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

1.1 Product identifier

Sales No.	:	0025743 HERBANATE
Substance name	:	Ethyl 3-isopropylbicyclo[2.2.1]hept-5-ene-2-carboxylate
Identifier		
CAS-No.	:	116126-82-0 116044-44-1
EC-No.	:	427-090-8
Formula	:	C13-H20-O2
REACH Registration Number	:	01-0000017347-67

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		
Legal Entity	:	Givaudan France SAS 55 Voie des Bans F-95102 ARGENTEUIL

1.4 Emergency telephone number

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.
Long-term (chronic) aquatic hazard,	H411: Toxic to aquatic life with long lasting effects.

Category 2

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word	:	Warning
Hazard statements	:	H317 May cause an allergic skin reaction. H411 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:

- (2R,3R) & (2S,3S)-ethyl-3-isopropylbicyclo[2.2.1]hept-5-ene-2-carboxylate 116126-82-0

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
(2R,3R) & (2S,3S)-ethyl-3-isopropylbicyclo[2.2.1]hept-5-ene-2-carboxylate	116126-82-0 116044-44-1 427-090-8 01-0000017347-67	>= 90 - <= 100	

SECTION 4: First aid measures

4.1 Description of first aid measures

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

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.
Immediately seek medical attention if chemical entered ear canal.

In case of eye contact : Protect unharmed eye.
Remove contact lenses.
Flush eyes with water as a precaution.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Immediately consult Poison Control Center or physician.
Keep respiratory tract clear.
Do NOT induce vomiting.
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	:	Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
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	:	For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. Material can create slippery conditions. Use personal protective equipment.

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	:	Clean contaminated floors and objects thoroughly while observing environmental regulations.

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	:	Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. 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.
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: Long-term systemic effects
Value: 0,93 mg/kg bw/day

DNEL : End Use: Consumer use
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 1,62 mg/m3

DNEL : End Use: Consumer use
Exposure routes: Oral
Potential health effects: Long-term systemic effects
Value: 0,93 mg/kg bw/day

DNEL : End Use: Workers
Exposure routes: Dermal
Potential health effects: Long-term systemic effects
Value: 2,61 mg/kg bw/day

DNEL : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 9,2 mg/m3

PNEC : Fresh water
Value: 0,00449 mg/l

PNEC : Marine water
Value: 0,000449 mg/l

PNEC : Oral
Value: 5,0 mg/kg

PNEC : Fresh water sediment
Value: 0,278 mg/kg dry weight (d.w.)

PNEC : Marine sediment
Value: 0,0278 mg/kg dry weight (d.w.)

PNEC : Soil
Value: 0,125 mg/kg dry weight (d.w.)

PNEC : Sewage treatment plant
Value: 5,6 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
Taste	:	not determined
Odour	:	Geranium-like, sweet
Odour Threshold	:	28,022 ng/l
Flash point	:	102 ℃ Method: closed cup

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	:	294 ℃ Method: A15
Decomposition temperature	:	no data available
Molecular weight	:	208,00 g/mol
pH	:	no data available
Melting point	:	< -19 ℃
Boiling point	:	197 ℃ at 1 013 hPa
Vapour pressure	:	2,12 hPa at 25 ℃ Method: OECD Test Guideline 104 0,024 hPa at 20 ℃ Method: OECD Test Guideline 104
Density	:	980,23 kg/m3 at 20 ℃
Bulk density	:	Not applicable
Water solubility	:	16,4 mg/l at 20 ℃
Solubility/qualitative	:	practically insoluble
Partition coefficient: n-octanol/water	:	log Pow: > 3,9 Method: A8
Viscosity, kinematic	:	no data available
Relative vapour density	:	no data available
Surface tension	:	66,4 mN/m at 20 ℃ Method: Surface tension
Evaporation rate	:	no data available
Explosive properties	:	no data available

9.2 Other information

Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

No decomposition if stored and applied as directed.

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 : Not applicable

10.6 Hazardous decomposition products

Hazardous decomposition products : no data available
Thermal decomposition : no data available

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

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: > 2 000 mg/kg
Method: Directive 67/548/EEC, Annex V, B.3.

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

Skin corrosion/irritation

Skin irritation : Species: Rabbit
No skin irritation
Method: Directive 67/548/EEC, Annex V, B.4.
May cause skin irritation and/or dermatitis.

Serious eye damage/eye irritation

Eye irritation : Species: Rabbit
No eye irritation
Method: Directive 67/548/EEC, Annex V, B.5.
Vapours may cause irritation to the eyes, respiratory system and the skin.

Respiratory or skin sensitisation

Sensitisation : Maximisation Test Guinea pig
Result: Causes sensitisation.

Result: The product is a skin sensitiser, sub-category 1B.

Germ cell mutagenicity

Genotoxicity in vitro	:	Chromosome aberration test in vitro negative Method: Mutagenicity (in vitro mammalian cytogenetic test) Ames test negative Method: Mutagenicity (Escherichia coli - reverse mutation assay) Ames test negative Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay) 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

Carcinogenicity

Carcinogenicity	:	No data is available on the product itself.

Reproductive toxicity

Not classified due to lack of data.

Effects on foetal development	:	Species: Rat, male and female Application Route: Oral Duration of Single Treatment: 28 d Developmental Toxicity: NOAEL: 400 mg/kg body weight Method: OECD Test Guideline 422 Result: Not classified GLP: yes Remarks: Based on data from similar materials

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 exposure : Species: Rat, male and female
NOAEL: 150 mg/kg
Repeated dose (28 days) toxicity (oral)

Target Organ Systemic Toxicant - Repeated exposure
Aspiration hazard

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

Phototoxicity

Phototoxicity : No data is available on the product itself.

