (article) characteristics
Liquid
Technical and organisational conditions and measures
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Respiratory protection; No.
Face/eye protection; No.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 ℃

Specific conditions of use per contributing scenario

Contributing scenario	Specific conditions of use
CS1; Transfer of substance or mixture (charging/discharging) at dedicated facilities; IFRA F-1 (PROC 8b)	Covers concentrations up to 25 % Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95%. Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner

	equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2)
CS2; Storage; IFRA F-2 (PROC 1)	Covers concentrations up to 0 % Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Personal protection; dermal; No. Body parts potentially exposed; One hand face only (240 cm2)
CS3; Mixing operations; Closed systems; Filling of articles/equipment; With sample collection; IFRA F-3 (PROC 3)	Covers concentrations up to 100 % Covers use up to 4 h/day Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; One hand face only (240 cm2)
CS4; Mixing operations; Open systems; Filling of articles/equipment; With sample collection; IFRA F-4 (PROC 5)	Covers concentrations up to 100 % Covers use up to 4 h/day Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands face only (480 cm2)
CS5; Laboratory activities; Use as laboratory reagent; IFRA F-5 (PROC 15)	Covers concentrations up to 100 % Covers use up to 0.25 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; One hand face only (240 cm2)
CS6; Transfer of substance or mixture into small containers (dedicated filling line, including weighing); IFRA F-6 (PROC 9)	Covers concentrations up to 25 % Covers use up to 1 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands face only (480 cm2)
CS7; Equipment cleaning and maintenance; IFRA F-7 (PROC 8a)	Covers concentrations up to 25 % Covers use up to 4 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2)

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: GES 1; Formulation of fragrance compounds

(mixing of fragrance substances into fragrance compounds); medium; Large scale; AISE SPERC 2.1.a.v1 (ERC 2)

Release route	Release rate	Release estimation method
Water	5.76E-3 kg/day	Estimated release factor
Air	0.072 kg/day	ERC
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	2.17E-5 mg/L (EUSES 2.1.2)	0.037
Sediment (freshwater)	0.016 mg/kg dw (EUSES 2.1.2)	0.37
Marine water	2.15E-6 mg/L (EUSES 2.1.2)	0.037
Sediment (marine water)	1.57E-3 mg/kg dw (EUSES 2.1.2)	0.367
Sewage Treatment Plant	2.07E-4 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	6.07E-3 mg/kg dw (EUSES 2.1.2)	0.656
Predator's prey (freshwater)	3.119 mg/kg ww (EUSES 2.1.2)	0.042
Predator's prey (marine water)	0.305 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	0.912 mg/kg ww (EUSES 2.1.2)	0.012
Predator's prey (terrestrial)	0.292 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.39E-5 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (local effects)	1.39E-5 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	3.22E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

1.3.2. Environmental release and exposure: GES 1; Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds); Small scale; AISE SPERC 2.1.b.v1 (ERC 2)

Release route	Release rate	Release estimation method
Water	2E-4 kg/day	Estimated release factor
Air	0.01 kg/day	ERC
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	1.89E-6 mg/L (EUSES 2.1.2)	< 0.01
Sediment (freshwater)	1.38E-3 mg/kg dw (EUSES 2.1.2)	0.032
Marine water	1.71E-7 mg/L (EUSES 2.1.2)	< 0.01
Sediment (marine water)	1.24E-4 mg/kg dw (EUSES 2.1.2)	0.029
Sewage Treatment Plant	7.2E-6 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	2.13E-4 mg/kg dw (EUSES 2.1.2)	0.023
Predator's prey (freshwater)	0.542 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	0.047 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	0.397 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.013 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	2.05E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (local effects)	2.05E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.07E-4 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

1.3.3. Worker exposure: CS1; Transfer of substance or mixture (charging/discharging) at dedicated facilities; IFRA F-1 (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR

Inhalation, systemic, long term	0.263 mg/m³ (TRA Workers 3.0)	0.011
Inhalation, systemic, acute	5.25 mg/m³ (TRA Workers 3.0)	0.222
Inhalation, local, long term	0.263 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	5.25 mg/m³ (TRA Workers 3.0)	0.089
Dermal, systemic, long term	1.645 mg/kg bw/day (TRA Workers 3.0)	0.246
Dermal, local, long term	0.12 mg/cm² (TRA Workers 3.0)	0.902
Dermal, local, acute	0.12 mg/cm² (TRA Workers 3.0)	0.9
Combined, systemic, long term		0.257

1.3.4. Worker exposure: CS2; Storage; IFRA F-2 (PROC 1)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.75E-3 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	0.035 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, long term	1.75E-3 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	0.035 mg/m³ (TRA Workers 3.0)	< 0.01
Dermal, systemic, long term	3.4E-3 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Dermal, local, long term	9.92E-4 mg/cm² (TRA Workers 3.0)	< 0.01
Dermal, local, acute	9.92E-4 mg/cm² (TRA Workers 3.0)	< 0.01
Combined, systemic, long term		< 0.01

1.3.5. Worker exposure: CS3; Mixing operations; Closed systems; Filling of articles/equipment; With sample collection; IFRA F-3 (PROC 3)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.575 mg/m³ (TRA Workers 3.0)	0.067
Inhalation, systemic, acute	10.5 mg/m³ (TRA Workers 3.0)	0.444
Inhalation, local, long term	1.575 mg/m³ (TRA Workers 3.0)	0.027
Inhalation, local, acute	10.5 mg/m³ (TRA Workers 3.0)	0.178
Dermal, systemic, long term	0.138 mg/kg bw/day (TRA Workers 3.0)	0.021
Dermal, local, long term	0.04 mg/cm² (TRA Workers 3.0)	0.303
Dermal, local, acute	0.04 mg/cm² (TRA Workers 3.0)	0.302
Combined, systemic, long term		0.087

1.3.6. Worker exposure: CS4; Mixing operations; Open systems; Filling of articles/equipment; With sample collection; IFRA F-4 (PROC 5)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.625 mg/m³ (TRA Workers 3.0)	0.111
Inhalation, systemic, acute	17.5 mg/m³ (TRA Workers 3.0)	0.741
Inhalation, local, long term	2.625 mg/m³ (TRA Workers 3.0)	0.044
Inhalation, local, acute	17.5 mg/m³ (TRA Workers 3.0)	0.296
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.102
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.213

1.3.7. Worker exposure: CS5; Laboratory activities; Use as laboratory reagent; IFRA F-5 (PROC 15)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.131 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	5.25 mg/m³ (TRA Workers 3.0)	0.222
Inhalation, local, long term	0.131 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	5.25 mg/m³ (TRA Workers 3.0)	0.089
Dermal, systemic, long term	0.034 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Dermal, local, long term	9.92E-3 mg/cm² (TRA Workers 3.0)	0.075
Dermal, local, acute	9.92E-3 mg/cm² (TRA Workers 3.0)	0.074
Combined, systemic, long term		0.011

1.3.8. Worker exposure: CS6; Transfer of substance or mixture into small containers (dedicated

filling line, including weighing); IFRA F-6 (PROC 9)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.158 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	3.15 mg/m³ (TRA Workers 3.0)	0.133
Inhalation, local, long term	0.158 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	3.15 mg/m³ (TRA Workers 3.0)	0.053
Dermal, systemic, long term	0.412 mg/kg bw/day (TRA Workers 3.0)	0.061
Dermal, local, long term	0.06 mg/cm² (TRA Workers 3.0)	0.451
Dermal, local, acute	0.06 mg/cm² (TRA Workers 3.0)	0.45
Combined, systemic, long term		0.068

1.3.9. Worker exposure: CS7; Equipment cleaning and maintenance; IFRA F-7 (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.945 mg/m³ (TRA Workers 3.0)	0.04
Inhalation, systemic, acute	6.3 mg/m³ (TRA Workers 3.0)	0.267
Inhalation, local, long term	0.945 mg/m³ (TRA Workers 3.0)	0.016
Inhalation, local, acute	6.3 mg/m³ (TRA Workers 3.0)	0.107
Dermal, systemic, long term	0.823 mg/kg bw/day (TRA Workers 3.0)	0.123
Dermal, local, long term	0.06 mg/cm² (TRA Workers 3.0)	0.451
Dermal, local, acute	0.06 mg/cm² (TRA Workers 3.0)	0.45
Combined, systemic, long term		0.163

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

Scaling instructions: As the environmental release factor depends on site specific operational conditions and risk management measures, Downstream Users (DU) are advised to demonstrate that a safe use is given for the amounts used at their site. Scaling may be a suitable option in this case, (ECHA Guidance for downstream users and Guidance on the compilation of safety data sheets). Scaling is a comparison of linear input parameters and determinants between data presented in the Exposure Scenario (ES) and the data available from the Downstream User to determine the risk characterisation ratios (RCR) under the operational conditions of the DU (eg. quantity of substance used per year and site, emission fraction to water, number of emission days).

2. ES 2: Formulation or re-packing; Formulation of fragranced end-products (mixing of fragrance compounds into fragranced end-products)

2.1. Title section

ES name: GES 2; Formulation of fragranced end-products (mixing of fragrance compounds into fragranced end-products)

Environment	
1: IFRA SG-1; AISE SPERC 2.1.a.v2; AISE SPERC 2.1.g.v2	ERC 2
2: IFRA SG-2; AISE SPERC 2.1.b.v2; AISE SPERC 2.1.h.v2	ERC 2
3: IFRA SG-3; AISE SPERC 2.1.c.v2; AISE SPERC 2.1.i.v2	ERC 2
4: IFRA SG-4; AISE SPERC 2.1.j.v2; Cosmetics Europe / AISE SPERC 2.3.a.v2; Cosmetics Europe SPERC 2.1.a.v2	ERC 2
5: IFRA SG-5; AISE SPERC 2.1.k.v2; Cosmetics Europe / AISE SPERC 2.3.b.v2; Cosmetics Europe SPERC 2.1.b.v2	ERC 2
6: IFRA SG-6; AISE SPERC 2.1.l.v2; Cosmetics Europe / AISE SPERC 2.3.c.v2; Cosmetics Europe SPERC 2.1.c.v2	ERC 2
7: IFRA SG-7; Cosmetics Europe SPERC 2.2.a.v2; Cosmetics Europe SPERC 2.2.c.v2	ERC 2
8: IFRA SG-8; Cosmetics Europe SPERC 2.1.d.v2; Cosmetics Europe SPERC 2.1.j.v2	ERC 2
Worker	
9: CS1; Transfer of substance or mixture (charging/discharging) at dedicated facilities; AISE M-6	PROC 8b
10: CS2; Laboratory activities; Use as laboratory reagent; AISE M-9	PROC 15
11: CS3; Storage; AISE M-1	PROC 1
12: CS4; Mixing operations; Closed systems; Filling of articles/equipment; With sample collection; AISE M-3	PROC 3
13: CS5; Mixing or blending in batch processes; Open systems; With sample collection; AISE M-5	PROC 5

14: CS6; Equipment cleaning and maintenance	PROC 8a
15: CS7; Transfer of substance or mixture into small containers (dedicated filling line, including weighing); AISE M-7	PROC 9
16: CS8; Tabletting, compression, extrusion or pelletisation; AISE M-8	PROC 14

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: IFRA SG-1; AISE SPERC 2.1.a.v2; AISE SPERC 2.1.g.v2 (ERC 2)

Amount used, frequency and duration of use (or from service life)
Annual amount per site <= 1.71 tonnes/year
Daily amount per site <= 6.84E-3 tonnes/day
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
application of the STP sludge on agricultural soil; Yes
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

2.2.2. Control of environmental exposure: IFRA SG-2; AISE SPERC 2.1.b.v2; AISE SPERC 2.1.h.v2 (ERC 2)

Amount used, frequency and duration of use (or from service life)
Annual amount per site <= 0.638 tonnes/year
Daily amount per site <= 2.6E-3 tonnes/day
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
application of the STP sludge on agricultural soil; Yes
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

2.2.3. Control of environmental exposure: IFRA SG-3; AISE SPERC 2.1.c.v2; AISE SPERC 2.1.i.v2 (ERC 2)

Amount used, frequency and duration of use (or from service life)
Annual amount per site <= 0.524 tonnes/year
Daily amount per site <= 2.1E-3 tonnes/day
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
application of the STP sludge on agricultural soil; Yes
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

2.2.4. Control of environmental exposure: IFRA SG-4; AISE SPERC 2.1.j.v2; Cosmetics Europe / AISE SPERC 2.3.a.v2; Cosmetics Europe SPERC 2.1.a.v2 (ERC 2)

Amount used, frequency and duration of use (or from service life)
Annual amount per site <= 0.479 tonnes/year

Daily amount per site <= 1.9E-3 tonnes/day
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
application of the STP sludge on agricultural soil; Yes
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

2.2.5. Control of environmental exposure: IFRA SG-5; AISE SPERC 2.1.k.v2; Cosmetics Europe / AISE SPERC 2.3.b.v2; Cosmetics Europe SPERC 2.1.b.v2 (ERC 2)

Amount used, frequency and duration of use (or from service life)
Annual amount per site <= 0.205 tonnes/year
Daily amount per site <= 8.2E-4 tonnes/day
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
application of the STP sludge on agricultural soil; Yes
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

2.2.6. Control of environmental exposure: IFRA SG-6; AISE SPERC 2.1.l.v2; Cosmetics Europe / AISE SPERC 2.3.c.v2; Cosmetics Europe SPERC 2.1.c.v2 (ERC 2)

Amount used, frequency and duration of use (or from service life)
Annual amount per site <= 0.205 tonnes/year
Daily amount per site <= 8.2E-4 tonnes/day
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
application of the STP sludge on agricultural soil; Yes
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

2.2.7. Control of environmental exposure: IFRA SG-7; Cosmetics Europe SPERC 2.2.a.v2; Cosmetics Europe SPERC 2.2.c.v2 (ERC 2)

Amount used, frequency and duration of use (or from service life)
Annual amount per site <= 0.73 tonnes/year
Daily amount per site <= 2.9E-3 tonnes/day
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
application of the STP sludge on agricultural soil; Yes
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

2.2.8. Control of environmental exposure: IFRA SG-8; Cosmetics Europe SPERC 2.1.d.v2; Cosmetics Europe SPERC 2.1.j.v2 (ERC 2)

Amount used, frequency and duration of use (or from service life)
Annual amount per site <= 0.068 tonnes/year
Daily amount per site <= 2.7E-4 tonnes/day
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
application of the STP sludge on agricultural soil; Yes
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

2.2.9. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Product (article) characteristics
Liquid
Technical and organisational conditions and measures
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Respiratory protection; No.
Face/eye protection; No.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 ℃

Specific conditions of use per contributing scenario

Contributing scenario	Specific conditions of use
CS1; Transfer of substance or mixture (charging/discharging) at dedicated facilities; AISE M-6 (PROC 8b)	Covers concentrations up to 25 % Covers use up to 1 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95%. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2)
CS2; Laboratory activities; Use as laboratory reagent; AISE M-9 (PROC 15)	Covers concentrations up to 25 % Covers use up to 0.15 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; One hand face only (240 cm2)
CS3; Storage; AISE M-1 (PROC 1)	Covers concentrations up to 25 % Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour

	Local exhaust ventilation; No. Personal protection; dermal; No. Body parts potentially exposed; One hand face only (240 cm2)
CS4; Mixing operations; Closed systems; Filling of articles/equipment; With sample collection; AISE M-3 (PROC 3)	Covers concentrations up to 25 % Covers use up to 4 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; One hand face only (240 cm2)
CS5; Mixing or blending in batch processes; Open systems; With sample collection; AISE M-5 (PROC 5)	Covers concentrations up to 25 % Covers use up to 4 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands face only (480 cm2)
CS6; Equipment cleaning and maintenance (PROC 8a)	Covers concentrations up to 1 % Covers use up to 4 h/day Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2)
CS7; Transfer of substance or mixture into small containers (dedicated filling line, including weighing); AISE M-7 (PROC 9)	Covers concentrations up to 1 % Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands face only (480 cm2)
CS8; Tabletting, compression, extrusion or pelletisation; AISE M-8 (PROC 14)	Covers concentrations up to 1 % Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands face only (480 cm2)