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 (Danio rerio (zebra fish)): 4,49 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 5,7 mg/l
Exposure time: 48 h

Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : NOEC (Desmodesmus subspicatus (green algae)): 2,9 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
GLP: yes

ErC50 (Desmodesmus subspicatus (green algae)): > 5,9 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : EC50 : > 5 600 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
GLP: yes

: NOEC : 56 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
GLP: yes

Ecotoxicology Assessment

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Product:

Biodegradability : Result: Not inherently biodegradable.
Biodegradation: 11 %
Exposure time: 50 d
Method: OECD Test Guideline 302 C
GLP: yes

Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301 F
GLP: yes

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Exposure time: 32 d
Temperature: 22 °C
Bioconcentration factor (BCF): 436
Method: OECD Test Guideline 305
GLP: yes

12.4 Mobility in soil

Product:

Distribution among environmental compartments	:	OECD Test Guideline 106 Koc: 583 Method: OECD Test Guideline 106

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. Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	:	Send to a licensed waste management company. Dispose of in accordance with local, state and federal regulations. 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.
Contaminated packaging	:	Do not expose containers to high temperatures such as in hot work processes. 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. (Isopropylbicycloheptene ethylcarboxylate)
RID	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Isopropylbicycloheptene ethylcarboxylate)
IMDG	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Isopropylbicycloheptene ethylcarboxylate)
IATA	:	Environmentally hazardous substance, liquid, n.o.s. (Isopropylbicycloheptene ethylcarboxylate)

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
E2
Quantity 1: 200 t
Quantity 2: 500 t

Water hazard class (Germany) : WGK 2 obviously hazardous to water
Code Number: 6 095
Remarks: Classification according VwVwS, Annex 3.

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
	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

Administrative information:
Report Information: SDS_FR/EN/GHS_SDS_EU_CNTRY/44
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 34 288 053/30 049 145

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		SPERC
1: GES 1; Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds); Small scale; AISE SPERC 2.1.b.v1	ERC 2	*IFRA 2.1b.v1*
2: GES 1; Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds); Large scale; AISE SPERC 2.1.a.v1	ERC 2	
Worker		SWED
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); 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 <= 2.4E-3 tonnes/day
Annual amount per site <= 0.6 tonnes/year
Conditions and measures related to biological sewage treatment plant
application of the STP sludge on agricultural soil; Yes
Municipal sewage treatment plant is assumed.
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day

1.2.2. Control of environmental exposure: GES 1; Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds); 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 <= 6 tonnes/year
Daily amount per site <= 0.024 tonnes/day
Conditions and measures related to biological sewage treatment plant
application of the STP sludge on agricultural soil; Yes
Municipal sewage treatment plant is assumed.
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.

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
Use suitable eye protection.
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.
Other conditions affecting workers exposure
Assumes process temperature up to 40 ℃
Indoor use

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 100 % Covers use up to 1 h/day 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%. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; No.
CS2; Storage; IFRA F-2 (PROC 1)	Covers concentrations up to 100 % Covers use up to 1 h/day Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour

	Respiratory protection; No.
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 Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; No.
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 Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour 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
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 Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Respiratory protection; No.
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 Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Respiratory protection; No.
CS7; Equipment cleaning and maintenance; IFRA F-7 (PROC 8a)	Covers concentrations up to 25 % Covers use up to 4 h/day Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; No.

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); Small scale; AISE SPERC 2.1.b.v1 (ERC 2)

Release route	Release rate	Release estimation method
Water	0.012 kg/day	SPERC
Air	0.06 kg/day	SPERC
Soil	0 kg/day	SPERC

Protection target	Exposure estimate	RCR
Fresh water	4.37E-4 mg/L (EUSES 2.1.2)	0.097
Sediment (freshwater)	0.027 mg/kg dw (EUSES 2.1.2)	0.097
Marine water	4.35E-5 mg/L (EUSES 2.1.2)	0.097
Sediment (marine water)	2.69E-3 mg/kg dw (EUSES 2.1.2)	0.097
Sewage Treatment Plant	4.23E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.011 mg/kg dw (EUSES 2.1.2)	0.086
Predator's prey (freshwater)	0.069 mg/kg ww (EUSES 2.1.2)	0.014
Predator's prey (marine water)	6.85E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.81E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.078 mg/kg ww (EUSES 2.1.2)	0.016
Man via environment - Inhalation (systemic effects)	1.2E-5 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	9.35E-4 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); Large scale; AISE SPERC 2.1.a.v1 (ERC 2)

Release route	Release rate	Release estimation method
Water	0.048 kg/day	Estimated release factor
Air	0.6 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	1.7E-3 mg/L (EUSES 2.1.2)	0.38
Sediment (freshwater)	0.105 mg/kg dw (EUSES 2.1.2)	0.379
Marine water	1.7E-4 mg/L (EUSES 2.1.2)	0.379
Sediment (marine water)	0.011 mg/kg dw (EUSES 2.1.2)	0.379
Sewage Treatment Plant	0.017 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.044 mg/kg dw (EUSES 2.1.2)	0.35
Predator's prey (freshwater)	0.259 mg/kg ww (EUSES 2.1.2)	0.052
Predator's prey (marine water)	0.026 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	5.59E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.315 mg/kg ww (EUSES 2.1.2)	0.063
Man via environment - Inhalation (systemic effects)	1.15E-4 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	3.78E-3 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	0.303 mg/m³ (TRA Workers 3.0)	0.033
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.525
Combined, systemic, long term		0.558

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	0.017 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
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	1.092 mg/m³ (TRA Workers 3.0)	0.119
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.026
Combined, systemic, long term		0.145

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	2.6 mg/m³ (TRA Workers 3.0)	0.283
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.525
Combined, systemic, long term		0.808

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	4.333 mg/m³ (TRA Workers 3.0)	0.471
Dermal, systemic, long term	0.034 mg/kg bw/day (TRA Workers 3.0)	0.013
Combined, systemic, long term		0.484

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	5.2 mg/m³ (TRA Workers 3.0)	0.565
Dermal, systemic, long term	0.412 mg/kg bw/day (TRA Workers 3.0)	0.158
Combined, systemic, long term		0.723

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	2.184 mg/m³ (TRA Workers 3.0)	0.237
Dermal, systemic, long term	0.823 mg/kg bw/day (TRA Workers 3.0)	0.315
Combined, systemic, long term		0.553

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: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions	PROC 2
16: CS7; Transfer of substance or mixture into small containers (dedicated filling line, including weighing); AISE M-7	PROC 9
17: 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)
Daily amount per site <= 0.045 tonnes/day

Annual amount per site <= 11.25 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.
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
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 <= 4.2 tonnes/year
Daily amount per site <= 0.017 tonnes/day
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.
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
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)
Daily amount per site <= 1.38E-3 tonnes/day
Annual amount per site <= 0.345 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.
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
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)
Daily amount per site <= 0.013 tonnes/day
Annual amount per site <= 3.15 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.
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
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)
Daily amount per site <= 5.4E-3 tonnes/day
Annual amount per site <= 1.35 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.
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
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)
Daily amount per site <= 5.4E-4 tonnes/day
Annual amount per site <= 0.135 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.
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
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)
Daily amount per site <= 0.019 tonnes/day
Annual amount per site <= 4.8 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.
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.

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 <= 0.45 tonnes/year
Daily amount per site <= 1.8E-3 tonnes/day
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.
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
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
Use suitable eye protection.
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.
Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

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 Local exhaust ventilation; No. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; No.
CS2; Laboratory activities; Use as laboratory reagent; AISE M-9 (PROC 15)	Covers concentrations up to 25 % Covers use up to 0.25 h/day Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Respiratory protection; No.
CS3; Storage; AISE M-1 (PROC 1)	Covers concentrations up to 25 % Covers use up to 1 h/day Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour

	Respiratory protection; No.
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 specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; No.
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 specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Room ventilation; Basic; Up to 3 air change per hour 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
CS6; Equipment cleaning and maintenance (PROC 8a)	Covers concentrations up to 1 % Covers use up to 4 h/day Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Respiratory protection; No.
Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC 2)	Covers concentrations up to 25 % Covers use up to 1 h/day Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Respiratory protection; No.
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 Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Respiratory protection; No.
CS8; Tabletting, compression, extrusion or pelletisation; AISE M-8 (PROC 14)	Covers concentrations up to 1 % Covers use up to 8 h/day Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Respiratory protection; No.

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	4.5E-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	1.73E-4 mg/L (EUSES 2.1.2)	0.039
Sediment (freshwater)	0.011 mg/kg dw (EUSES 2.1.2)	0.039
Marine water	1.71E-5 mg/L (EUSES 2.1.2)	0.038
Sediment (marine water)	1.06E-3 mg/kg dw (EUSES 2.1.2)	0.038
Sewage Treatment Plant	1.59E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	3.98E-3 mg/kg dw (EUSES 2.1.2)	0.032
Predator's prey (freshwater)	0.03 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	2.91E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.02E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.03 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	7.61E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	3.53E-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	0.017 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	6.06E-4 mg/L (EUSES 2.1.2)	0.135
Sediment (freshwater)	0.038 mg/kg dw (EUSES 2.1.2)	0.135
Marine water	6.04E-5 mg/L (EUSES 2.1.2)	0.134
Sediment (marine water)	3.74E-3 mg/kg dw (EUSES 2.1.2)	0.134
Sewage Treatment Plant	5.92E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.015 mg/kg dw (EUSES 2.1.2)	0.119
Predator's prey (freshwater)	0.095 mg/kg ww (EUSES 2.1.2)	0.019
Predator's prey (marine water)	9.37E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	2.31E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.108 mg/kg ww (EUSES 2.1.2)	0.022
Man via environment - Inhalation (systemic effects)	1.3E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.29E-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	2.76E-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	1.12E-4 mg/L (EUSES 2.1.2)	0.025
Sediment (freshwater)	6.92E-3 mg/kg dw (EUSES 2.1.2)	0.025
Marine water	1.1E-5 mg/L (EUSES 2.1.2)	0.024
Sediment (marine water)	6.79E-4 mg/kg dw (EUSES 2.1.2)	0.024
Sewage Treatment Plant	9.72E-4 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	2.44E-3 mg/kg dw (EUSES 2.1.2)	0.02
Predator's prey (freshwater)	0.021 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	2E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	8.36E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.019 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	6.85E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.21E-4 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	0.013 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	4.58E-4 mg/L (EUSES 2.1.2)	0.102
Sediment (freshwater)	0.028 mg/kg dw (EUSES 2.1.2)	0.102
Marine water	4.56E-5 mg/L (EUSES 2.1.2)	0.102
Sediment (marine water)	2.82E-3 mg/kg dw (EUSES 2.1.2)	0.102
Sewage Treatment Plant	4.44E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.011 mg/kg dw (EUSES 2.1.2)	0.089
Predator's prey (freshwater)	0.073 mg/kg ww (EUSES 2.1.2)	0.015
Predator's prey (marine water)	7.17E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.87E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.081 mg/kg ww (EUSES 2.1.2)	0.016
Man via environment - Inhalation (systemic effects)	1.12E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	9.69E-4 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	0.011 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	3.95E-4 mg/L (EUSES 2.1.2)	0.088
Sediment (freshwater)	0.024 mg/kg dw (EUSES 2.1.2)	0.088
Marine water	3.93E-5 mg/L (EUSES 2.1.2)	0.087
Sediment (marine water)	2.43E-3 mg/kg dw (EUSES 2.1.2)	0.087
Sewage Treatment Plant	3.8E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	9.56E-3 mg/kg dw (EUSES 2.1.2)	0.076
Predator's prey (freshwater)	0.063 mg/kg ww (EUSES 2.1.2)	0.013
Predator's prey (marine water)	6.22E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.68E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.07 mg/kg ww (EUSES 2.1.2)	0.014
Man via environment - Inhalation (systemic effects)	1.04E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	8.32E-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	2.16E-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	9.07E-5 mg/L (EUSES 2.1.2)	0.02
Sediment (freshwater)	5.61E-3 mg/kg dw (EUSES 2.1.2)	0.02
Marine water	8.85E-6 mg/L (EUSES 2.1.2)	0.02
Sediment (marine water)	5.48E-4 mg/kg dw (EUSES 2.1.2)	0.02
Sewage Treatment Plant	7.61E-4 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	1.91E-3 mg/kg dw (EUSES 2.1.2)	0.015
Predator's prey (freshwater)	0.018 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	1.68E-3 mg/kg ww (EUSES 2.1.2)	< 0.01