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: IFRA SG-1; AISE SPERC 2.1.a.v2; AISE SPERC 2.1.g.v2 (ERC 2)

Release route	Release rate	Release estimation method
Water	6.84E-4 kg/day	Estimated release factor

Administrative information:
Report Information: SDS_EU/EN/GHS_SDS_EU_REGION/40
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 29 206 606/24 774 809

Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	**Exposure estimate**	**RCR**
Fresh water	3.62E-6 mg/L (EUSES 2.1.2)	< 0.01
Sediment (freshwater)	2.63E-3 mg/kg dw (EUSES 2.1.2)	0.062
Marine water	3.43E-7 mg/L (EUSES 2.1.2)	< 0.01
Sediment (marine water)	2.5E-4 mg/kg dw (EUSES 2.1.2)	0.058
Sewage Treatment Plant	2.46E-5 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	7.2E-4 mg/kg dw (EUSES 2.1.2)	0.078
Predator's prey (freshwater)	0.766 mg/kg ww (EUSES 2.1.2)	0.01
Predator's prey (marine water)	0.07 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	0.441 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.037 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.54E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (local effects)	1.54E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	4.24E-4 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

2.3.2. Environmental release and exposure: IFRA SG-2; AISE SPERC 2.1.b.v2; AISE SPERC 2.1.h.v2 (ERC 2)

Release route	**Release rate**	**Release estimation method**
Water	2.6E-3 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	**Exposure estimate**	**RCR**
Fresh water	1.04E-5 mg/L (EUSES 2.1.2)	0.018
Sediment (freshwater)	7.6E-3 mg/kg dw (EUSES 2.1.2)	0.178
Marine water	1.03E-6 mg/L (EUSES 2.1.2)	0.017
Sediment (marine water)	7.46E-4 mg/kg dw (EUSES 2.1.2)	0.175
Sewage Treatment Plant	9.36E-5 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	2.73E-3 mg/kg dw (EUSES 2.1.2)	0.295
Predator's prey (freshwater)	1.633 mg/kg ww (EUSES 2.1.2)	0.022
Predator's prey (marine water)	0.156 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	0.615 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.133 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.83E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (local effects)	1.83E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.39E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

2.3.3. Environmental release and exposure: IFRA SG-3; AISE SPERC 2.1.c.v2; AISE SPERC 2.1.i.v2 (ERC 2)

Release route	**Release rate**	**Release estimation method**
Water	4.2E-3 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	1.61E-5 mg/L (EUSES 2.1.2)	0.027
Sediment (freshwater)	0.012 mg/kg dw (EUSES 2.1.2)	0.275
Marine water	1.59E-6 mg/L (EUSES 2.1.2)	0.027
Sediment (marine water)	1.16E-3 mg/kg dw (EUSES 2.1.2)	0.272
Sewage Treatment Plant	1.51E-4 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	4.42E-3 mg/kg dw (EUSES 2.1.2)	0.477
Predator's prey (freshwater)	2.393 mg/kg ww (EUSES 2.1.2)	0.032
Predator's prey (marine water)	0.232 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	0.767 mg/kg ww (EUSES 2.1.2)	0.01
Predator's prey (terrestrial)	0.213 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	2.08E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (local effects)	2.08E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.21E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

2.3.4. Environmental release and exposure: IFRA SG-4; AISE SPERC 2.1.j.v2; Cosmetics Europe / AISE SPERC 2.3.a.v2; Cosmetics Europe SPERC 2.1.a.v2 (ERC 2)

Release route	Release rate	Release estimation method
Water	1.9E-3 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	7.94E-6 mg/L (EUSES 2.1.2)	0.014
Sediment (freshwater)	5.78E-3 mg/kg dw (EUSES 2.1.2)	0.135
Marine water	7.76E-7 mg/L (EUSES 2.1.2)	0.013
Sediment (marine water)	5.65E-4 mg/kg dw (EUSES 2.1.2)	0.132
Sewage Treatment Plant	6.84E-5 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	2E-3 mg/kg dw (EUSES 2.1.2)	0.216
Predator's prey (freshwater)	1.337 mg/kg ww (EUSES 2.1.2)	0.018
Predator's prey (marine water)	0.127 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	0.556 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.098 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.73E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (local effects)	1.73E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.05E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

2.3.5. Environmental release and exposure: IFRA SG-5; AISE SPERC 2.1.k.v2; Cosmetics Europe / AISE SPERC 2.3.b.v2; Cosmetics Europe SPERC 2.1.b.v2 (ERC 2)

Release route	Release rate	Release estimation method
Water	1.64E-3 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	7.02E-6 mg/L (EUSES 2.1.2)	0.012
Sediment (freshwater)	5.11E-3 mg/kg dw (EUSES 2.1.2)	0.12
Marine water	6.83E-7 mg/L (EUSES 2.1.2)	0.012
Sediment (marine water)	4.97E-4 mg/kg dw (EUSES 2.1.2)	0.116

Sewage Treatment Plant	5.9E-5 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	1.72E-3 mg/kg dw (EUSES 2.1.2)	0.186
Predator's prey (freshwater)	1.21 mg/kg ww (EUSES 2.1.2)	0.016
Predator's prey (marine water)	0.114 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	0.53 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.085 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.68E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (local effects)	1.68E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	9.11E-4 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

2.3.6. Environmental release and exposure: IFRA SG-6; AISE SPERC 2.1.l.v2; Cosmetics Europe / AISE SPERC 2.3.c.v2; Cosmetics Europe SPERC 2.1.c.v2 (ERC 2)

Release route	Release rate	Release estimation method
Water	3.28E-3 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	1.29E-5 mg/L (EUSES 2.1.2)	0.022
Sediment (freshwater)	9.36E-3 mg/kg dw (EUSES 2.1.2)	0.219
Marine water	1.27E-6 mg/L (EUSES 2.1.2)	0.022
Sediment (marine water)	9.22E-4 mg/kg dw (EUSES 2.1.2)	0.216
Sewage Treatment Plant	1.18E-4 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	3.45E-3 mg/kg dw (EUSES 2.1.2)	0.372
Predator's prey (freshwater)	1.971 mg/kg ww (EUSES 2.1.2)	0.027
Predator's prey (marine water)	0.19 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	0.682 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.167 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.94E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (local effects)	1.94E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.75E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

2.3.7. Environmental release and exposure: IFRA SG-7; Cosmetics Europe SPERC 2.2.a.v2; Cosmetics Europe SPERC 2.2.c.v2 (ERC 2)

Release route	Release rate	Release estimation method
Water	0 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	1.18E-6 mg/L (EUSES 2.1.2)	< 0.01
Sediment (freshwater)	8.6E-4 mg/kg dw (EUSES 2.1.2)	0.02
Marine water	9.94E-8 mg/L (EUSES 2.1.2)	< 0.01
Sediment (marine water)	7.24E-5 mg/kg dw (EUSES 2.1.2)	0.017
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	5.5E-7 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	0.449 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	0.038 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	0.378 mg/kg ww (EUSES 2.1.2)	< 0.01

Predator's prey (terrestrial)	2.56E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.43E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (local effects)	1.43E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	7.61E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

2.3.8. Environmental release and exposure: IFRA SG-8; Cosmetics Europe SPERC 2.1.d.v2; Cosmetics Europe SPERC 2.1.j.v2 (ERC 2)

Release route	Release rate	Release estimation method
Water	5.4E-3 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	2.04E-5 mg/L (EUSES 2.1.2)	0.035
Sediment (freshwater)	0.015 mg/kg dw (EUSES 2.1.2)	0.348
Marine water	2.02E-6 mg/L (EUSES 2.1.2)	0.034
Sediment (marine water)	1.47E-3 mg/kg dw (EUSES 2.1.2)	0.345
Sewage Treatment Plant	1.94E-4 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	5.68E-3 mg/kg dw (EUSES 2.1.2)	0.613
Predator's prey (freshwater)	2.985 mg/kg ww (EUSES 2.1.2)	0.04
Predator's prey (marine water)	0.291 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	0.885 mg/kg ww (EUSES 2.1.2)	0.012
Predator's prey (terrestrial)	0.273 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	2.28E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (local effects)	2.28E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.84E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

2.3.9. Worker exposure: CS1; Transfer of substance or mixture (charging/discharging) at dedicated facilities; AISE M-6 (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.079 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	1.575 mg/m³ (TRA Workers 3.0)	0.067
Inhalation, local, long term	0.079 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	1.575 mg/m³ (TRA Workers 3.0)	0.027
Dermal, systemic, long term	0.823 mg/kg bw/day (TRA Workers 3.0)	0.123
Dermal, local, long term	0.06 mg/cm² (TRA Workers 3.0)	0.451
Dermal, local, acute	0.06 mg/cm² (TRA Workers 3.0)	0.45
Combined, systemic, long term		0.126

2.3.10. Worker exposure: CS2; Laboratory activities; Use as laboratory reagent; AISE M-9 (PROC 15)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.079 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	3.15 mg/m³ (TRA Workers 3.0)	0.133
Inhalation, local, long term	0.079 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	3.15 mg/m³ (TRA Workers 3.0)	0.053
Dermal, systemic, long term	0.02 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Dermal, local, long term	5.95E-3 mg/cm² (TRA Workers 3.0)	0.045
Dermal, local, acute	5.95E-3 mg/cm² (TRA Workers 3.0)	0.045
Combined, systemic, long term		< 0.01

2.3.11. Worker exposure: CS3; Storage; AISE M-1 (PROC 1)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.011 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	0.21 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, long term	0.011 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	0.21 mg/m³ (TRA Workers 3.0)	< 0.01
Dermal, systemic, long term	0.02 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Dermal, local, long term	5.95E-3 mg/cm² (TRA Workers 3.0)	0.045
Dermal, local, acute	5.95E-3 mg/cm² (TRA Workers 3.0)	0.045
Combined, systemic, long term		< 0.01

2.3.12. Worker exposure: CS4; Mixing operations; Closed systems; Filling of articles/equipment; With sample collection; AISE M-3 (PROC 3)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.283 mg/m³ (TRA Workers 3.0)	0.012
Inhalation, systemic, acute	1.89 mg/m³ (TRA Workers 3.0)	0.08
Inhalation, local, long term	0.283 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	1.89 mg/m³ (TRA Workers 3.0)	0.032
Dermal, systemic, long term	0.041 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Dermal, local, long term	0.012 mg/cm² (TRA Workers 3.0)	0.091
Dermal, local, acute	0.012 mg/cm² (TRA Workers 3.0)	0.091
Combined, systemic, long term		0.018

2.3.13. Worker exposure: CS5; Mixing or blending in batch processes; Open systems; With sample collection; AISE M-5 (PROC 5)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.472 mg/m³ (TRA Workers 3.0)	0.02
Inhalation, systemic, acute	3.15 mg/m³ (TRA Workers 3.0)	0.133
Inhalation, local, long term	0.472 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	3.15 mg/m³ (TRA Workers 3.0)	0.053
Dermal, systemic, long term	0.823 mg/kg bw/day (TRA Workers 3.0)	0.123
Dermal, local, long term	0.12 mg/cm² (TRA Workers 3.0)	0.902
Dermal, local, acute	0.12 mg/cm² (TRA Workers 3.0)	0.9
Combined, systemic, long term		0.143

2.3.14. Worker exposure: CS6; Equipment cleaning and maintenance (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.525 mg/m³ (TRA Workers 3.0)	0.022
Inhalation, systemic, acute	3.5 mg/m³ (TRA Workers 3.0)	0.148
Inhalation, local, long term	0.525 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	3.5 mg/m³ (TRA Workers 3.0)	0.059
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Dermal, local, acute	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Combined, systemic, long term		0.043

2.3.15. Worker exposure: CS7; Transfer of substance or mixture into small containers (dedicated filling line, including weighing); AISE M-7 (PROC 9)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.088 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	1.75 mg/m³ (TRA Workers 3.0)	0.074
Inhalation, local, long term	0.088 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	1.75 mg/m³ (TRA Workers 3.0)	0.03
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.01
Dermal, local, long term	0.01 mg/cm² (TRA Workers 3.0)	0.075
Dermal, local, acute	0.01 mg/cm² (TRA Workers 3.0)	0.075
Combined, systemic, long term		0.014

2.3.16. Worker exposure: CS8; Tabletting, compression, extrusion or pelletisation; AISE M-8

(PROC 14)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.438 mg/m³ (TRA Workers 3.0)	0.019
Inhalation, systemic, acute	1.75 mg/m³ (TRA Workers 3.0)	0.074
Inhalation, local, long term	0.438 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	1.75 mg/m³ (TRA Workers 3.0)	0.03
Dermal, systemic, long term	0.034 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Dermal, local, long term	5E-3 mg/cm² (TRA Workers 3.0)	0.038
Dermal, local, acute	5E-3 mg/cm² (TRA Workers 3.0)	0.038
Combined, systemic, long term		0.024

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

Scaling instructions: As the environmental release factor depends on site specific operational conditions and risk management measures, Downstream Users (DU) are advised to demonstrate that a safe use is given for the amounts used at their site. Scaling may be a suitable option in this case, (ECHA Guidance for downstream users and Guidance on the compilation of safety data sheets). Scaling is a comparison of linear input parameters and determinants between data presented in the Exposure Scenario (ES) and the data available from the Downstream User to determine the risk characterisation ratios (RCR) under the operational conditions of the DU (eg. quantity of substance used per year and site, emission fraction to water, number of emission days).