Top predator's prey (marine water)	7.73E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.015 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	6.58E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.75E-4 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	1.47E-5 mg/L (EUSES 2.1.2)	< 0.01
Sediment (freshwater)	9.09E-4 mg/kg dw (EUSES 2.1.2)	< 0.01
Marine water	1.25E-6 mg/L (EUSES 2.1.2)	< 0.01
Sediment (marine water)	7.75E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	1.51E-6 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	6.41E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	1.33E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.63E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.1E-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	0.036 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	1.28E-3 mg/L (EUSES 2.1.2)	0.285
Sediment (freshwater)	0.079 mg/kg dw (EUSES 2.1.2)	0.285
Marine water	1.28E-4 mg/L (EUSES 2.1.2)	0.285
Sediment (marine water)	7.92E-3 mg/kg dw (EUSES 2.1.2)	0.285
Sewage Treatment Plant	0.013 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.032 mg/kg dw (EUSES 2.1.2)	0.255
Predator's prey (freshwater)	0.196 mg/kg ww (EUSES 2.1.2)	0.039
Predator's prey (marine water)	0.019 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	4.33E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.23 mg/kg ww (EUSES 2.1.2)	0.046
Man via environment - Inhalation (systemic effects)	2.15E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.75E-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	3.64 mg/m³ (TRA Workers 3.0)	0.396
Dermal, systemic, long term	0.823 mg/kg bw/day (TRA Workers 3.0)	0.315
Combined, systemic, long term		0.711

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	2.6 mg/m³ (TRA Workers 3.0)	0.283
Dermal, systemic, long term	0.02 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Combined, systemic, long term		0.29

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	0.01 mg/m³ (TRA Workers 3.0)	< 0.01
Dermal, systemic, long term	2.04E-3 mg/kg bw/day (TRA Workers 3.0)	< 0.01
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	0.655 mg/m³ (TRA Workers 3.0)	0.071
Dermal, systemic, long term	0.041 mg/kg bw/day (TRA Workers 3.0)	0.016
Combined, systemic, long term		0.087

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	0.156 mg/m³ (TRA Workers 3.0)	0.017
Dermal, systemic, long term	0.823 mg/kg bw/day (TRA Workers 3.0)	0.315
Combined, systemic, long term		0.332

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	5.2 mg/m³ (TRA Workers 3.0)	0.565
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.618

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.04 mg/m³ (TRA Workers 3.0)	0.113
Dermal, systemic, long term	0.082 mg/kg bw/day (TRA Workers 3.0)	0.031
Combined, systemic, long term		0.145

2.3.16. 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	0.867 mg/m³ (TRA Workers 3.0)	0.094
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.026
Combined, systemic, long term		0.12

2.3.17. 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	4.333 mg/m³ (TRA Workers 3.0)	0.471
Dermal, systemic, long term	0.034 mg/kg bw/day (TRA Workers 3.0)	0.013
Combined, systemic, long term		0.484

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		SPERC
1: GES 3; Industrial end-use of washing and cleaning products	ERC 4	*AISE 4.1.v2*
Worker		SWED
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 vehicle cleaning products; CS8-u; Car wash product. Spray and rinse process; AISE-P710	PROC 7	
8: Industrial use of vehicle cleaning products; CS12-u1; Car wash product. Spray and wipe manual process; AISE-P711; CS9-u1; Boat cleaner. Spray and wipe manual process; AISE-P714	PROC 7	
9: Industrial use of food beverage and pharmaceutical products; CS18-u; Foam cleaner. Semi-Automatic with venting process; AISE-P806	PROC 7	
10: 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	
11: Industrial use of façade/surface cleaning products; CS25-u; Façade/surface cleaner. High pressure process; AISE-P906; CS26-u; Façade/surface cleaner. Medium pressure process; AISE-P907	PROC 7	
12: 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; Food process cleaner. Semi closed cleaning process; Chain maintenance product. Automatic spray process; AISE-P803; CS17-p; Defoaming product. Automatic process; AISE-P805	PROC 8b	
13: 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	
14: 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;	PROC 8b	

AISE-P811	
15: 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
16: 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
17: Industrial use of food beverage and pharmaceutical products; CS18-p; Foam cleaner. Semi-Automatic with venting process; AISE-P806	PROC 8b
18: 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
19: 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)

Amount used, frequency and duration of use (or from service life)
Annual amount per site <= 1.5E-4 tonnes/year
Daily amount per site <= 6.81E-7 tonnes/day
Technical and organisational conditions and measures
Product applied in aqueous process solution with negligible volatilization.
Reduced emissions to waste water due to e.g. re-use of rinsing water
Indoor use
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
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure
Chemical waste - discontinuous generation; Spent fluid discharged to wastewater
Chemical waste - continuous generation; Spent fluid discharged to wastewater

3.2.2. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Product (article) characteristics
Covers concentrations up to 1 %
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.
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	Covers use up to 8 h/day

pharmaceutical products; CS13-u; Food process cleaner. Cleaning In place (CIP) process; AISE-P801; CS17-u; Defoaming product. Automatic process; AISE-P805 (PROC 1)	Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Face/eye protection; No. Personal protection; No. Respiratory protection; No. 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 2)	Covers use up to 8 h/day Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Use suitable eye protection. 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. Indoor use
Industrial use; Dedicated equipment; Pharmaceuticals; CS21-u; Disinfection product. Semi-automatic process; AISE-P810 (PROC 4)	Covers use up to 4 h/day Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Use suitable eye protection. 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. 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 Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Use suitable eye protection. 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. Indoor 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. Use suitable eye protection. 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. Outdoor use
Industrial use of vehicle cleaning products; CS8-u; Car wash product. Spray and rinse process; AISE-P710 (PROC 7)	Covers use up to 1 h/day Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Use suitable eye protection. 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 Indoor use
Industrial use of vehicle cleaning products; CS12-u1; Car wash product. Spray and wipe manual process; AISE-P711; CS9-u1; Boat cleaner. Spray and	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Use suitable eye protection.