3. ES 3: Use at industrial sites; Washing and Cleaning Products

3.1. Title section

ES name: GES 3; Industrial end-use of washing and cleaning products
Product category: Washing and Cleaning Products (PC 35)

Environment	
1: GES 3; Industrial end-use of washing and cleaning products	ERC 4
Worker	
2: Industrial use of food beverage and pharmaceutical products; CS13-u; Food process cleaner. Cleaning In place (CIP) process; AISE-P801; CS17-u; Defoaming product. Automatic process; AISE-P805	PROC 1
3: Industrial use of laundry products; CS1-u; Laundry detergent. Automatic process; AISE-P101; CS2-u; Conditioner (softner/starch). Automatic process; AISE-P104; CS3-u; Laundry aid (gasing). Automatic process; AISE-P107; CS4-u; Laundry aid (non-gasing). Automatic process; AISE-P110	PROC 2
4: Industrial use; Dedicated equipment; Pharmaceuticals; CS21-u; Disinfection product. Semi-automatic process; AISE-P810	PROC 4
5: Industrial use of vehicle cleaning products; CS5-u; Train cleaner. Semi-Automatic process; AISE-P707; CS6-u; Aeroplane cleaner. Semi-Automatic process; AISE-P708; CS7-u; Car wash product. Semi-Automatic process; AISE-P709; CS10-u; Dewaxing product. Semi-Automatic process; AISE-P712; CS14-u; Food process cleaner. Semi closed cleaning process; AISE-P802	PROC 4
6: Industrial use of water treatment products; CS24-u; Preservation and sanitation agent . Drink and pool water; AISE-P904; CS23-u; Sanitation agent. Waste water; AISE-P905	PROC 4
7: Industrial use of food beverage and pharmaceutical products; CS18-u; Foam cleaner. Semi-Automatic with venting process; AISE-P806	PROC 7
8: Industrial use of food beverage and pharmaceutical products; CS15-u; Chain maintenance product. Automatic spray process; AISE-P803; CS19-u; Foam cleaner. Semi-Automatic without venting process; AISE-P807; CS22-u; Animal housing care. Semi-Automatic process; AISE-P809; CS20-u; Disinfection product. Fogging and gassing Semi-automatic process; AISE-P811	PROC 7
9: Industrial use of laundry products; CS1-p; Laundry detergent. Automatic process; AISE-P101; CS2-p; Conditioner (softner/starch). Automatic process; AISE-P104; CS3-p; Laundry aid (gasing). Automatic process; AISE-P107; CS4-p; Laundry aid (non-gasing). Automatic process; AISE-P110; CS13-p; Industrial use of food beverage and pharmaceutical products; AISE-P801; CS14-p; Food process cleaner. Cleaning In place (CIP) process; AISE-P802; CS15-p; Chain maintenance product. Automatic spray process; AISE-P803; CS17-p; Defoaming product. Automatic process; AISE-P805	PROC 8b
10: Industrial use of water treatment products; CS23-p; Preservation and sanitation agent . Drink and pool water; AISE-P904; CS24-p; Sanitation agent. Waste water; AISE-P905; Industrial use of façade/surface cleaning products; CS25-p; Façade/surface cleaner. High pressure process; AISE-P906; CS26-p; Façade/surface cleaner.	PROC 8b

Medium pressure process; AISE-P907	
11: Industrial use of vehicle cleaning products; CS5-p; Train cleaner. Semi-Automatic process; AISE-P707; CS6-p; Aeroplane cleaner. Semi-Automatic process; AISE-P708; CS7-p; Car wash product. Semi-Automatic process; AISE-P709; CS8-p; Car wash product. Spray and rinse process; AISE-P710; CS10-p; Dewaxing product. Semi-Automatic process; AISE-P712; Industrial use of food beverage and pharmaceutical products; CS19-p; Foam cleaner. Semi-Automatic without venting process; AISE-P807; CS22-p; Disinfection product. Fogging and gassing Semi-automatic process; AISE-P811	PROC 8b
12: Industrial use of vehicle cleaning products; CS9-p; Car wash product. Spray and wipe manual process; AISE-P711; CS11-p; Boat cleaner. Manual process; AISE-P713; CS12-p; Boat cleaner. Spray and wipe manual process; AISE-P714	PROC 8b
13: Industrial use of food beverage and pharmaceutical products; CS20-p; Animal housing care. Semi-Automatic process; AISE-P809; CS21-p; Disinfection product. Semi-automatic process; AISE-P810	PROC 8b
14: Industrial use of food beverage and pharmaceutical products; CS18-p; Foam cleaner. Semi-Automatic with venting process; AISE-P806	PROC 8b
15: Industrial use of vehicle cleaning products; CS9-u2; Car wash product. Spray and wipe manual process; AISE-P711; CS12-u2; Boat cleaner. Manual process; AISE-P713; CS11-u; Boat cleaner. Spray and wipe manual process; AISE-P714	PROC 10
16: Industrial use of food beverage and pharmaceutical products; CS16-u; Chain maintenance product. Automatic drip and brush process; AISE-P804	PROC 13

3.2. Conditions of use affecting exposure

3.2.1. Control of environmental exposure: GES 3; Industrial end-use of washing and cleaning products (ERC 4)

3.2.2. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Product (article) characteristics
Liquid
Covers concentrations up to 1 %
Technical and organisational conditions and measures
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Other conditions affecting workers exposure
Assumes process temperature up to 40 ℃

Specific conditions of use per contributing scenario

Contributing scenario	Specific conditions of use
Industrial use of food beverage and pharmaceutical products; CS13-u; Food process cleaner. Cleaning In place (CIP) process; AISE-P801; CS17-u; Defoaming product. Automatic process; AISE-P805 (PROC 1)	Covers use up to 8 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Local exhaust ventilation; No. Respiratory protection; No. Face/eye protection; No. Personal protection; No. Body parts potentially exposed; One hand face only (240 cm2) Indoor use
Industrial use of laundry products; CS1-u; Laundry detergent. Automatic process; AISE-P101; CS2-u; Conditioner (softner/starch). Automatic process; AISE-P104; CS3-u; Laundry aid (gasing). Automatic process; AISE-P107; CS4-u; Laundry aid (non-gasing). Automatic process; AISE-P110 (PROC	Covers use up to 8 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Local exhaust ventilation; No. Respiratory protection; No. Face/eye protection; No. Personal protection; dermal; No. Body parts potentially exposed; Two hands face only (480 cm2) Indoor use

2)	
Industrial use; Dedicated equipment; Pharmaceuticals; CS21-u; Disinfection product. Semi-automatic process; AISE-P810 (PROC 4)	Covers use up to 8 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Local exhaust ventilation; No. Personal protection; dermal; No. Respiratory protection; No. Face/eye protection; No. Body parts potentially exposed; Two hands face only (480 cm2) Indoor use
Industrial use of vehicle cleaning products; CS5-u; Train cleaner. Semi-Automatic process; AISE-P707; CS6-u; Aeroplane cleaner. Semi-Automatic process; AISE-P708; CS7-u; Car wash product. Semi-Automatic process; AISE-P709; CS10-u; Dewaxing product. Semi-Automatic process; AISE-P712; CS14-u; Food process cleaner. Semi closed cleaning process; AISE-P802 (PROC 4)	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Personal protection; dermal; No. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Face/eye protection; No. Body parts potentially exposed; Two hands face only (480 cm2) Outdoor use
Industrial use of water treatment products; CS24-u; Preservation and sanitation agent . Drink and pool water; AISE-P904; CS23-u; Sanitation agent. Waste water; AISE-P905 (PROC 4)	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Personal protection; dermal; No. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Face/eye protection; No. Body parts potentially exposed; Two hands face only (480 cm2) Outdoor use
Industrial use of food beverage and pharmaceutical products; CS18-u; Foam cleaner. Semi-Automatic with venting process; AISE-P806 (PROC 7)	Covers use up to 8 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS Face/eye protection; No. Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Indoor use
Industrial use of food beverage and pharmaceutical products; CS15-u; Chain maintenance product. Automatic spray process; AISE-P803; CS19-u; Foam cleaner. Semi-Automatic without venting process; AISE-P807; CS22-u; Animal housing care. Semi-Automatic process; AISE-P809; CS20-u; Disinfection product. Fogging and gassing Semi-automatic process; AISE-P811 (PROC 7)	Covers use up to 8 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS Face/eye protection; No. Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Indoor use
Industrial use of laundry products; CS1-p; Laundry detergent. Automatic process; AISE-P101; CS2-p; Conditioner (softner/starch). Automatic process; AISE-P104; CS3-p; Laundry aid (gasing). Automatic process; AISE-	Covers use up to 0.25 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the

P107; CS4-p; Laundry aid (non-gasing). Automatic process; AISE-P110; CS13-p; Industrial use of food beverage and pharmaceutical products; AISE-P801; CS14-p; Food process cleaner. Cleaning In place (CIP) process; AISE-P802; CS15-p; Chain maintenance product. Automatic spray process; AISE-P803; CS17-p; Defoaming product. Automatic process; AISE-P805 (PROC 8b)	hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Face/eye protection; No. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Industrial use of water treatment products; CS23-p; Preservation and sanitation agent . Drink and pool water; AISE-P904; CS24-p; Sanitation agent. Waste water; AISE-P905; Industrial use of façade/surface cleaning products; CS25-p; Façade/surface cleaner. High pressure process; AISE-P906; CS26-p; Façade/surface cleaner. Medium pressure process; AISE-P907 (PROC 8b)	Covers use up to 0.25 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Face/eye protection; No. Body parts potentially exposed; Two hands (960 cm2) Outdoor use
Industrial use of vehicle cleaning products; CS5-p; Train cleaner. Semi-Automatic process; AISE-P707; CS6-p; Aeroplane cleaner. Semi-Automatic process; AISE-P708; CS7-p; Car wash product. Semi-Automatic process; AISE-P709; CS8-p; Car wash product. Spray and rinse process; AISE-P710; CS10-p; Dewaxing product. Semi-Automatic process; AISE-P712; Industrial use of food beverage and pharmaceutical products; CS19-p; Foam cleaner. Semi-Automatic without venting process; AISE-P807; CS22-p; Disinfection product. Fogging and gassing Semi-automatic process; AISE-P811 (PROC 8b)	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Face/eye protection; No. Body parts potentially exposed; Two hands (960 cm2) Outdoor use
Industrial use of vehicle cleaning products; CS9-p; Car wash product. Spray and wipe manual process; AISE-P711; CS11-p; Boat cleaner. Manual process; AISE-P713; CS12-p; Boat cleaner. Spray and wipe manual process; AISE-P714 (PROC 8b)	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Face/eye protection; No. Body parts potentially exposed; Two hands (960 cm2) Outdoor use
Industrial use of food beverage and pharmaceutical products; CS20-p; Animal housing care. Semi-Automatic process; AISE-P809; CS21-p; Disinfection product. Semi-automatic process; AISE-P810 (PROC 8b)	Covers use up to 1 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.

Administrative information:
Report Information: SDS_EU/EN/GHS_SDS_EU_REGION/40
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 29 206 606/24 774 809

	Respiratory protection; No. Face/eye protection; No. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Industrial use of food beverage and pharmaceutical products; CS18-p; Foam cleaner. Semi-Automatic with venting process; AISE-P806 (PROC 8b)	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95%. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Face/eye protection Body parts potentially exposed; Two hands (960 cm2) Indoor use
Industrial use of vehicle cleaning products; CS9-u2; Car wash product. Spray and wipe manual process; AISE-P711; CS12-u2; Boat cleaner. Manual process; AISE-P713; CS11-u; Boat cleaner. Spray and wipe manual process; AISE-P714 (PROC 10)	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Face/eye protection; No. Body parts potentially exposed; Two hands (960 cm2) Outdoor use
Industrial use of food beverage and pharmaceutical products; CS16-u; Chain maintenance product. Automatic drip and brush process; AISE-P804 (PROC 13)	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Face/eye protection; No. Body parts potentially exposed; Two hands face only (480 cm2) Indoor use

3.3. Exposure estimation and reference to its source

3.3.1. Environmental release and exposure: GES 3; Industrial end-use of washing and cleaning products (ERC 4)

Release route	Release rate	Release estimation method
Water	0.05 kg/day	ERC
Air	0.05 kg/day	ERC
Soil	2.5E-3 kg/day	ERC

3.3.2. Worker exposure: Industrial use of food beverage and pharmaceutical products; CS13-u; Food process cleaner. Cleaning In place (CIP) process; AISE-P801; CS17-u; Defoaming product. Automatic process; AISE-P805 (PROC 1)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	6.13E-3 mg/m³ (TRA Workers 3.0)	< 0.01

Inhalation, systemic, acute	0.025 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, long term	6.13E-3 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	0.025 mg/m³ (TRA Workers 3.0)	< 0.01
Dermal, systemic, long term	3.4E-3 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Dermal, local, long term	9.92E-4 mg/cm² (TRA Workers 3.0)	< 0.01
Dermal, local, acute	9.92E-4 mg/cm² (TRA Workers 3.0)	< 0.01
Combined, systemic, long term		< 0.01

3.3.3. Worker exposure: Industrial use of laundry products; CS1-u; Laundry detergent. Automatic process; AISE-P101; CS2-u; Conditioner (softner/starch). Automatic process; AISE-P104; CS3-u; Laundry aid (gasing). Automatic process; AISE-P107; CS4-u; Laundry aid (non-gasing). Automatic process; AISE-P110 (PROC 2)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.612 mg/m³ (TRA Workers 3.0)	0.026
Inhalation, systemic, acute	2.45 mg/m³ (TRA Workers 3.0)	0.104
Inhalation, local, long term	0.612 mg/m³ (TRA Workers 3.0)	0.01
Inhalation, local, acute	2.45 mg/m³ (TRA Workers 3.0)	0.041
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.046

3.3.4. Worker exposure: Industrial use; Dedicated equipment; Pharmaceuticals; CS21-u; Disinfection product. Semi-automatic process; AISE-P810 (PROC 4)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.312 mg/m³ (TRA Workers 3.0)	0.056
Inhalation, systemic, acute	5.25 mg/m³ (TRA Workers 3.0)	0.222
Inhalation, local, long term	1.312 mg/m³ (TRA Workers 3.0)	0.022
Inhalation, local, acute	5.25 mg/m³ (TRA Workers 3.0)	0.089
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.102
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.158

3.3.5. Worker exposure: Industrial use of vehicle cleaning products; CS5-u; Train cleaner. Semi-Automatic process; AISE-P707; CS6-u; Aeroplane cleaner. Semi-Automatic process; AISE-P708; CS7-u; Car wash product. Semi-Automatic process; AISE-P709; CS10-u; Dewaxing product. Semi-Automatic process; AISE-P712; CS14-u; Food process cleaner. Semi closed cleaning process; AISE-P802 (PROC 4)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.306 mg/m³ (TRA Workers 3.0)	0.013
Inhalation, systemic, acute	1.225 mg/m³ (TRA Workers 3.0)	0.052
Inhalation, local, long term	0.306 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	1.225 mg/m³ (TRA Workers 3.0)	0.021
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.102
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.115

3.3.6. Worker exposure: Industrial use of water treatment products; CS24-u; Preservation and sanitation agent . Drink and pool water; AISE-P904; CS23-u; Sanitation agent. Waste water; AISE-P905 (PROC 4)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.306 mg/m³ (TRA Workers 3.0)	0.013
Inhalation, systemic, acute	1.225 mg/m³ (TRA Workers 3.0)	0.052

Inhalation, local, long term	0.306 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	1.225 mg/m³ (TRA Workers 3.0)	0.021
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.102
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.115

3.3.7. Worker exposure: Industrial use of food beverage and pharmaceutical products; CS18-u; Foam cleaner. Semi-Automatic with venting process; AISE-P806 (PROC 7)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.312 mg/m³ (TRA Workers 3.0)	0.056
Inhalation, systemic, acute	5.25 mg/m³ (TRA Workers 3.0)	0.222
Inhalation, local, long term	1.312 mg/m³ (TRA Workers 3.0)	0.022
Inhalation, local, acute	5.25 mg/m³ (TRA Workers 3.0)	0.089
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.064
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.12

3.3.8. Worker exposure: Industrial use of food beverage and pharmaceutical products; CS15-u; Chain maintenance product. Automatic spray process; AISE-P803; CS19-u; Foam cleaner. Semi-Automatic without venting process; AISE-P807; CS22-u; Animal housing care. Semi-Automatic process; AISE-P809; CS20-u; Disinfection product. Fogging and gassing Semi-automatic process; AISE-P811 (PROC 7)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.312 mg/m³ (TRA Workers 3.0)	0.056
Inhalation, systemic, acute	5.25 mg/m³ (TRA Workers 3.0)	0.222
Inhalation, local, long term	1.312 mg/m³ (TRA Workers 3.0)	0.022
Inhalation, local, acute	5.25 mg/m³ (TRA Workers 3.0)	0.089
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.064
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.12

3.3.9. Worker exposure: Industrial use of laundry products; CS1-p; Laundry detergent. Automatic process; AISE-P101; CS2-p; Conditioner (softner/starch). Automatic process; AISE-P104; CS3-p; Laundry aid (gasing). Automatic process; AISE-P107; CS4-p; Laundry aid (non-gasing). Automatic process; AISE-P110; CS13-p; Industrial use of food beverage and pharmaceutical products; AISE-P801; CS14-p; Food process cleaner. Cleaning In place (CIP) process; AISE-P802; CS15-p; Chain maintenance product. Automatic spray process; AISE-P803; CS17-p; Defoaming product. Automatic process; AISE-P805 (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.131 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	5.25 mg/m³ (TRA Workers 3.0)	0.222
Inhalation, local, long term	0.131 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	5.25 mg/m³ (TRA Workers 3.0)	0.089
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Dermal, local, acute	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Combined, systemic, long term		0.026