Administrative information:
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wipe manual process; AISE-P714 (PROC 7)	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 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 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%. Room ventilation; Basic; Up to 3 air change per hour Use suitable eye protection. 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. 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 Local exhaust ventilation; No. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Use suitable eye protection. 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 Indoor use
Industrial use of façade/surface cleaning products; CS25-u; Façade/surface cleaner. High pressure process; AISE-P906; CS26-u; Façade/surface cleaner. Medium pressure process; AISE-P907 (PROC 7)	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Use suitable eye protection. 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 Outdoor 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-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; Food process cleaner. Semi closed cleaning process; Chain maintenance product. Automatic spray process; AISE-P803; CS17-p; Defoaming product. Automatic process; AISE-P805 (PROC 8b)	Covers use up to 0.25 h/day Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Use suitable eye protection. 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. Indoor use
Industrial use of water treatment products; CS23-p; Preservation and sanitation agent . Drink and pool water;	Covers use up to 0.25 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No.

Administrative information:
Report Information: SDS_FR/EN/GHS_SDS_EU_CNTRY/44
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 34 288 053/30 049 145

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)	Use suitable eye protection. 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. 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 Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Use suitable eye protection. 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. Indoor 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. Use suitable eye protection. 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. 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 Local exhaust ventilation; No. Room ventilation; Basic; Up to 3 air change per hour Use suitable eye protection. 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 sensitizer; No. 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 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%. Room ventilation; Basic; Up to 3 air change per hour Use suitable eye protection. 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. 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	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Use suitable eye protection. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If

cleaner. Spray and wipe manual process; AISE-P714 (PROC 10)	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. 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 Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Room ventilation; Basic; Up to 3 air change per hour Use suitable eye protection. 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. 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	6.81E-4 kg/day	SPERC
Air	0 kg/day	SPERC
Soil	0 kg/day	SPERC

Protection target	Exposure estimate	RCR
Fresh water	3.87E-5 mg/L (EUSES 2.1.2)	< 0.01
Sediment (freshwater)	2.39E-3 mg/kg dw (EUSES 2.1.2)	< 0.01
Marine water	3.65E-6 mg/L (EUSES 2.1.2)	< 0.01
Sediment (marine water)	2.26E-4 mg/kg dw (EUSES 2.1.2)	< 0.01
Sewage Treatment Plant	2.4E-4 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	6.04E-4 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	9.56E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	8.61E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	6.09E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	5.65E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.89E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	6.12E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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	8.67E-3 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
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	0.867 mg/m³ (TRA Workers 3.0)	0.094
Dermal, systemic, long term	0.014 mg/kg bw/day (TRA Workers 3.0)	< 0.01

Combined, systemic, long term		0.099

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	2.6 mg/m³ (TRA Workers 3.0)	0.283
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.026
Combined, systemic, long term		0.309

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	4.333 mg/m³ (TRA Workers 3.0)	0.471
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.026
Combined, systemic, long term		0.497

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	3.033 mg/m³ (TRA Workers 3.0)	0.33
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.026
Combined, systemic, long term		0.356

3.3.7. Worker exposure: Industrial use of vehicle cleaning products; CS8-u; Car wash product. Spray and rinse process; AISE-P710 (PROC 7)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.733 mg/m³ (TRA Workers 3.0)	0.188
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.164
Combined, systemic, long term		0.353

3.3.8. Worker exposure: Industrial use of vehicle cleaning products; CS12-u1; Car wash product. Spray and wipe manual process; AISE-P711; CS9-u1; Boat cleaner. Spray and wipe manual process; AISE-P714 (PROC 7)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.213 mg/m³ (TRA Workers 3.0)	0.132
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.164
Combined, systemic, long term		0.296

3.3.9. 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	4.333 mg/m³ (TRA Workers 3.0)	0.471
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.164
Combined, systemic, long term		0.635

3.3.10. 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	6.067 mg/m³ (TRA Workers 3.0)	0.659
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.164
Combined, systemic, long term		0.824

3.3.11. Worker exposure: Industrial use of façade/surface cleaning products; CS25-u; Façade/surface cleaner. High pressure process; AISE-P906; CS26-u; Façade/surface cleaner. Medium pressure process; AISE-P907 (PROC 7)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	6.067 mg/m³ (TRA Workers 3.0)	0.659
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.164
Combined, systemic, long term		0.824

3.3.12. 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; Food process cleaner. Semi closed cleaning process; 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	0.433 mg/m³ (TRA Workers 3.0)	0.047
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.1

3.3.13. 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	0.303 mg/m³ (TRA Workers 3.0)	0.033
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.085

3.3.14. 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	0.867 mg/m³ (TRA Workers 3.0)	0.094
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.147

3.3.15. 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	0.607 mg/m³ (TRA Workers 3.0)	0.066
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053

Combined, systemic, long term		0.118

3.3.16. 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	0.867 mg/m³ (TRA Workers 3.0)	0.094
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.147

3.3.17. 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	0.043 mg/m³ (TRA Workers 3.0)	< 0.01
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.057

3.3.18. 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	6.067 mg/m³ (TRA Workers 3.0)	0.659
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.105
Combined, systemic, long term		0.765

3.3.19. 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	0.867 mg/m³ (TRA Workers 3.0)	0.094
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.147

3.4. 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).

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		SPERC
1: GES 4; Professional end-use of washing and cleaning products	ERC 8a	*AISE 8a.1a.v2*
Worker		SWED
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	PROC 1	

use of medical devices; CS48-u; Medical devices . Semi-automatic process; AISE-P1101	
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-P301	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 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	PROC 10

and rinse manual process; AISE-P315; CS27-u; Metal cleaning agent. Manual process; AISE-P316	
17: Professional use of floor care products; 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
18: 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
19: 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
20: Professional use of façade/surface cleaning products; CS47-u1; Façade/surface cleaner. Medium pressure process; AISE-P902	PROC 10
21: 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
22: 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
23: 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
24: Professional use of façade/surface cleaning products; CS47-u2; Façade/surface cleaner. Medium pressure process; AISE-P902	PROC 11
25: Professional use of façade/surface cleaning products; CS46-u; Façade/surface cleaner. High pressure process; AISE-P901	PROC 11
26: Professional use of maintenance products; CS37; Drain unblocker. Manual process; AISE-P606; CS38; Drain cleaner. Manual process; AISE-P607	PROC 13
27: 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)