3.3.10. Worker exposure: Industrial use of water treatment products; CS23-p; Preservation and sanitation agent . Drink and pool water; AISE-P904; CS24-p; Sanitation agent. Waste water; AISE-P905; Industrial use of façade/surface cleaning products; CS25-p; Façade/surface

cleaner. High pressure process; AISE-P906; CS26-p; Façade/surface cleaner. Medium pressure process; AISE-P907 (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.031 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	1.225 mg/m³ (TRA Workers 3.0)	0.052
Inhalation, local, long term	0.031 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	1.225 mg/m³ (TRA Workers 3.0)	0.021
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Dermal, local, acute	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Combined, systemic, long term		0.022

3.3.11. Worker exposure: Industrial use of vehicle cleaning products; CS5-p; Train cleaner. Semi-Automatic process; AISE-P707; CS6-p; Aeroplane cleaner. Semi-Automatic process; AISE-P708; CS7-p; Car wash product. Semi-Automatic process; AISE-P709; CS8-p; Car wash product. Spray and rinse process; AISE-P710; CS10-p; Dewaxing product. Semi-Automatic process; AISE-P712; Industrial use of food beverage and pharmaceutical products; CS19-p; Foam cleaner. Semi-Automatic without venting process; AISE-P807; CS22-p; Disinfection product. Fogging and gassing Semi-automatic process; AISE-P811 (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.061 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	1.225 mg/m³ (TRA Workers 3.0)	0.052
Inhalation, local, long term	0.061 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	1.225 mg/m³ (TRA Workers 3.0)	0.021
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Dermal, local, acute	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Combined, systemic, long term		0.023

3.3.12. Worker exposure: Industrial use of vehicle cleaning products; CS9-p; Car wash product. Spray and wipe manual process; AISE-P711; CS11-p; Boat cleaner. Manual process; AISE-P713; CS12-p; Boat cleaner. Spray and wipe manual process; AISE-P714 (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.061 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	1.225 mg/m³ (TRA Workers 3.0)	0.052
Inhalation, local, long term	0.061 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	1.225 mg/m³ (TRA Workers 3.0)	0.021
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Dermal, local, acute	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Combined, systemic, long term		0.023

3.3.13. Worker exposure: Industrial use of food beverage and pharmaceutical products; CS20-p; Animal housing care. Semi-Automatic process; AISE-P809; CS21-p; Disinfection product. Semi-automatic process; AISE-P810 (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.263 mg/m³ (TRA Workers 3.0)	0.011
Inhalation, systemic, acute	5.25 mg/m³ (TRA Workers 3.0)	0.222
Inhalation, local, long term	0.263 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	5.25 mg/m³ (TRA Workers 3.0)	0.089
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Dermal, local, acute	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Combined, systemic, long term		0.032

3.3.14. Worker exposure: Industrial use of food beverage and pharmaceutical products; CS18-p; Foam cleaner. Semi-Automatic with venting process; AISE-P806 (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.044 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	0.875 mg/m³ (TRA Workers 3.0)	0.037
Inhalation, local, long term	0.044 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	0.875 mg/m³ (TRA Workers 3.0)	0.015
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Dermal, local, acute	1E-2 mg/cm² (TRA Workers 3.0)	0.075
Combined, systemic, long term		0.022

3.3.15. Worker exposure: Industrial use of vehicle cleaning products; CS9-u2; Car wash product. Spray and wipe manual process; AISE-P711; CS12-u2; Boat cleaner. Manual process; AISE-P713; CS11-u; Boat cleaner. Spray and wipe manual process; AISE-P714 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.613 mg/m³ (TRA Workers 3.0)	0.026
Inhalation, systemic, acute	2.45 mg/m³ (TRA Workers 3.0)	0.104
Inhalation, local, long term	0.613 mg/m³ (TRA Workers 3.0)	0.01
Inhalation, local, acute	2.45 mg/m³ (TRA Workers 3.0)	0.041
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.067

3.3.16. Worker exposure: Industrial use of food beverage and pharmaceutical products; CS16-u; Chain maintenance product. Automatic drip and brush process; AISE-P804 (PROC 13)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.875 mg/m³ (TRA Workers 3.0)	0.037
Inhalation, systemic, acute	3.5 mg/m³ (TRA Workers 3.0)	0.148
Inhalation, local, long term	0.875 mg/m³ (TRA Workers 3.0)	0.015
Inhalation, local, acute	3.5 mg/m³ (TRA Workers 3.0)	0.059
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.057

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

Guidance: The total tonnage of all end-uses for environmental exposure is covered under GES6. ERC4 is covered under ERC8. In accordance with IFRA REACH Exposure Scenarios for Fragrance Substances Version 2.1, 11th December 2012), the total tonnage under ERC4 can be considered under ERC8. This approach can be justified since the total volume for fragrance substances that is applied for industrial use is only a fraction of the volumes going to consumer and professional uses. Also the industrial end-use products are similar to those used by professionals and consumers and release will be to the waste water stream. In industrial settings normally additional RMMs are available in the form of on-site industrial sewage treatment plants. Therefore this approach can be considered as a worst case approach as only the municipal treatment plant is considered in wide-dispersive uses.
Scaling instructions: As the environmental release factor depends on site specific operational conditions and risk management measures, Downstream Users (DU) are advised to demonstrate that a safe use is given for the amounts used at their site. Scaling may be a suitable option in this case, (ECHA Guidance for downstream users and Guidance on the compilation of safety data sheets). Scaling is a comparison of linear input parameters and determinants between data presented in the Exposure Scenario (ES) and the data available from the Downstream User to determine the risk characterisation ratios (RCR) under the operational conditions of the DU (eg. quantity of substance used per year and site, emission fraction to water, number of emission days).

4. ES 4: Widespread use by professional workers; Washing and Cleaning Products

4.1. Title section

ES name: GES 4; Professional end-use of washing and cleaning products
Product category: Washing and Cleaning Products (PC 35)

Environment	
1: GES 4; Professional end-use of washing and cleaning products	ERC 8a
Worker	
2: Professional use of laundry products; CS1-u; Laundry detergent. Semi automatic process; AISE-P102; CS3-u; Conditioner (softner/starch). Semi automatic process; AISE-P105; CS4-u; Laundry aid (gasing). Semi automatic process; AISE-P108; CS5-u; Laundry aid (non-gasing). Semi automatic process; AISE-P111; Professional use of dishwashing products; CS10-u; Dishwash product. Semi-Automatic process; AISE-P203; CS11-u; Rinse aid. Automatic process; AISE-P204; Professional use of medical devices; CS48-u; Medical devices . Semi-automatic process; AISE-P1101	PROC 1
3: Professional use of dishwashing products; CS9-u; Dishwash product. Automatic process; AISE-P202	PROC 2
4: Professional use of laundry products; CS6-u; Laundry aid (non-gasing). Manual process; AISE-P112	PROC 4
5: Professional use of vehicle cleaning products; Semi-automated task; CS39-u; Car wash product. Semi-Automatic process; AISE-P701; CS42-u; Dewaxing product. Semi-Automatic process; AISE-P704	PROC 4
6: Professional use of laundry products; CS1-p; Laundry detergent. Semi automatic process; AISE-P102; CS3-p; Conditioner (softner/starch). Semi automatic process; AISE-P105; CS4-p; Laundry aid (gasing). Semi automatic process; AISE-P108; CS5-p; Laundry aid (non-gasing). Semi automatic process; AISE-P111; CS6-p; Laundry aid (non-gasing). Manual process; AISE-P112; Professional use of dishwashing products; CS10-p; Dishwash product. Semi-Automatic process; AISE-P203; CS11-p; Rinse aid. Automatic process; AISE-P204; Professional use of general surface cleaning products; CS20-p; Descaling agent. Dipping process; AISE-P309; Professional use of medical devices; CS48-p; Medical devices . Semi-automatic process; AISE-P1101; CS49-p; Medical devices . Dipping process; AISE-P1102	PROC 8a
7: Professional use of façade/surface cleaning products; CS46-p; Façade/surface cleaner. High pressure process; AISE-P901; CS47-p; Façade/surface cleaner. Medium pressure process; AISE-P902	PROC 8a
8: Professional use of dishwashing products; CS8-p; Dishwash product. Manual process; AISE-P201	PROC 8a
9: Professional use of floor care products; CS31-p; Floor cleaner. Manual process; AISE-P403; CS29-p; Floor cleaner. Semi-Automatic process; AISE-P401; CS30-p; Floor cleaner. Spray and wipe manual process; AISE-P402; CS34-p; Carpet cleaner. Manual process; AISE-P409; CS35-p; Carpet cleaner. Semi-Automatic process; AISE-P410; Professional use of general surface cleaning products; CS12-p; General purpose cleaner. Manual process; AISE-P301; CS13-p; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS14-p; Kitchen cleaner. Manual process; AISE-P303; CS15-p; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS16-p; Sanitary cleaner. Manual process; AISE-P305; CS17-p; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS23-p; Glass cleaner. Manual process; AISE-P312; Professional use; Pharmaceuticals; CS45-p; Animal housing care. Manual process; AISE-P808; Professional use of medical devices; CS51-p; Medical devices . Spray process; AISE-P1104	PROC 8a
10: Professional use of vehicle cleaning products; CS39-p; Car wash product. Semi-Automatic process; AISE-P701; CS40-p; Car wash product. Spray and wipe manual process; AISE-P702; CS42-p; Dewaxing product. Semi-Automatic process; AISE-P704; Professional use of laundry products; CS2-p; Laundry detergent. Manual process; AISE-P103; Professional use of general surface cleaning products; CS19-p; Descaling agent. Spray and rinse manual process; AISE-P308; CS25-p; Surface disinfactant. Manual process; AISE-P314; CS26-p; Surface disinfactant. Spray and rinse manual process; AISE-P315; Professional use of floor care products; CS32-p; Floor stripper. Manual process; AISE-P404; CS33-p; Floor stripper. Semi-Automatic process; AISE-P405; Professional use of medical devices; CS50-p; Medical devices . Manual process; AISE-P1103	PROC 8a
11: Professional use of vehicle cleaning products; CS41-p; Car wash product. Spray and wipe manual process; AISE-P703; CS43-p; Boat cleaner. Manual process; AISE-P705; CS44-p; Boat cleaner. Spray and wipe manual process; AISE-P706	PROC 8a
12: Professional use of dishwashing products; CS9-p; Dishwash product. Automatic process; AISE-P202	PROC 8b
13: Professional use of general surface cleaning products; CS21-u; Oven/Grill Cleaner. Manual process; AISE-P310	PROC 10
14: Professional use of laundry products; CS2-u; Laundry detergent. Manual process; AISE-P103; Professional use of dishwashing products; CS8-u; Dishwash product. Manual process; AISE-P201; Professional use of general surface cleaning products; CS28-u; Wet wipe. Manual process; AISE-P317; Professional use of floor care products; CS36-u1; Carpet cleaner. Spray and brush manual process; AISE-P411	PROC 10
15: Professional use of general surface cleaning products; CS18-u; Descaling agent. Manual process; AISE-P307	PROC 10
16: Professional use of floor care products; CS31-u; Floor cleaner. Manual process; AISE-P403; Professional use of laundry products; CS7-u1; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general	PROC 10

surface cleaning products; CS12-u; General purpose cleaner. Manual process; AISE-P301; CS13-u1; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS14-u; Kitchen cleaner. Manual process; AISE-P303; CS15-u1; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS16-u; Sanitary cleaner. Manual process; AISE-P305; CS17-u1; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS23-u; Glass cleaner. Manual process; AISE-P312; CS24-u1; Glass cleaner. Spray and wipe manual process; AISE-P313; CS25-u; Surface disinfactant. Manual process; AISE-P314; CS26-u1; Surface disinfactant. Spray and rinse manual process; AISE-P315; CS27-u; Metal cleaning agent. Manual process; AISE-P316; CS29-u; Floor cleaner. Semi-Automatic process; AISE-P401; CS30-u1; Floor cleaner. Spray and wipe manual process; AISE-P402; CS33-u; Floor stripper. Semi-Automatic process; AISE-P405; CS34-u; Carpet cleaner. Manual process; AISE-P409; CS35-u; Carpet cleaner. Semi-Automatic process; AISE-P410; Professional use; Pharmaceuticals; CS45-u; Animal housing care. Manual process; AISE-P808; Professional use of medical devices; CS50-u; Medical devices . Manual process; AISE-P1103; CS51-u1; Medical devices . Spray process; AISE-P1104	
17: Professional use of general surface cleaning products; CS19-u1; Descaling agent. Spray and rinse manual process; AISE-P308; CS22-u1; Oven/Grill Cleaner. Spray and wipe manual process; AISE-P311; Professional use of floor care products; CS32-u; Floor stripper. Manual process; AISE-P404	PROC 10
18: Professional use of vehicle cleaning products; CS41-u1; Car wash product. Spray and wipe manual process; AISE-P703; CS43-u; Boat cleaner. Manual process; AISE-P705; CS44-u1; Boat cleaner. Spray and wipe manual process; AISE-P706	PROC 10
19: Professional use of façade/surface cleaning products; CS47-u1; Façade/surface cleaner. Medium pressure process; AISE-P902	PROC 10
20: Professional use of vehicle cleaning products; CS40-u; Car wash product. Spray and rinse process; AISE-P702; Professional use of laundry products; CS7-u2; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general surface cleaning products; CS13-u2; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS15-u2; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS17-u2; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS24-u2; Glass cleaner. Spray and wipe manual process; AISE-P313; CS26-u2; Surface disinfactant. Spray and rinse manual process; AISE-P315; Professional use of floor care products; CS30-u2; Floor cleaner. Spray and wipe manual process; AISE-P402; CS36-u2; Carpet cleaner. Spray and brush manual process; AISE-P411; Professional use of medical devices; CS51-u2; Medical devices . Spray process; AISE-P1104	PROC 11
21: Professional use of general surface cleaning products; CS19-u2; Descaling agent. Spray and rinse manual process; AISE-P308; CS22-u2; Oven/Grill Cleaner. Spray and wipe manual process; AISE-P311	PROC 11
22: Professional use of vehicle cleaning products; CS41-u2; Car wash product. Spray and wipe manual process; AISE-P703; CS44-u2; Boat cleaner. Spray and wipe manual process; AISE-P706	PROC 11
23: Professional use of façade/surface cleaning products; CS47-u2; Façade/surface cleaner. Medium pressure process; AISE-P902	PROC 11
24: Professional use of façade/surface cleaning products; CS46-u; Façade/surface cleaner. High pressure process; AISE-P901	PROC 11
25: Professional use of maintenance products; CS37; Drain unblocker. Manual process; AISE-P606; CS38; Drain cleaner. Manual process; AISE-P607	PROC 13
26: Professional use of general surface cleaning products; CS20-u; Descaling agent. Dipping process; AISE-P309; Professional use of medical devices; CS49-u; Medical devices . Dipping process; AISE-P1102	PROC 13

4.2. Conditions of use affecting exposure

4.2.1. Control of environmental exposure: GES 4; Professional end-use of washing and cleaning products (ERC 8a)

4.2.2. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Product (article) characteristics
Liquid
Technical and organisational conditions and measures
Local exhaust ventilation; No.
Conditions and measures related to personal protection, hygiene and health evaluation
Face/eye protection; No.

Other conditions affecting workers exposure
Assumes process temperature up to 40 °C

Specific conditions of use per contributing scenario

Contributing scenario	Specific conditions of use
Professional use of laundry products; CS1-u; Laundry detergent. Semi automatic process; AISE-P102; CS3-u; Conditioner (softner/starch). Semi automatic process; AISE-P105; CS4-u; Laundry aid (gasing). Semi automatic process; AISE-P108; CS5-u; Laundry aid (non-gasing). Semi automatic process; AISE-P111; Professional use of dishwashing products; CS10-u; Dishwash product. Semi-Automatic process; AISE-P203; CS11-u; Rinse aid. Automatic process; AISE-P204; Professional use of medical devices; CS48-u; Medical devices . Semi-automatic process; AISE-P1101 (PROC 1)	Covers concentrations up to 1 % Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Respiratory protection; No. Personal protection; dermal; No. Body parts potentially exposed; One hand face only (240 cm2) Indoor use
Professional use of dishwashing products; CS9-u; Dishwash product. Automatic process; AISE-P202 (PROC 2)	Covers concentrations up to 1 % Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Respiratory protection; No. Personal protection; dermal; No. Body parts potentially exposed; Two hands face only (480 cm2) Indoor use
Professional use of laundry products; CS6-u; Laundry aid (non-gasing). Manual process; AISE-P112 (PROC 4)	Covers concentrations up to 1 % Covers use up to 0.2 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Occupational Health and Safety Management System; Basic Personal protection; dermal; No. Respiratory protection; No. Body parts potentially exposed; Two hands face only (480 cm2) Indoor use
Professional use of vehicle cleaning products; Semi-automated task; CS39-u; Car wash product. Semi-Automatic process; AISE-P701; CS42-u; Dewaxing product. Semi-Automatic process; AISE-P704 (PROC 4)	Covers concentrations up to 1 % Covers use up to 8 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Occupational Health and Safety Management System; Basic Personal protection; dermal; No. Respiratory protection; No. Body parts potentially exposed; Two hands face only (480 cm2) Indoor use
Professional use of laundry products; CS1-p; Laundry detergent. Semi automatic process; AISE-P102; CS3-p; Conditioner (softner/starch). Semi automatic process; AISE-P105; CS4-p; Laundry aid (gasing). Semi automatic process; AISE-P108; CS5-p; Laundry aid (non-gasing). Semi automatic process; AISE-P111; CS6-p; Laundry aid (non-gasing). Manual process; AISE-P112; Professional use of dishwashing products; CS10-p;	Covers concentrations up to 1 % Covers use up to 0.2 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Occupational Health and Safety Management System; Basic Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands (960 cm2) Indoor use

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Dishwash product. Semi-Automatic process; AISE-P203; CS11-p; Rinse aid. Automatic process; AISE-P204; Professional use of general surface cleaning products; CS20-p; Descaling agent. Dipping process; AISE-P309; Professional use of medical devices; CS48-p; Medical devices . Semi-automatic process; AISE-P1101; CS49-p; Medical devices . Dipping process; AISE-P1102 (PROC 8a)	
Professional use of façade/surface cleaning products; CS46-p; Façade/surface cleaner. High pressure process; AISE-P901; CS47-p; Façade/surface cleaner. Medium pressure process; AISE-P902 (PROC 8a)	Covers concentrations up to 1 % Covers use up to 0.2 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment. Personal protection; dermal; No. Respiratory protection; No. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of dishwashing products; CS8-p; Dishwash product. Manual process; AISE-P201 (PROC 8a)	Covers concentrations up to 1 % Covers use up to 0.2 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Occupational Health and Safety Management System; Basic Personal protection; dermal; No. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of floor care products; CS31-p; Floor cleaner. Manual process; AISE-P403; CS29-p; Floor cleaner. Semi-Automatic process; AISE-P401; CS30-p; Floor cleaner. Spray and wipe manual process; AISE-P402; CS34-p; Carpet cleaner. Manual process; AISE-P409; CS35-p; Carpet cleaner. Semi-Automatic process; AISE-P410; Professional use of general surface cleaning products; CS12-p; General purpose cleaner. Manual process; AISE-P301; CS13-p; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS14-p; Kitchen cleaner. Manual process; AISE-P303; CS15-p; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS16-p; Sanitary cleaner. Manual process; AISE-P305; CS17-p; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS23-p; Glass cleaner. Manual process; AISE-P312; Professional use; Pharmaceuticals; CS45-p; Animal housing care. Manual process; AISE-P808; Professional use of medical devices; CS51-p; Medical devices . Spray process; AISE-P1104 (PROC 8a)	Covers concentrations up to 1 % Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Personal protection; dermal; No. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands (960 cm2) Outdoor use

Administrative information:
Report Information: SDS_EU/EN/GHS_SDS_EU_REGION/40
Sales & Distribution Information: VE01/FR/CH11/01
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Professional use of vehicle cleaning products; CS39-p; Car wash product. Semi-Automatic process; AISE-P701; CS40-p; Car wash product. Spray and wipe manual process; AISE-P702; CS42-p; Dewaxing product. Semi-Automatic process; AISE-P704; Professional use of laundry products; CS2-p; Laundry detergent. Manual process; AISE-P103; Professional use of general surface cleaning products; CS19-p; Descaling agent. Spray and rinse manual process; AISE-P308; CS25-p; Surface disinfactant. Manual process; AISE-P314; CS26-p; Surface disinfactant. Spray and rinse manual process; AISE-P315; Professional use of floor care products; CS32-p; Floor stripper. Manual process; AISE-P404; CS33-p; Floor stripper. Semi-Automatic process; AISE-P405; Professional use of medical devices; CS50-p; Medical devices . Manual process; AISE-P1103 (PROC 8a)	Covers concentrations up to 1 % Covers use up to 8 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment. Personal protection; dermal; No. Respiratory protection; No. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of vehicle cleaning products; CS41-p; Car wash product. Spray and wipe manual process; AISE-P703; CS43-p; Boat cleaner. Manual process; AISE-P705; CS44-p; Boat cleaner. Spray and wipe manual process; AISE-P706 (PROC 8a)	Covers concentrations up to 1 % Covers use up to 8 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment. Personal protection; dermal; No. Respiratory protection; No. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of dishwashing products; CS9-p; Dishwash product. Automatic process; AISE-P202 (PROC 8b)	Covers concentrations up to 1 % Covers use up to 8 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment. Personal protection; dermal; No. Respiratory protection; No. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of general surface cleaning products; CS21-u; Oven/Grill Cleaner. Manual process; AISE-P310 (PROC 10)	Covers concentrations up to 1 % Covers use up to 8 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of laundry products; CS2-u; Laundry detergent. Manual process; AISE-P103; Professional use	Covers concentrations up to 0.1 % Covers use up to 4 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

of dishwashing products; CS8-u; Dishwash product. Manual process; AISE-P201; Professional use of general surface cleaning products; CS28-u; Wet wipe. Manual process; AISE-P317; Professional use of floor care products; CS36-u1; Carpet cleaner. Spray and brush manual process; AISE-P411 (PROC 10)	Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of general surface cleaning products; CS18-u; Descaling agent. Manual process; AISE-P307 (PROC 10)	Covers concentrations up to 1 % Covers use up to 4 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of floor care products; CS31-u; Floor cleaner. Manual process; AISE-P403; Professional use of laundry products; CS7-u1; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general surface cleaning products; CS12-u; General purpose cleaner. Manual process; AISE-P301; CS13-u1; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS14-u; Kitchen cleaner. Manual process; AISE-P303; CS15-u1; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS16-u; Sanitary cleaner. Manual process; AISE-P305; CS17-u1; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS23-u; Glass cleaner. Manual process; AISE-P312; CS24-u1; Glass cleaner. Spray and wipe manual process; AISE-P313; CS25-u; Surface disinfactant. Manual process; AISE-P314; CS26-u1; Surface disinfactant. Spray and rinse manual process; AISE-P315; CS27-u; Metal cleaning agent. Manual process; AISE-P316; CS29-u; Floor cleaner. Semi-Automatic process; AISE-P401; CS30-u1; Floor cleaner. Spray and wipe manual process; AISE-P402; CS33-u; Floor stripper. Semi-Automatic process; AISE-P405; CS34-u; Carpet cleaner. Manual process; AISE-P409; CS35-u; Carpet cleaner. Semi-Automatic process; AISE-P410; Professional use; Pharmaceuticals; CS45-u; Animal housing care. Manual process; AISE-P808; Professional use of medical devices; CS50-u; Medical	Covers concentrations up to 1 % Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands (960 cm2) Outdoor use

devices . Manual process; AISE-P1103; CS51-u1; Medical devices . Spray process; AISE-P1104 (PROC 10)	
Professional use of general surface cleaning products; CS19-u1; Descaling agent. Spray and rinse manual process; AISE-P308; CS22-u1; Oven/Grill Cleaner. Spray and wipe manual process; AISE-P311; Professional use of floor care products; CS32-u; Floor stripper. Manual process; AISE-P404 (PROC 10)	Covers concentrations up to 1 % Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands (960 cm2) Outdoor use
Professional use of vehicle cleaning products; CS41-u1; Car wash product. Spray and wipe manual process; AISE-P703; CS43-u; Boat cleaner. Manual process; AISE-P705; CS44-u1; Boat cleaner. Spray and wipe manual process; AISE-P706 (PROC 10)	Covers concentrations up to 1 % Covers use up to 8 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of façade/surface cleaning products; CS47-u1; Façade/surface cleaner. Medium pressure process; AISE-P902 (PROC 10)	Covers concentrations up to 1 % Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands (960 cm2) Outdoor use
Professional use of vehicle cleaning products; CS40-u; Car wash product. Spray and rinse process; AISE-P702; Professional use of laundry products; CS7-u2; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general surface cleaning products; CS13-u2; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS15-u2; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS17-u2; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS24-u2; Glass cleaner. Spray and wipe manual process; AISE-P313; CS26-u2; Surface disinfactant. Spray and rinse manual process; AISE-P315; Professional use of floor care products; CS30-u2; Floor cleaner. Spray and wipe manual process; AISE-P402; CS36-u2; Carpet	Covers concentrations up to 1 % Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Outdoor use

cleaner. Spray and brush manual process; AISE-P411; Professional use of medical devices; CS51-u2; Medical devices . Spray process; AISE-P1104 (PROC 11)	
Professional use of general surface cleaning products; CS19-u2; Descaling agent. Spray and rinse manual process; AISE-P308; CS22-u2; Oven/Grill Cleaner. Spray and wipe manual process; AISE-P311 (PROC 11)	Covers concentrations up to 1 % Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Indoor use
Professional use of vehicle cleaning products; CS41-u2; Car wash product. Spray and wipe manual process; AISE-P703; CS44-u2; Boat cleaner. Spray and wipe manual process; AISE-P706 (PROC 11)	Covers concentrations up to 1 % Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Outdoor use
Professional use of façade/surface cleaning products; CS47-u2; Façade/surface cleaner. Medium pressure process; AISE-P902 (PROC 11)	Covers concentrations up to 1 % Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Outdoor use
Professional use of façade/surface cleaning products; CS46-u; Façade/surface cleaner. High pressure process; AISE-P901 (PROC 11)	Covers concentrations up to 1 % Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Outdoor use
Professional use of maintenance products; CS37; Drain unblocker. Manual process; AISE-P606; CS38; Drain cleaner. Manual process; AISE-P607 (PROC 13)	Covers concentrations up to 1 % Covers use up to 0.2 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the

	hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands face only (480 cm2) Indoor use
Professional use of general surface cleaning products; CS20-u; Descaling agent. Dipping process; AISE-P309; Professional use of medical devices; CS49-u; Medical devices . Dipping process; AISE-P1102 (PROC 13)	Covers concentrations up to 1 % Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands face only (480 cm2) Indoor use

4.3. Exposure estimation and reference to its source

4.3.1. Environmental release and exposure: GES 4; Professional end-use of washing and cleaning products (ERC 8a)

Release route	Release rate	Release estimation method
Water	5.5E-7 kg/day	ERC
Air	5.5E-7 kg/day	ERC
Soil	0 kg/day	ERC

4.3.2. Worker exposure: Professional use of laundry products; CS1-u; Laundry detergent. Semi automatic process; AISE-P102; CS3-u; Conditioner (softner/starch). Semi automatic process; AISE-P105; CS4-u; Laundry aid (gasing). Semi automatic process; AISE-P108; CS5-u; Laundry aid (non-gasing). Semi automatic process; AISE-P111; Professional use of dishwashing products; CS10-u; Dishwash product. Semi-Automatic process; AISE-P203; CS11-u; Rinse aid. Automatic process; AISE-P204; Professional use of medical devices; CS48-u; Medical devices . Semi-automatic process; AISE-P1101 (PROC 1)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	8.75E-3 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	0.035 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, long term	8.75E-3 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	0.035 mg/m³ (TRA Workers 3.0)	< 0.01
Dermal, systemic, long term	3.4E-3 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Dermal, local, long term	9.92E-4 mg/cm² (TRA Workers 3.0)	< 0.01
Dermal, local, acute	9.92E-4 mg/cm² (TRA Workers 3.0)	< 0.01
Combined, systemic, long term		< 0.01

4.3.3. Worker exposure: Professional use of dishwashing products; CS9-u; Dishwash product. Automatic process; AISE-P202 (PROC 2)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.375 mg/m³ (TRA Workers 3.0)	0.185
Inhalation, systemic, acute	17.5 mg/m³ (TRA Workers 3.0)	0.741
Inhalation, local, long term	4.375 mg/m³ (TRA Workers 3.0)	0.074
Inhalation, local, acute	17.5 mg/m³ (TRA Workers 3.0)	0.296
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02

Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.206

4.3.4. Worker exposure: Professional use of laundry products; CS6-u; Laundry aid (non-gasing). Manual process; AISE-P112 (PROC 4)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.263 mg/m³ (TRA Workers 3.0)	0.011
Inhalation, systemic, acute	10.5 mg/m³ (TRA Workers 3.0)	0.444
Inhalation, local, long term	0.263 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	10.5 mg/m³ (TRA Workers 3.0)	0.178
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.102
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.113

4.3.5. Worker exposure: Professional use of vehicle cleaning products; Semi-automated task; CS39-u; Car wash product. Semi-Automatic process; AISE-P701; CS42-u; Dewaxing product. Semi-Automatic process; AISE-P704 (PROC 4)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.625 mg/m³ (TRA Workers 3.0)	0.111
Inhalation, systemic, acute	10.5 mg/m³ (TRA Workers 3.0)	0.444
Inhalation, local, long term	2.625 mg/m³ (TRA Workers 3.0)	0.044
Inhalation, local, acute	10.5 mg/m³ (TRA Workers 3.0)	0.178
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.102
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.213

4.3.6. Worker exposure: Professional use of laundry products; CS1-p; Laundry detergent. Semi automatic process; AISE-P102; CS3-p; Conditioner (softner/starch). Semi automatic process; AISE-P105; CS4-p; Laundry aid (gasing). Semi automatic process; AISE-P108; CS5-p; Laundry aid (non-gasing). Semi automatic process; AISE-P111; CS6-p; Laundry aid (non-gasing). Manual process; AISE-P112; Professional use of dishwashing products; CS10-p; Dishwash product. Semi-Automatic process; AISE-P203; CS11-p; Rinse aid. Automatic process; AISE-P204; Professional use of general surface cleaning products; CS20-p; Descaling agent. Dipping process; AISE-P309; Professional use of medical devices; CS48-p; Medical devices . Semi-automatic process; AISE-P1101; CS49-p; Medical devices . Dipping process; AISE-P1102 (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.066 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	2.625 mg/m³ (TRA Workers 3.0)	0.111
Inhalation, local, long term	0.066 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	2.625 mg/m³ (TRA Workers 3.0)	0.044
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.044

4.3.7. Worker exposure: Professional use of façade/surface cleaning products; CS46-p; Façade/surface cleaner. High pressure process; AISE-P901; CS47-p; Façade/surface cleaner. Medium pressure process; AISE-P902 (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR

Inhalation, systemic, long term	0.263 mg/m³ (TRA Workers 3.0)	0.011
Inhalation, systemic, acute	10.5 mg/m³ (TRA Workers 3.0)	0.444
Inhalation, local, long term	0.263 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	10.5 mg/m³ (TRA Workers 3.0)	0.178
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.205
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.216

4.3.8. Worker exposure: Professional use of dishwashing products; CS8-p; Dishwash product. Manual process; AISE-P201 (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.066 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	2.625 mg/m³ (TRA Workers 3.0)	0.111
Inhalation, local, long term	0.066 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	2.625 mg/m³ (TRA Workers 3.0)	0.044
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.205
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.207