Amount used, frequency and duration of use (or from service life)
Percentage of EU tonnage used at regional scale; =; 4; %
Daily local widespread use amount; <=; 0; tonnes/day
Technical and organisational conditions and measures
Product applied in aqueous process solution with negligible volatilization.
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure
Chemical waste - continuous generation; Spent fluid discharged to wastewater

Indoor or outdoor use

4.2.2. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Product (article) characteristics
Covers concentrations up to 1 %
Liquid
Technical and organisational conditions and measures
Occupational Health and Safety Management System; Basic
Room ventilation; Basic; Up to 3 air change per hour
Other conditions affecting workers exposure
Assumes process temperature up to 40 ℃

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 use up to 8 h/day Local exhaust ventilation; No. Face/eye protection; No. Personal protection; No. Respiratory protection; No. Indoor use
Professional use of dishwashing products; CS9-u; Dishwash product. Automatic process; AISE-P202 (PROC 2)	Covers use up to 8 h/day Local exhaust ventilation; No. Use suitable eye protection. 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. Indoor use
Professional use of laundry products; CS6-u; Laundry aid (non-gasing). Manual process; AISE-P112 (PROC 4)	Covers use up to 0.25 h/day Local exhaust ventilation; No. Use suitable eye protection. 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. 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;	Covers use up to 8 h/day Local exhaust ventilation; No. Use suitable eye protection. 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

AISE-P704 (PROC 4)	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 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; 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)	Covers use up to 0.25 h/day Local exhaust ventilation; No. Use suitable eye protection. 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. Indoor use
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 use up to 0.25 h/day Local exhaust ventilation; No. Use suitable eye protection. 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 Indoor use
Professional use of dishwashing products; CS8-p; Dishwash product. Manual process; AISE-P201 (PROC 8a)	Covers use up to 0.25 h/day Local exhaust ventilation; No. Use suitable eye protection. 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. 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;	Covers use up to 1 h/day Local exhaust ventilation; No. Use suitable eye protection. 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. Indoor use

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)	
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 use up to 1 h/day Local exhaust ventilation; No. Use suitable eye protection. 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. 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 use up to 1 h/day Local exhaust ventilation; No. Use suitable eye protection. 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. Outdoor use
Professional use of dishwashing products; CS9-p; Dishwash product. Automatic process; AISE-P202 (PROC 8b)	Covers use up to 0.25 h/day Local exhaust ventilation; No. Use suitable eye protection. 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. Indoor use
Professional use of general surface cleaning products; CS21-u; Oven/Grill Cleaner. Manual process; AISE-P301 (PROC 10)	Covers use up to 1 h/day Local exhaust ventilation; No. Use suitable eye protection. 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. Indoor use
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)	Covers use up to 4 h/day Local exhaust ventilation; No. Use suitable eye protection. 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 Indoor use
Professional use of general surface cleaning products; CS18-u; Descaling agent. Manual process; AISE-P307 (PROC 10)	Covers use up to 4 h/day Local exhaust ventilation; No. Use suitable eye protection. 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 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 (PROC 10)	Covers use up to 8 h/day Local exhaust ventilation; No. Use suitable eye protection. 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 Indoor use
Professional use of floor care products; 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	Covers use up to 8 h/day Local exhaust ventilation; No. Use suitable eye protection. 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

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)	Indoor use
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 use up to 8 h/day Local exhaust ventilation; No. Use suitable eye protection. 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 Indoor 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 use up to 8 h/day Local exhaust ventilation; No. Use suitable eye protection. 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 Outdoor use
Professional use of façade/surface cleaning products; CS47-u1; Façade/surface cleaner. Medium pressure process; AISE-P902 (PROC 10)	Covers use up to 8 h/day Local exhaust ventilation; No. Use suitable eye protection. 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 Indoor 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 cleaner. Spray and brush manual process; AISE-P411; Professional use of medical devices; CS51-u2; Medical	Covers use up to 1 h/day Local exhaust ventilation; No. Use suitable eye protection. 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 Indoor use

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 use up to 1 h/day Local exhaust ventilation; No. Use suitable eye protection. 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 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 use up to 1 h/day Local exhaust ventilation; No. Use suitable eye protection. 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 Outdoor use
Professional use of façade/surface cleaning products; CS47-u2; Façade/surface cleaner. Medium pressure process; AISE-P902 (PROC 11)	Covers use up to 1 h/day Local exhaust ventilation; No. Use suitable eye protection. 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 Indoor use
Professional use of façade/surface cleaning products; CS46-u; Façade/surface cleaner. High pressure process; AISE-P901 (PROC 11)	Covers use up to 8 h/day Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%. Use suitable eye protection. 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 Indoor use
Professional use of maintenance products; CS37; Drain unblocker. Manual process; AISE-P606; CS38; Drain cleaner. Manual process; AISE-P607 (PROC 13)	Covers use up to 0.25 h/day Local exhaust ventilation; No. Use suitable eye protection. 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. 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 use up to 1 h/day Local exhaust ventilation; No. Use suitable eye protection. 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. Indoor use

4.3. Exposure estimation and reference to its source

Administrative information:
Report Information: SDS_FR/EN/GHS_SDS_EU_CNTRY/44
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 34 288 053/30 049 145

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	0 kg/day	SPERC
Air	0 kg/day	SPERC
Soil	0 kg/day	SPERC

Protection target	Exposure estimate	RCR
Fresh water	1.47E-5 mg/L (EUSES 2.1.2)	< 0.01
Sediment (freshwater)	9.09E-4 mg/kg dw (EUSES 2.1.2)	< 0.01
Marine water	1.25E-6 mg/L (EUSES 2.1.2)	< 0.01
Sediment (marine water)	7.75E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	1.51E-6 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	6.41E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	1.33E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.63E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.1E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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	8.67E-3 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
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	4.333 mg/m³ (TRA Workers 3.0)	0.471
Dermal, systemic, long term	0.014 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Combined, systemic, long term		0.476

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	0.867 mg/m³ (TRA Workers 3.0)	0.094
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.026
Combined, systemic, long term		0.12

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	0.867 mg/m³ (TRA Workers 3.0)	0.094

Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.026
Combined, systemic, long term		0.12

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	2.167 mg/m³ (TRA Workers 3.0)	0.236
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.288

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	0.217 mg/m³ (TRA Workers 3.0)	0.024
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.076