4.3.9. Worker exposure: Professional use of floor care products; CS31-p; Floor cleaner. Manual process; AISE-P403; CS29-p; Floor cleaner. Semi-Automatic process; AISE-P401; CS30-p; Floor cleaner. Spray and wipe manual process; AISE-P402; CS34-p; Carpet cleaner. Manual process; AISE-P409; CS35-p; Carpet cleaner. Semi-Automatic process; AISE-P410; Professional use of general surface cleaning products; CS12-p; General purpose cleaner. Manual process; AISE-P301; CS13-p; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS14-p; Kitchen cleaner. Manual process; AISE-P303; CS15-p; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS16-p; Sanitary cleaner. Manual process; AISE-P305; CS17-p; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS23-p; Glass cleaner. Manual process; AISE-P312; Professional use; Pharmaceuticals; CS45-p; Animal housing care. Manual process; AISE-P808; Professional use of medical devices; CS51-p; Medical devices . Spray process; AISE-P1104 (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.306 mg/m³ (TRA Workers 3.0)	0.013
Inhalation, systemic, acute	6.125 mg/m³ (TRA Workers 3.0)	0.259
Inhalation, local, long term	0.306 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	6.125 mg/m³ (TRA Workers 3.0)	0.104
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.205
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.218

4.3.10. Worker exposure: Professional use of vehicle cleaning products; CS39-p; Car wash product. Semi-Automatic process; AISE-P701; CS40-p; Car wash product. Spray and wipe manual process; AISE-P702; CS42-p; Dewaxing product. Semi-Automatic process; AISE-P704; Professional use of laundry products; CS2-p; Laundry detergent. Manual process; AISE-P103; Professional use of general surface cleaning products; CS19-p; Descaling agent. Spray and rinse manual process; AISE-P308; CS25-p; Surface disinfactant. Manual process; AISE-P314; CS26-p; Surface disinfactant. Spray and rinse manual process; AISE-P315; Professional use of floor care products; CS32-p; Floor stripper. Manual process; AISE-P404; CS33-p; Floor stripper. Semi-Automatic process; AISE-P405; Professional use of medical devices; CS50-p; Medical

devices . Manual process; AISE-P1103 (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.625 mg/m³ (TRA Workers 3.0)	0.111
Inhalation, systemic, acute	10.5 mg/m³ (TRA Workers 3.0)	0.444
Inhalation, local, long term	2.625 mg/m³ (TRA Workers 3.0)	0.044
Inhalation, local, acute	10.5 mg/m³ (TRA Workers 3.0)	0.178
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.205
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.316

4.3.11. Worker exposure: Professional use of vehicle cleaning products; CS41-p; Car wash product. Spray and wipe manual process; AISE-P703; CS43-p; Boat cleaner. Manual process; AISE-P705; CS44-p; Boat cleaner. Spray and wipe manual process; AISE-P706 (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.625 mg/m³ (TRA Workers 3.0)	0.111
Inhalation, systemic, acute	10.5 mg/m³ (TRA Workers 3.0)	0.444
Inhalation, local, long term	2.625 mg/m³ (TRA Workers 3.0)	0.044
Inhalation, local, acute	10.5 mg/m³ (TRA Workers 3.0)	0.178
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.205
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.316

4.3.12. Worker exposure: Professional use of dishwashing products; CS9-p; Dishwash product. Automatic process; AISE-P202 (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.312 mg/m³ (TRA Workers 3.0)	0.056
Inhalation, systemic, acute	5.25 mg/m³ (TRA Workers 3.0)	0.222
Inhalation, local, long term	1.312 mg/m³ (TRA Workers 3.0)	0.022
Inhalation, local, acute	5.25 mg/m³ (TRA Workers 3.0)	0.089
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.205
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.26

4.3.13. Worker exposure: Professional use of general surface cleaning products; CS21-u; Oven/Grill Cleaner. Manual process; AISE-P310 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.625 mg/m³ (TRA Workers 3.0)	0.111
Inhalation, systemic, acute	10.5 mg/m³ (TRA Workers 3.0)	0.444
Inhalation, local, long term	2.625 mg/m³ (TRA Workers 3.0)	0.044
Inhalation, local, acute	10.5 mg/m³ (TRA Workers 3.0)	0.178
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.152

4.3.14. Worker exposure: Professional use of laundry products; CS2-u; Laundry detergent. Manual process; AISE-P103; Professional use of dishwashing products; CS8-u; Dishwash product. Manual process; AISE-P201; Professional use of general surface cleaning products; CS28-u; Wet wipe. Manual process; AISE-P317; Professional use of floor care products; CS36-u1; Carpet cleaner. Spray and brush manual process; AISE-P411 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.919 mg/m³ (TRA Workers 3.0)	0.039

Inhalation, systemic, acute	6.125 mg/m³ (TRA Workers 3.0)	0.259
Inhalation, local, long term	0.919 mg/m³ (TRA Workers 3.0)	0.016
Inhalation, local, acute	6.125 mg/m³ (TRA Workers 3.0)	0.104
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.08

4.3.15. Worker exposure: Professional use of general surface cleaning products; CS18-u; Descaling agent. Manual process; AISE-P307 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.312 mg/m³ (TRA Workers 3.0)	0.056
Inhalation, systemic, acute	8.75 mg/m³ (TRA Workers 3.0)	0.37
Inhalation, local, long term	1.312 mg/m³ (TRA Workers 3.0)	0.022
Inhalation, local, acute	8.75 mg/m³ (TRA Workers 3.0)	0.148
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.096

4.3.16. Worker exposure: Professional use of floor care products; CS31-u; Floor cleaner. Manual process; AISE-P403; Professional use of laundry products; CS7-u1; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general surface cleaning products; CS12-u; General purpose cleaner. Manual process; AISE-P301; CS13-u1; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS14-u; Kitchen cleaner. Manual process; AISE-P303; CS15-u1; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS16-u; Sanitary cleaner. Manual process; AISE-P305; CS17-u1; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS23-u; Glass cleaner. Manual process; AISE-P312; CS24-u1; Glass cleaner. Spray and wipe manual process; AISE-P313; CS25-u; Surface disinfactant. Manual process; AISE-P314; CS26-u1; Surface disinfactant. Spray and rinse manual process; AISE-P315; CS27-u; Metal cleaning agent. Manual process; AISE-P316; CS29-u; Floor cleaner. Semi-Automatic process; AISE-P401; CS30-u1; Floor cleaner. Spray and wipe manual process; AISE-P402; CS33-u; Floor stripper. Semi-Automatic process; AISE-P405; CS34-u; Carpet cleaner. Manual process; AISE-P409; CS35-u; Carpet cleaner. Semi-Automatic process; AISE-P410; Professional use; Pharmaceuticals; CS45-u; Animal housing care. Manual process; AISE-P808; Professional use of medical devices; CS50-u; Medical devices . Manual process; AISE-P1103; CS51-u1; Medical devices . Spray process; AISE-P1104 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.531 mg/m³ (TRA Workers 3.0)	0.065
Inhalation, systemic, acute	6.125 mg/m³ (TRA Workers 3.0)	0.259
Inhalation, local, long term	1.531 mg/m³ (TRA Workers 3.0)	0.026
Inhalation, local, acute	6.125 mg/m³ (TRA Workers 3.0)	0.104
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.106

4.3.17. Worker exposure: Professional use of general surface cleaning products; CS19-u1; Descaling agent. Spray and rinse manual process; AISE-P308; CS22-u1; Oven/Grill Cleaner. Spray and wipe manual process; AISE-P311; Professional use of floor care products; CS32-u; Floor stripper. Manual process; AISE-P404 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.531 mg/m³ (TRA Workers 3.0)	0.065
Inhalation, systemic, acute	6.125 mg/m³ (TRA Workers 3.0)	0.259
Inhalation, local, long term	1.531 mg/m³ (TRA Workers 3.0)	0.026
Inhalation, local, acute	6.125 mg/m³ (TRA Workers 3.0)	0.104
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.106

4.3.18. Worker exposure: Professional use of vehicle cleaning products; CS41-u1; Car wash product. Spray and wipe manual process; AISE-P703; CS43-u; Boat cleaner. Manual process; AISE-P705; CS44-u1; Boat cleaner. Spray and wipe manual process; AISE-P706 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.531 mg/m³ (TRA Workers 3.0)	0.065
Inhalation, systemic, acute	6.125 mg/m³ (TRA Workers 3.0)	0.259
Inhalation, local, long term	1.531 mg/m³ (TRA Workers 3.0)	0.026
Inhalation, local, acute	6.125 mg/m³ (TRA Workers 3.0)	0.104
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.106

4.3.19. Worker exposure: Professional use of façade/surface cleaning products; CS47-u1; Façade/surface cleaner. Medium pressure process; AISE-P902 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.531 mg/m³ (TRA Workers 3.0)	0.065
Inhalation, systemic, acute	6.125 mg/m³ (TRA Workers 3.0)	0.259
Inhalation, local, long term	1.531 mg/m³ (TRA Workers 3.0)	0.026
Inhalation, local, acute	6.125 mg/m³ (TRA Workers 3.0)	0.104
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.106

4.3.20. Worker exposure: Professional use of vehicle cleaning products; CS40-u; Car wash product. Spray and rinse process; AISE-P702; Professional use of laundry products; CS7-u2; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general surface cleaning products; CS13-u2; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS15-u2; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS17-u2; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS24-u2; Glass cleaner. Spray and wipe manual process; AISE-P313; CS26-u2; Surface disinfectant. Spray and rinse manual process; AISE-P315; Professional use of floor care products; CS30-u2; Floor cleaner. Spray and wipe manual process; AISE-P402; CS36-u2; Carpet cleaner. Spray and brush manual process; AISE-P411; Professional use of medical devices; CS51-u2; Medical devices . Spray process; AISE-P1104 (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.613 mg/m³ (TRA Workers 3.0)	0.026
Inhalation, systemic, acute	12.25 mg/m³ (TRA Workers 3.0)	0.518
Inhalation, local, long term	0.613 mg/m³ (TRA Workers 3.0)	0.01
Inhalation, local, acute	12.25 mg/m³ (TRA Workers 3.0)	0.207
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.16
Dermal, local, long term	0.05 mg/cm² (TRA Workers 3.0)	0.376
Dermal, local, acute	0.05 mg/cm² (TRA Workers 3.0)	0.375

Combined, systemic, long term		0.186

4.3.21. Worker exposure: Professional use of general surface cleaning products; CS19-u2; Descaling agent. Spray and rinse manual process; AISE-P308; CS22-u2; Oven/Grill Cleaner. Spray and wipe manual process; AISE-P311 (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.875 mg/m³ (TRA Workers 3.0)	0.037
Inhalation, systemic, acute	17.5 mg/m³ (TRA Workers 3.0)	0.741
Inhalation, local, long term	0.875 mg/m³ (TRA Workers 3.0)	0.015
Inhalation, local, acute	17.5 mg/m³ (TRA Workers 3.0)	0.296
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.16
Dermal, local, long term	0.05 mg/cm² (TRA Workers 3.0)	0.376
Dermal, local, acute	0.05 mg/cm² (TRA Workers 3.0)	0.375
Combined, systemic, long term		0.197

4.3.22. Worker exposure: Professional use of vehicle cleaning products; CS41-u2; Car wash product. Spray and wipe manual process; AISE-P703; CS44-u2; Boat cleaner. Spray and wipe manual process; AISE-P706 (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.613 mg/m³ (TRA Workers 3.0)	0.026
Inhalation, systemic, acute	12.25 mg/m³ (TRA Workers 3.0)	0.518
Inhalation, local, long term	0.613 mg/m³ (TRA Workers 3.0)	0.01
Inhalation, local, acute	12.25 mg/m³ (TRA Workers 3.0)	0.207
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.16
Dermal, local, long term	0.05 mg/cm² (TRA Workers 3.0)	0.376
Dermal, local, acute	0.05 mg/cm² (TRA Workers 3.0)	0.375
Combined, systemic, long term		0.186

4.3.23. Worker exposure: Professional use of façade/surface cleaning products; CS47-u2; Façade/surface cleaner. Medium pressure process; AISE-P902 (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.613 mg/m³ (TRA Workers 3.0)	0.026
Inhalation, systemic, acute	12.25 mg/m³ (TRA Workers 3.0)	0.518
Inhalation, local, long term	0.613 mg/m³ (TRA Workers 3.0)	0.01
Inhalation, local, acute	12.25 mg/m³ (TRA Workers 3.0)	0.207
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.16
Dermal, local, long term	0.05 mg/cm² (TRA Workers 3.0)	0.376
Dermal, local, acute	0.05 mg/cm² (TRA Workers 3.0)	0.375
Combined, systemic, long term		0.186

4.3.24. Worker exposure: Professional use of façade/surface cleaning products; CS46-u; Façade/surface cleaner. High pressure process; AISE-P901 (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	3.062 mg/m³ (TRA Workers 3.0)	0.13
Inhalation, systemic, acute	12.25 mg/m³ (TRA Workers 3.0)	0.518
Inhalation, local, long term	3.062 mg/m³ (TRA Workers 3.0)	0.052
Inhalation, local, acute	12.25 mg/m³ (TRA Workers 3.0)	0.207
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.16
Dermal, local, long term	0.05 mg/cm² (TRA Workers 3.0)	0.376
Dermal, local, acute	0.05 mg/cm² (TRA Workers 3.0)	0.375
Combined, systemic, long term		0.29

4.3.25. Worker exposure: Professional use of maintenance products; CS37; Drain unblocker. Manual process; AISE-P606; CS38; Drain cleaner. Manual process; AISE-P607 (PROC 13)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.088 mg/m³ (TRA Workers 3.0)	< 0.01

Inhalation, systemic, acute	3.5 mg/m³ (TRA Workers 3.0)	0.148
Inhalation, local, long term	0.088 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	3.5 mg/m³ (TRA Workers 3.0)	0.059
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.024

4.3.26. Worker exposure: Professional use of general surface cleaning products; CS20-u; Descaling agent. Dipping process; AISE-P309; Professional use of medical devices; CS49-u; Medical devices . Dipping process; AISE-P1102 (PROC 13)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.175 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	3.5 mg/m³ (TRA Workers 3.0)	0.148
Inhalation, local, long term	0.175 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	3.5 mg/m³ (TRA Workers 3.0)	0.059
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.028

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

Guidance: The total tonnage of all end-uses is covered under GES6. Since the products used by professionals will not differ much from those used by consumers and since the conditions of environmental release are very similar for professionals and consumers, potential environmental exposure to the substance due to professional and private use was combined under GES6.
Scaling instructions: As the environmental release factor depends on site specific operational conditions and risk management measures, Downstream Users (DU) are advised to demonstrate that a safe use is given for the amounts used at their site. Scaling may be a suitable option in this case, (ECHA Guidance for downstream users and Guidance on the compilation of safety data sheets). Scaling is a comparison of linear input parameters and determinants between data presented in the Exposure Scenario (ES) and the data available from the Downstream User to determine the risk characterisation ratios (RCR) under the operational conditions of the DU (eg. quantity of substance used per year and site, emission fraction to water, number of emission days).