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	2.167 mg/m³ (TRA Workers 3.0)	0.236
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.288

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	4.333 mg/m³ (TRA Workers 3.0)	0.471
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.524

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	4.333 mg/m³ (TRA Workers 3.0)	0.471
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.524

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	3.033 mg/m³ (TRA Workers 3.0)	0.33
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.382

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	0.867 mg/m³ (TRA Workers 3.0)	0.094
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.147

4.3.13. Worker exposure: Professional use of general surface cleaning products; CS21-u; Oven/Grill Cleaner. Manual process; AISE-P301 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.333 mg/m³ (TRA Workers 3.0)	0.471
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.105
Combined, systemic, long term		0.576

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	1.3 mg/m³ (TRA Workers 3.0)	0.141
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.105
Combined, systemic, long term		0.246

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	1.3 mg/m³ (TRA Workers 3.0)	0.141
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.105
Combined, systemic, long term		0.246

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 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.167 mg/m³ (TRA Workers 3.0)	0.236
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.105
Combined, systemic, long term		0.341

4.3.17. Worker exposure: Professional use of floor care products; 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	2.167 mg/m³ (TRA Workers 3.0)	0.236
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.105
Combined, systemic, long term		0.341

4.3.18. 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	2.167 mg/m³ (TRA Workers 3.0)	0.236
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.105
Combined, systemic, long term		0.341

4.3.19. 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	1.517 mg/m³ (TRA Workers 3.0)	0.165
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.105
Combined, systemic, long term		0.27

4.3.20. 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	2.167 mg/m³ (TRA Workers 3.0)	0.236
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.105
Combined, systemic, long term		0.341

4.3.21. 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 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)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.733 mg/m³ (TRA Workers 3.0)	0.188
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.41
Combined, systemic, long term		0.599

4.3.22. 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	1.733 mg/m³ (TRA Workers 3.0)	0.188
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.41
Combined, systemic, long term		0.599

4.3.23. 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	1.213 mg/m³ (TRA Workers 3.0)	0.132
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.41
Combined, systemic, long term		0.542

4.3.24. 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	1.733 mg/m³ (TRA Workers 3.0)	0.188
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.41
Combined, systemic, long term		0.599

4.3.25. 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	1.733 mg/m³ (TRA Workers 3.0)	0.188
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.41
Combined, systemic, long term		0.599

4.3.26. 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	0.867 mg/m³ (TRA Workers 3.0)	0.094
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.147

4.3.27. 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	1.733 mg/m³ (TRA Workers 3.0)	0.188
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.241

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; (; except; Annual site tonnage; Industrial end-use of washing and cleaning products; GES 3; ERC 4;); 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		SPERC
1: GES 5; Professional end-use of polishes and wax blends	ERC 8a	*AISE 8a.1a.v2*
Worker		SWED
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 process; AISE-P408	PROC 11	
8: Professional uses; Mixing or blending in batch processes; Uses in cosmetics/personal care products, perfumes and fragrances	PROC 5	
9: Professional uses; Transfer of substance or mixture (charging/discharging) at non dedicated-facilities; Uses in cosmetics/personal care products, perfumes and fragrances	PROC 8a	

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)

Amount used, frequency and duration of use (or from service life)
Daily local widespread use amount; <=; 0; tonnes/day

5.2.2. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Product (article) characteristics
Liquid
Technical and organisational conditions and measures
Occupational Health and Safety Management System; Basic
Local exhaust ventilation; No.
Room ventilation; Basic; Up to 3 air change per hour
Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

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 concentrations up to 1 % Covers use up to 8 h/day Use suitable eye protection. 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.
Professional use of maintenance products; CS8-p; Leather care product. Automatic process; AISE-P605 (PROC 8b)	Covers concentrations up to 1 % Covers use up to 1 h/day Use suitable eye protection. 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.
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 concentrations up to 1 % Covers use up to 4 h/day Use suitable eye protection. 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
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)	Covers concentrations up to 1 % Covers use up to 8 h/day Use suitable eye protection. 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
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	Covers concentrations up to 1 % Covers use up to 0.25 h/day Use suitable eye protection. 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

manual process; AISE-P609 (PROC 11)	specification, refer to section 8 of the SDS
Professional use of maintenance products; CS3-u2; Polish / impregnating agent. Spray and wipe manual process; AISE-P408 (PROC 11)	Covers concentrations up to 1 % Covers use up to 1 h/day Use suitable eye protection. 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
Professional uses; Mixing or blending in batch processes; Uses in cosmetics/personal care products, perfumes and fragrances (PROC 5)	Covers concentrations up to 100 % Covers use up to 8 h/day Respiratory protection; No. Personal protection; dermal; No. Face/eye protection; No.
Professional uses; Transfer of substance or mixture (charging/discharging) at non dedicated-facilities; Uses in cosmetics/personal care products, perfumes and fragrances (PROC 8a)	Covers concentrations up to 100 % Covers use up to 8 h/day Use suitable eye protection. Respiratory protection; No. Personal protection; dermal; No.

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	0 kg/day	SPERC
Air	0 kg/day	SPERC
Soil	0 kg/day	SPERC

Protection target	Exposure estimate	RCR
Fresh water	1.47E-5 mg/L (EUSES 2.1.2)	< 0.01
Sediment (freshwater)	9.09E-4 mg/kg dw (EUSES 2.1.2)	< 0.01
Marine water	1.25E-6 mg/L (EUSES 2.1.2)	< 0.01
Sediment (marine water)	7.75E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	1.51E-6 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	6.41E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	1.33E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.63E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.1E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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	4.333 mg/m³ (TRA Workers 3.0)	0.471
Dermal, systemic, long term	0.014 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Combined, systemic, long term		0.476

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	1.733 mg/m³ (TRA Workers 3.0)	0.188
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.053
Combined, systemic, long term		0.241

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	1.3 mg/m³ (TRA Workers 3.0)	0.141
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.105
Combined, systemic, long term		0.246

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	2.167 mg/m³ (TRA Workers 3.0)	0.236
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.105
Combined, systemic, long term		0.341

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	0.867 mg/m³ (TRA Workers 3.0)	0.094
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.41
Combined, systemic, long term		0.505