5. ES 5: Widespread use by professional workers; Polishes and Wax Blends

5.1. Title section

ES name: GES 5; Professional end-use of polishes and wax blends
Product category: Polishes and Wax Blends (PC 31)

Environment	
1: GES 5; Professional end-use of polishes and wax blends	ERC 8a
Worker	
2: Professional use of maintenance products; CS8-u; Leather care product. Automatic process; AISE-P605	PROC 2
3: Professional use of maintenance products; CS8-p; Leather care product. Automatic process; AISE-P605	PROC 8b
4: Professional use of maintenance products; CS4-u; Furniture care product. Manual process; AISE-P601; Furniture care product. Spray and wipe manual process; AISE-P602; CS6-u; Leather care product. Manual process; AISE-P603; CS7-u1; Leather care product. Spray and wipe manual process; AISE-P604; CS10-u1; Stainless steel care. Spray and wipe manual process; AISE-P609	PROC 10
5: Professional use of floor care products; CS1-u; Polish / impregnating agent. Manual process; AISE-P406; Polish / impregnating agent. Semi-Automatic process; AISE-P407; CS3-u1; Polish / impregnating agent. Spray and wipe manual process; AISE-P408; Professional use of maintenance products; CS9-u; Stainless steel care. Manual process; AISE-P608	PROC 10
6: Professional use of maintenance products; CS5-u2; Furniture care product. Spray and wipe manual process; AISE-P602; CS7-u2; Leather care product. Spray and wipe manual process; AISE-P604; CS10-u1; Stainless steel care. Spray and wipe manual process; AISE-P609	PROC 11
7: Professional use of maintenance products; CS3-u2; Polish / impregnating agent. Spray and wipe manual	PROC 11

process; AISE-P408

5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: GES 5; Professional end-use of polishes and wax blends (ERC 8a)

5.2.2. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Product (article) characteristics
Liquid
Covers concentrations up to 1 %
Technical and organisational conditions and measures
Local exhaust ventilation; No.
Conditions and measures related to personal protection, hygiene and health evaluation
Face/eye protection; No.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

Specific conditions of use per contributing scenario

Contributing scenario	**Specific conditions of use**
Professional use of maintenance products; CS8-u; Leather care product. Automatic process; AISE-P605 (PROC 2)	Covers use up to 8 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Occupational Health and Safety Management System; Basic Respiratory protection; No. Personal protection; dermal; No. Body parts potentially exposed; Two hands face only (480 cm2)
Professional use of maintenance products; CS8-p; Leather care product. Automatic process; AISE-P605 (PROC 8b)	Covers use up to 1 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Occupational Health and Safety Management System; Basic Personal protection; dermal; No. Respiratory protection; No. Body parts potentially exposed; Two hands (960 cm2)
Professional use of maintenance products; CS4-u; Furniture care product. Manual process; AISE-P601; Furniture care product. Spray and wipe manual process; AISE-P602; CS6-u; Leather care product. Manual process; AISE-P603; CS7-u1; Leather care product. Spray and wipe manual process; AISE-P604; CS10-u1; Stainless steel care. Spray and wipe manual process; AISE-P609 (PROC 10)	Covers use up to 4 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Body parts potentially exposed; Two hands (960 cm2)
Professional use of floor care products; CS1-u; Polish / impregnating agent. Manual process; AISE-P406; Polish / impregnating agent. Semi-Automatic process; AISE-P407; CS3-u1; Polish / impregnating agent. Spray and wipe manual process; AISE-P408;	Covers use up to 8 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should

Professional use of maintenance products; CS9-u; Stainless steel care. Manual process; AISE-P608 (PROC 10)	also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Body parts potentially exposed; Two hands (960 cm2)
Professional use of maintenance products; CS5-u2; Furniture care product. Spray and wipe manual process; AISE-P602; CS7-u2; Leather care product. Spray and wipe manual process; AISE-P604; CS10-u1; Stainless steel care. Spray and wipe manual process; AISE-P609 (PROC 11)	Covers use up to 0.2 h/day Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Occupational Health and Safety Management System; Basic Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2)
Professional use of maintenance products; CS3-u2; Polish / impregnating agent. Spray and wipe manual process; AISE-P408 (PROC 11)	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2)

5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure: GES 5; Professional end-use of polishes and wax blends (ERC 8a)

Release route	Release rate	Release estimation method
Water	5.5E-7 kg/day	ERC
Air	5.5E-7 kg/day	ERC
Soil	0 kg/day	ERC

5.3.2. Worker exposure: Professional use of maintenance products; CS8-u; Leather care product. Automatic process; AISE-P605 (PROC 2)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	3.062 mg/m³ (TRA Workers 3.0)	0.13
Inhalation, systemic, acute	12.25 mg/m³ (TRA Workers 3.0)	0.518
Inhalation, local, long term	3.062 mg/m³ (TRA Workers 3.0)	0.052
Inhalation, local, acute	12.25 mg/m³ (TRA Workers 3.0)	0.207
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.02
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.15

5.3.3. Worker exposure: Professional use of maintenance products; CS8-p; Leather care product. Automatic process; AISE-P605 (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.525 mg/m³ (TRA Workers 3.0)	0.022
Inhalation, systemic, acute	10.5 mg/m³ (TRA Workers 3.0)	0.444
Inhalation, local, long term	0.525 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	10.5 mg/m³ (TRA Workers 3.0)	0.178
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.205
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752

Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.227

5.3.4. Worker exposure: Professional use of maintenance products; CS4-u; Furniture care product. Manual process; AISE-P601; Furniture care product. Spray and wipe manual process; AISE-P602; CS6-u; Leather care product. Manual process; AISE-P603; CS7-u1; Leather care product. Spray and wipe manual process; AISE-P604; CS10-u1; Stainless steel care. Spray and wipe manual process; AISE-P609 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.575 mg/m³ (TRA Workers 3.0)	0.067
Inhalation, systemic, acute	10.5 mg/m³ (TRA Workers 3.0)	0.444
Inhalation, local, long term	1.575 mg/m³ (TRA Workers 3.0)	0.027
Inhalation, local, acute	10.5 mg/m³ (TRA Workers 3.0)	0.178
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.108

5.3.5. Worker exposure: Professional use of floor care products; CS1-u; Polish / impregnating agent. Manual process; AISE-P406; Polish / impregnating agent. Semi-Automatic process; AISE-P407; CS3-u1; Polish / impregnating agent. Spray and wipe manual process; AISE-P408; Professional use of maintenance products; CS9-u; Stainless steel care. Manual process; AISE-P608 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.625 mg/m³ (TRA Workers 3.0)	0.111
Inhalation, systemic, acute	10.5 mg/m³ (TRA Workers 3.0)	0.444
Inhalation, local, long term	2.625 mg/m³ (TRA Workers 3.0)	0.044
Inhalation, local, acute	10.5 mg/m³ (TRA Workers 3.0)	0.178
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.15
Dermal, local, acute	0.02 mg/cm² (TRA Workers 3.0)	0.15
Combined, systemic, long term		0.152

5.3.6. Worker exposure: Professional use of maintenance products; CS5-u2; Furniture care product. Spray and wipe manual process; AISE-P602; CS7-u2; Leather care product. Spray and wipe manual process; AISE-P604; CS10-u1; Stainless steel care. Spray and wipe manual process; AISE-P609 (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.263 mg/m³ (TRA Workers 3.0)	0.011
Inhalation, systemic, acute	10.5 mg/m³ (TRA Workers 3.0)	0.444
Inhalation, local, long term	0.263 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, local, acute	10.5 mg/m³ (TRA Workers 3.0)	0.178
Dermal, systemic, long term	2.143 mg/kg bw/day (TRA Workers 3.0)	0.32
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.752
Dermal, local, acute	0.1 mg/cm² (TRA Workers 3.0)	0.75
Combined, systemic, long term		0.331

5.3.7. Worker exposure: Professional use of maintenance products; CS3-u2; Polish / impregnating agent. Spray and wipe manual process; AISE-P408 (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.875 mg/m³ (TRA Workers 3.0)	0.037
Inhalation, systemic, acute	17.5 mg/m³ (TRA Workers 3.0)	0.741
Inhalation, local, long term	0.875 mg/m³ (TRA Workers 3.0)	0.015
Inhalation, local, acute	17.5 mg/m³ (TRA Workers 3.0)	0.296

Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.16
Dermal, local, long term	0.05 mg/cm² (TRA Workers 3.0)	0.376
Dermal, local, acute	0.05 mg/cm² (TRA Workers 3.0)	0.375
Combined, systemic, long term		0.197

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

Guidance: The total tonnage of all end-uses is covered under GES6. Since the products used by professionals will not differ much from those used by consumers and since the conditions of environmental release are very similar for professionals and consumers, potential environmental exposure to the substance due to professional and private use was combined under GES6.
Scaling instructions: As the environmental release factor depends on site specific operational conditions and risk management measures, Downstream Users (DU) are advised to demonstrate that a safe use is given for the amounts used at their site. Scaling may be a suitable option in this case, (ECHA Guidance for downstream users and Guidance on the compilation of safety data sheets). Scaling is a comparison of linear input parameters and determinants between data presented in the Exposure Scenario (ES) and the data available from the Downstream User to determine the risk characterisation ratios (RCR) under the operational conditions of the DU (eg. quantity of substance used per year and site, emission fraction to water, number of emission days).

6. ES 6: Consumer use; Washing and Cleaning Products

6.1. Title section

ES name: GES 6; Consumer end-use of washing and cleaning products
Product category: Washing and Cleaning Products (PC 35)

Environment	
1: GES 6; Consumer end-use of washing and cleaning products	ERC 8d, ERC 8a
Consumer	
2: CS1; Consumer uses; Laundry and dish washing products; LAUNDRY REGULAR (powder, liquid) for consumer use; AISE-C1; LAUNDRY COMPACT (powder, liquid/gel, tablet) for consumer use; AISE-C2; FABRIC CONDITIONERS (liquid regular, liquid concentrate) for consumer use; AISE-C3; LAUNDRY ADDITIVES (powder bleach, liquid bleach, tablet) for consumer use; AISE-C4; HAND DISHWASHING (liquid regular, liquid concentrate) for consumer use; AISE-C5; MACHINE DISHWASHING (powder, liquid, tablet) for consumer use; AISE-C6; LAUNDRY AIDS (ironing aids-starch spray, ironing aids-other) for consumer use; AISE-C12	PC 35
3: CS2; Consumer uses; Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners); SURFACE CLEANERS (liquid, powder, gel neat, spray neat) for consumer use; AISE-C7; TOILET CLEANERS (powder, liquid, gel, tablet) for consumer use; AISE-C8; CARPET CLEANERS (spray, liquid) for consumer use; AISE-C11; WIPES (bathroom, kitchen, floor) for consumer use; AISE-C15; High Pressure washers/cleaners; AISE-C21; Automotive Care (spray, liquid); AISE-C22	PC 35
4: CS3; Consumer uses; Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners); SURFACE CLEANERS (liquid, powder, gel neat, spray neat) for consumer use; AISE-C7; OVEN CLEANERS (spray, trigger) for consumer use; AISE-C10; CARPET CLEANERS (spray, liquid) for consumer use; AISE-C11; Automotive Care (spray, liquid); AISE-C22	PC 35

6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: GES 6; Consumer end-use of washing and cleaning products (ERC 8d, ERC 8a)

Amount used, frequency and duration of use (or from service life)
Daily local widespread use amount; <=; 5.5E-6; tonnes/day
Other conditions affecting environmental exposure
Municipal sewage treatment plant is assumed.

6.2.2. Control of consumer exposure: CS1; Consumer uses; Laundry and dish washing products; LAUNDRY REGULAR (powder, liquid) for consumer use; AISE-C1; LAUNDRY COMPACT (powder, liquid/gel, tablet) for consumer use; AISE-C2; FABRIC CONDITIONERS

(liquid regular, liquid concentrate) for consumer use; AISE-C3; LAUNDRY ADDITIVES (powder bleach, liquid bleach, tablet) for consumer use; AISE-C4; HAND DISHWASHING (liquid regular, liquid concentrate) for consumer use; AISE-C5; MACHINE DISHWASHING (powder, liquid, tablet) for consumer use; AISE-C6; LAUNDRY AIDS (ironing aids-starch spray, ironing aids-other) for consumer use; AISE-C12 (PC 35)

Product (article) characteristics
Covers concentrations up to 0.15 %
Physical form of product; Liquids
Exposure route; dermal; Yes
Inhalation exposure is considered to be not relevant.
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 events per day
Frequency of use over a year; Frequent
Information and behavioral advice for consumers
Covers adult use.
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.
dermal; transfer factor; =; 1

6.2.3. Control of consumer exposure: CS2; Consumer uses; Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners); SURFACE CLEANERS (liquid, powder, gel neat, spray neat) for consumer use; AISE-C7; TOILET CLEANERS (powder, liquid, gel, tablet) for consumer use; AISE-C8; CARPET CLEANERS (spray, liquid) for consumer use; AISE-C11; WIPES (bathroom, kitchen, floor) for consumer use; AISE-C15; High Pressure washers/cleaners; AISE-C21; Automotive Care (spray, liquid); AISE-C22 (PC 35)

Product (article) characteristics
Physical form of product; Liquids
Covers concentrations up to 0.1 %
Exposure route; dermal; Yes
Inhalation exposure is considered to be not relevant.
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 events per day
Frequency of use over a year; Frequent
Information and behavioral advice for consumers
Covers adult use.
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.
dermal; transfer factor; =; 1

6.2.4. Control of consumer exposure: CS3; Consumer uses; Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners); SURFACE CLEANERS (liquid, powder, gel neat, spray neat) for consumer use; AISE-C7; OVEN CLEANERS (spray, trigger) for

consumer use; AISE-C10; CARPET CLEANERS (spray, liquid) for consumer use; AISE-C11; Automotive Care (spray, liquid); AISE-C22 (PC 35)

Product (article) characteristics
Physical form of product; Liquids
Covers concentrations up to 0.1 %
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
No spraying
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 0.2 h/event
Covers use up to 1 events per day
For each use event, covers use amounts up to 30 g/event
Frequency of use over a year; Frequent
Information and behavioral advice for consumers
Indoor use
Covers adult use.
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.
Inhalation; transfer factor; =; 1
dermal; transfer factor; =; 1

6.3. Exposure estimation and reference to its source

6.3.1. Environmental release and exposure: GES 6; Consumer end-use of washing and cleaning products (ERC 8d)

Release route	Release rate	Release estimation method
Water	5.5E-3 kg/day	ERC
Air	5.5E-3 kg/day	ERC
Soil	1.1E-3 kg/day	ERC

Protection target	Exposure estimate	RCR
Fresh water	2.08E-5 mg/L (EUSES 2.1.2)	0.035
Sediment (freshwater)	0.015 mg/kg dw (EUSES 2.1.2)	0.354
Marine water	2.06E-6 mg/L (EUSES 2.1.2)	0.035
Sediment (marine water)	1.5E-3 mg/kg dw (EUSES 2.1.2)	0.351
Sewage Treatment Plant	1.98E-4 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	5.78E-3 mg/kg dw (EUSES 2.1.2)	0.624
Predator's prey (freshwater)	4.171 mg/kg ww (EUSES 2.1.2)	0.056
Predator's prey (marine water)	0.41 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.122 mg/kg ww (EUSES 2.1.2)	0.015
Predator's prey (terrestrial)	0.278 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	2.68E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (local effects)	2.68E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	3.26E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

6.3.2. Consumer exposure: CS1; Consumer uses; Laundry and dish washing products; LAUNDRY REGULAR (powder, liquid) for consumer use; AISE-C1; LAUNDRY COMPACT (powder, liquid/gel, tablet) for consumer use; AISE-C2; FABRIC CONDITIONERS (liquid regular,

liquid concentrate) for consumer use; AISE-C3; LAUNDRY ADDITIVES (powder bleach, liquid bleach, tablet) for consumer use; AISE-C4; HAND DISHWASHING (liquid regular, liquid concentrate) for consumer use; AISE-C5; MACHINE DISHWASHING (powder, liquid, tablet) for consumer use; AISE-C6; LAUNDRY AIDS (ironing aids-starch spray, ironing aids-other) for consumer use; AISE-C12 (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Inhalation, local, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Dermal, systemic, long term	0.214 mg/kg bw/day (TRA Consumers 3.1)	0.064
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.064

6.3.3. Consumer exposure: CS2; Consumer uses; Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners); SURFACE CLEANERS (liquid, powder, gel neat, spray neat) for consumer use; AISE-C7; TOILET CLEANERS (powder, liquid, gel, tablet) for consumer use; AISE-C8; CARPET CLEANERS (spray, liquid) for consumer use; AISE-C11; WIPES (bathroom, kitchen, floor) for consumer use; AISE-C15; High Pressure washers/cleaners; AISE-C21; Automotive Care (spray, liquid); AISE-C22 (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Inhalation, local, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Dermal, systemic, long term	0.143 mg/kg bw/day (TRA Consumers 3.1)	0.043
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.043

6.3.4. Consumer exposure: CS3; Consumer uses; Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners); SURFACE CLEANERS (liquid, powder, gel neat, spray neat) for consumer use; AISE-C7; OVEN CLEANERS (spray, trigger) for consumer use; AISE-C10; CARPET CLEANERS (spray, liquid) for consumer use; AISE-C11; Automotive Care (spray, liquid); AISE-C22 (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.013 mg/m³ (TRA Consumers 3.1)	< 0.01
Inhalation, local, long term	0.013 mg/m³ (TRA Consumers 3.1)	< 0.01
Dermal, systemic, long term	0.143 mg/kg bw/day (TRA Consumers 3.1)	0.043
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.045

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

Guidance: The environmental exposure to all end-use products (professional and consumer) has been combined. Some products will be completely discharged down the drain (rinse-off cosmetics, laundry detergents) whereas others will not be discharged to the sewer (shoe polish, dry cleaning). By nature air fresheners will end up in the air. By using 100% release to water and 100% to air, all consumer end-use products can be covered in one scenario. The main use of products containing fragrance substances is ERC8a (wide dispersive indoor use). The IFRA guideline (2012) also identifies ERC8d (wide dispersive outdoor use) as being relevant for the consumer end-use of washing and cleaning products (GES6) and consumer end-use of biocides (GES 8). Release rates are more conservative for ERC8d. The release factors to water and air are the same as ERC8a but an additional release of 20% to soil is assumed in the ERC for outdoor use. Therefore the assessment on the basis of ERC8d covers also ERC8a

Scaling instructions: As the environmental release factor depends on site specific operational conditions and risk management measures, Downstream Users (DU) are advised to demonstrate that a safe use is given for the amounts used at their site. Scaling may be a suitable option in this case, (ECHA Guidance for downstream users and Guidance on the compilation of safety data sheets). Scaling is a comparison of linear input parameters and determinants between data presented in the Exposure Scenario (ES) and the data available from the Downstream User to determine the risk characterisation ratios (RCR) under the operational conditions of the DU (eg. quantity of substance used per year and site, emission fraction to water, number of emission days).

7. ES 7: Consumer use; Air care products

7.1. Title section

ES name: GES 7; Consumer end-use of air care products
Product category: Air care products (PC 3)

Environment	
1: GES 7; Consumer end-use of air care products	ERC 8a
Consumer	
2: CS1-p; Consumer uses; AIR FRESHENERS AEROSOL (aqueous, non aqueous, concentrated (mini-aerosol, Timed-release aerosols) for consumer use; AISE-C17	PC 3
3: CS2; Consumer uses; AIR FRESHENERS NON AEROSOL (perfume in/on solid substarte (gel), candles, diffusers (heated) for consumer use; AISE-C18	PC 3

7.2. Conditions of use affecting exposure

7.2.1. Control of environmental exposure: GES 7; Consumer end-use of air care products (ERC 8a)

7.2.2. Control of consumer exposure: CS1-p; Consumer uses; AIR FRESHENERS AEROSOL (aqueous, non aqueous, concentrated (mini-aerosol, Timed-release aerosols) for consumer use; AISE-C17 (PC 3)

Product (article) characteristics
Covers concentrations up to 0.5 %
Physical form of product; Liquid for spraying (spraying can)
Exposure route; dermal; No.
Exposure route; Avoid inhalation of the product.; Yes
Spraying; Yes
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 0.25 h/event
Covers use up to 1 events per day
For each use event, covers use amounts up to 10 g/event
Frequency of use over a year; Frequent
Information and behavioral advice for consumers
Indoor use
Covers adult use.
Other conditions affecting consumers exposure
Inhalation; transfer factor; =; 1

7.2.3. Control of consumer exposure: CS2; Consumer uses; AIR FRESHENERS NON AEROSOL (perfume in/on solid substarte (gel), candles, diffusers (heated) for consumer use; AISE-C18 (PC 3)

Product (article) characteristics
Physical form of product; Liquids
Covers concentrations up to 0.1 %
Exposure route; dermal; Yes

Inhalation exposure is considered to be not relevant.
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 events per day
Frequency of use over a year; Frequent
Information and behavioral advice for consumers
Covers adult use.
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to two fingertips
dermal; transfer factor; =; 1

7.3. Exposure estimation and reference to its source

7.3.1. Environmental release and exposure: GES 7; Consumer end-use of air care products (ERC 8a)

Release route	Release rate	Release estimation method
Water	5.5E-7 kg/day	ERC
Air	5.5E-7 kg/day	ERC
Soil	0 kg/day	ERC

7.3.2. Consumer exposure: CS1-p; Consumer uses; AIR FRESHENERS AEROSOL (aqueous, non aqueous, concentrated (mini-aerosol, Timed-release aerosols) for consumer use; AISE-C17 (PC 3)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.174 mg/m³ (TRA Consumers 3.1)	0.373
Inhalation, local, long term	2.174 mg/m³ (TRA Consumers 3.1)	0.149
Dermal, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.373

7.3.3. Consumer exposure: CS2; Consumer uses; AIR FRESHENERS NON AEROSOL (perfume in/on solid substarte (gel), candles, diffusers (heated) for consumer use; AISE-C18 (PC 3)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Inhalation, local, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Dermal, systemic, long term	2.5E-3 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		< 0.01

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

Guidance: The total tonnage of all end-uses is covered under GES6. Since the products used by professionals will not differ much from those used by consumers and since the conditions of environmental release are very similar for professionals and consumers, potential environmental exposure to the substance due to professional and private use was combined under GES6.
Scaling instructions: As the environmental release factor depends on site specific operational conditions and risk management measures, Downstream Users (DU) are advised to demonstrate that a safe use is given for the amounts used at their site. Scaling may be a suitable option in this case, (ECHA Guidance for downstream users and Guidance on the compilation of safety data sheets). Scaling is a comparison of linear input parameters and determinants between data presented in the Exposure Scenario (ES) and the data available from the Downstream User to determine the risk characterisation ratios (RCR) under the operational conditions of the DU (eg. quantity of substance used per year and site, emission fraction to water, number of emission days).

8. ES 8: Consumer use; Biocidal Products

8.1. Title section

ES name: GES 8; Consumer end-use of biocides
Product category: Biocidal Products (PC 8)

Environment	
1: GES 8; Consumer end-use of biocides	ERC 8d
Consumer	
2: CS1; Consumer uses; INSECTICIDES (liquid electric, spray neat); AISE-C19	PC 8
3: CS2; Consumer uses; REPELLENTS for consumer use; AISE-C19	PC 8

8.2. Conditions of use affecting exposure

8.2.1. Control of environmental exposure: GES 8; Consumer end-use of biocides (ERC 8d)

8.2.2. Control of consumer exposure: CS1; Consumer uses; INSECTICIDES (liquid electric, spray neat); AISE-C19 (PC 8)

Product (article) characteristics
Covers concentrations up to 0.5 %
Physical form of product; Liquids
Exposure route; dermal; Yes
Inhalation exposure is considered to be not relevant.
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 events per day
Frequency of use over a year; Covers use up to ; 2; weeks per year
Information and behavioral advice for consumers
Covers adult use.
Other conditions affecting consumers exposure
dermal; transfer factor; =; 1
Assumes that potential dermal contact is limited to hands and forearms.

8.2.3. Control of consumer exposure: CS2; Consumer uses; REPELLENTS for consumer use; AISE-C19 (PC 8)

Product (article) characteristics
Physical form of product; Liquids
Covers concentrations up to 0.5 %
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
Spraying; Yes
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 0.02 h/event
Covers use up to 1 events per day
For each use event, covers use amounts up to 20 g/event
Frequency of use over a year; Covers use up to ; 2; weeks per year

Information and behavioral advice for consumers
Outdoor use
Covers adult use.
Other conditions affecting consumers exposure
Inhalation; transfer factor; =; 1
Assumes that potential dermal contact is limited to hands and forearms.
dermal; transfer factor; =; 1

8.3. Exposure estimation and reference to its source

8.3.1. Environmental release and exposure: GES 8; Consumer end-use of biocides (ERC 8d)

Release route	Release rate	Release estimation method
Water	5.5E-7 kg/day	ERC
Air	5.5E-7 kg/day	ERC
Soil	1.1E-7 kg/day	ERC

8.3.2. Consumer exposure: CS1; Consumer uses; INSECTICIDES (liquid electric, spray neat); AISE-C19 (PC 8)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Inhalation, local, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Dermal, systemic, long term	1.735 mg/kg bw/day (TRA Consumers 3.1)	0.518
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.518

8.3.3. Consumer exposure: CS2; Consumer uses; REPELLENTS for consumer use; AISE-C19 (PC 8)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.952 mg/m³ (TRA Consumers 3.1)	0.163
Inhalation, local, long term	0.952 mg/m³ (TRA Consumers 3.1)	0.065
Dermal, systemic, long term	1.735 mg/kg bw/day (TRA Consumers 3.1)	0.518
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.681

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

Guidance: The total tonnage of all end-uses is covered under GES6. Since the products used by professionals will not differ much from those used by consumers and since the conditions of environmental release are very similar for professionals and consumers, potential environmental exposure to the substance due to professional and private use was combined under GES6.
Scaling instructions: As the environmental release factor depends on site specific operational conditions and risk management measures, Downstream Users (DU) are advised to demonstrate that a safe use is given for the amounts used at their site. Scaling may be a suitable option in this case, (ECHA Guidance for downstream users and Guidance on the compilation of safety data sheets). Scaling is a comparison of linear input parameters and determinants between data presented in the Exposure Scenario (ES) and the data available from the Downstream User to determine the risk characterisation ratios (RCR) under the operational conditions of the DU (eg. quantity of substance used per year and site, emission fraction to water, number of emission days).

9. ES 9: Consumer use; Polishes and Wax Blends

9.1. Title section

ES name: GES 9; Consumer end-use of polishes and wax blends
Product category: Polishes and Wax Blends (PC 31)

Environment	
1: GES 9; Consumer end-use of polishes and wax blends	ERC 8a
Consumer	
2: CS1; Consumer uses; Polishes and wax blends; FURNITURE FLOOR and LEATHER CARE (spray, liquid) for consumer use; AISE-C20	PC 31
3: CS2; Consumer uses; Polishes and wax blends; FURNITURE FLOOR and LEATHER CARE (spray, liquid) for consumer use; AISE-C20	PC 31

9.2. Conditions of use affecting exposure

9.2.1. Control of environmental exposure: GES 9; Consumer end-use of polishes and wax blends (ERC 8a)

9.2.2. Control of consumer exposure: CS1; Consumer uses; Polishes and wax blends; FURNITURE FLOOR and LEATHER CARE (spray, liquid) for consumer use; AISE-C20 (PC 31)

Product (article) characteristics
Covers concentrations up to 0.5 %
Physical form of product; Liquids
Exposure route; dermal; No.
Exposure route; Inhalation; Yes
Exposure route; oral; Yes
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 events per day
Frequency of use over a year; Frequent
Information and behavioral advice for consumers
Covers adult use.
Indoor use
Other conditions affecting consumers exposure
oral; transfer factor; =; 1
Inhalation; transfer factor; =; 1

9.2.3. Control of consumer exposure: CS2; Consumer uses; Polishes and wax blends; FURNITURE FLOOR and LEATHER CARE (spray, liquid) for consumer use; AISE-C20 (PC 31)

Product (article) characteristics
Physical form of product; Liquids
Covers concentrations up to 0.5 %
Exposure route; dermal; Yes
Inhalation exposure is considered to be not relevant.
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 events per day
Frequency of use over a year; Covers use up to ; 2; weeks per year
Information and behavioral advice for consumers
Covers adult use.
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

dermal; transfer factor; =; 1

9.3. Exposure estimation and reference to its source

9.3.1. Environmental release and exposure: GES 9; Consumer end-use of polishes and wax blends (ERC 8a)

Release route	Release rate	Release estimation method
Water	5.5E-7 kg/day	ERC
Air	5.5E-7 kg/day	ERC
Soil	0 kg/day	ERC

9.3.2. Consumer exposure: CS1; Consumer uses; Polishes and wax blends; FURNITURE FLOOR and LEATHER CARE (spray, liquid) for consumer use; AISE-C20 (PC 31)

Route of exposure and type of effects	Exposure estimate	RCR
Dermal, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01

9.3.3. Consumer exposure: CS2; Consumer uses; Polishes and wax blends; FURNITURE FLOOR and LEATHER CARE (spray, liquid) for consumer use; AISE-C20 (PC 31)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Inhalation, local, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01

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

Guidance: The total tonnage of all end-uses is covered under GES6. Since the products used by professionals will not differ much from those used by consumers and since the conditions of environmental release are very similar for professionals and consumers, potential environmental exposure to the substance due to professional and private use was combined under GES6.
Scaling instructions: As the environmental release factor depends on site specific operational conditions and risk management measures, Downstream Users (DU) are advised to demonstrate that a safe use is given for the amounts used at their site. Scaling may be a suitable option in this case, (ECHA Guidance for downstream users and Guidance on the compilation of safety data sheets). Scaling is a comparison of linear input parameters and determinants between data presented in the Exposure Scenario (ES) and the data available from the Downstream User to determine the risk characterisation ratios (RCR) under the operational conditions of the DU (eg. quantity of substance used per year and site, emission fraction to water, number of emission days).

10. ES 10: Consumer use; Various products

10.1. Title section

ES name: GES 10; Consumer (and Professional) end-use of cosmetics; Only includes environmental exposure, assessment of human exposure is exempt from REACH as it is already covered by the European Cosmetic Regulation No 1223/2009
Product category: Perfumes, Fragrances (PC 28), Cosmetics, personal care products (PC 39)

Environment	
1: GES 10; Consumer (and Professional) end-use of cosmetics	ERC 8a
Consumer	
2: Perfumes, fragrances	PC 28
3: Cosmetics, personal care products	PC 39

10.2. Conditions of use affecting exposure

10.2.1. Control of environmental exposure: GES 10; Consumer (and Professional) end-use of

cosmetics (ERC 8a)

10.2.2. Control of consumer exposure: Perfumes, fragrances (PC 28)

10.2.3. Control of consumer exposure: Cosmetics, personal care products (PC 39)

10.3. Exposure estimation and reference to its source

10.3.1. Environmental release and exposure: GES 10; Consumer (and Professional) end-use of cosmetics (ERC 8a)

Release route	Release rate	Release estimation method
Water	5.5E-7 kg/day	ERC
Air	5.5E-7 kg/day	ERC
Soil	0 kg/day	ERC

10.3.2. Consumer exposure: Perfumes, fragrances (PC 28)

10.3.3. Consumer exposure: Cosmetics, personal care products (PC 39)

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

Guidance: The total tonnage of all end-uses is covered under GES6. Since the products used by professionals will not differ much from those used by consumers and since the conditions of environmental release are very similar for professionals and consumers, potential environmental exposure to the substance due to professional and private use was combined under GES6.
Scaling instructions: As the environmental release factor depends on site specific operational conditions and risk management measures, Downstream Users (DU) are advised to demonstrate that a safe use is given for the amounts used at their site. Scaling may be a suitable option in this case, (ECHA Guidance for downstream users and Guidance on the compilation of safety data sheets). Scaling is a comparison of linear input parameters and determinants between data presented in the Exposure Scenario (ES) and the data available from the Downstream User to determine the risk characterisation ratios (RCR) under the operational conditions of the DU (eg. quantity of substance used per year and site, emission fraction to water, number of emission days).