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	1.733 mg/m³ (TRA Workers 3.0)	0.188
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.41
Combined, systemic, long term		0.599

5.3.8. Worker exposure: Professional uses; Mixing or blending in batch processes; Uses in cosmetics/personal care products, perfumes and fragrances (PROC 5)

5.3.9. Worker exposure: Professional uses; Transfer of substance or mixture (charging/discharging) at non dedicated-facilities; Uses in cosmetics/personal care products, perfumes and fragrances (PROC 8a)

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; (; except; Annual site tonnage; Industrial end-use of washing and cleaning products; GES 3; ERC 4;); 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		SPERC
1: GES 6; Consumer end-use of washing and cleaning products	ERC 8d, ERC 8a	
Consumer		SCED
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; 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; CARPET CLEANERS (spray, liquid) for consumer use; AISE-C11; WIPES (bathroom, kitchen, floor) for consumer use; AISE-C15; High Pressure washers/cleaners; AISE-C21	PC 35	*PC35/CS2/AISE C7/C11/C15/C21_Tier 1.5*
4: CS2; Consumer uses; Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners); TOILET CLEANERS (powder, liquid, gel, tablet) for consumer use; AISE-C8	PC 35	*PC35/CS2/AISE C8_Refined Tier 1.5*
5: CS2; Consumer uses; Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners); Automotive Care (spray, liquid); AISE-C22	PC 35	*PC35/CS2/AISE C22_Refined Tier 1.5*
6: 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	PC 35	*PC35/CS3/AISE C7/C10/C11_Tier 1.5*
7: CS3; Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners); Automotive Care (spray, liquid); AISE-C22	PC 35	*PC35/CS3/AISE C22_Refined Tier 1.5*

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; <=; 1.65E-5; tonnes/day
Other conditions affecting environmental exposure
Spraying of involatile solids, which finally are disposed off via wastewater.
Municipal sewage treatment plant is assumed.
Covers indoor and outdoor use.

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)

[ECETOC TRA: *Laundry and dish washing products*]

Product (article) characteristics
Covers concentrations up to 0.1 %
Exposure route; Inhalation; Yes
Exposure route; dermal; Yes
Oral exposure is considered to be not relevant.
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 50 g/event
Exposure duration = 1 h/event
Frequency of use over a year; Frequent
Covers use up to 1 events per day
Information and behavioral advice for consumers
Covers adult use.
Indoor use
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.
Inhalation; transfer factor; =; 1
dermal; transfer factor; =; 1

6.2.3. Control of consumer exposure: CS2; 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; CARPET CLEANERS (spray, liquid) for consumer use; AISE-C11; WIPES (bathroom, kitchen, floor) for consumer use; AISE-C15; High Pressure washers/cleaners; AISE-C21 (PC 35)

Product (article) characteristics
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
No spraying
Oral exposure is considered to be not relevant.
Covers concentrations up to 0.1 %
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 250 g/event
Exposure duration = 0.33 h/event
Frequency of use over a year; Frequent
Covers use up to 1 events per day
Information and behavioral advice for consumers
Indoor use
Covers adult use.
Other conditions affecting consumers exposure
dermal; transfer factor; =; 1
Assumes that potential dermal contact is limited to hands.
Inhalation; transfer factor; =; 1

6.2.4. Control of consumer exposure: CS2; Consumer uses; Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners); TOILET CLEANERS (powder, liquid, gel, tablet) for consumer use; AISE-C8 (PC 35)

Product (article) characteristics
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
No spraying
Oral exposure is considered to be not relevant.
Covers concentrations up to 0.3 %
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 35 g/event
Exposure duration = 0.017 h/event
Frequency of use over a year; Frequent
Covers use up to 1 events per day
Information and behavioral advice for consumers
Indoor use
Covers adult use.
Other conditions affecting consumers exposure
dermal; transfer factor; =; 1
Assumes that potential dermal contact is limited to hands.
Inhalation; transfer factor; =; 1

6.2.5. Control of consumer exposure: CS2; Consumer uses; Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners); Automotive Care (spray, liquid); AISE-C22 (PC 35)

Product (article) characteristics
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
No spraying
Oral exposure is considered to be not relevant.
Covers concentrations up to 0.25 %
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 200 g/event
Exposure duration = 5 h/event
Frequency of use over a year; Covers use up to ; 2; weeks per year
Covers use up to 1 events per day
Information and behavioral advice for consumers
Indoor use
Covers adult use.
Other conditions affecting consumers exposure
dermal; transfer factor; =;
Assumes that potential dermal contact is limited to hands.
Inhalation; transfer factor; =; 1

6.2.6. 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 (PC 35)

Product (article) characteristics
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes

Spraying; Yes
Oral exposure is considered to be not relevant.
Covers concentrations up to 0.1 %
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 35 g/event
Exposure duration = 4 h/event
Frequency of use over a year; Frequent
Covers use up to 1 events per day
Information and behavioral advice for consumers
Indoor use
Covers adult use.
Other conditions affecting consumers exposure
dermal; transfer factor; =; 1
Assumes that potential dermal contact is limited to hands.
Inhalation; transfer factor; =; 1

6.2.7. Control of consumer exposure: CS3; Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners); Automotive Care (spray, liquid); AISE-C22 (PC 35)

Product (article) characteristics
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
Spraying; Yes
Oral exposure is considered to be not relevant.
Covers concentrations up to 0.25 %
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 200 g/event
Exposure duration = 5 h/event
Frequency of use over a year; Covers use up to ; 2; weeks per year
Covers use up to 1 events per day
Information and behavioral advice for consumers
Indoor use
Covers adult use.
Other conditions affecting consumers exposure
dermal; transfer factor; =; 1
Assumes that potential dermal contact is limited to hands.
Inhalation; 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	0.017 kg/day	ERC
Air	0.017 kg/day	ERC
Soil	3.3E-3 kg/day	ERC

Protection target	Exposure estimate	RCR
Fresh water	5.95E-4 mg/L (EUSES 2.1.2)	0.133
Sediment (freshwater)	0.037 mg/kg dw (EUSES 2.1.2)	0.133
Marine water	5.93E-5 mg/L (EUSES 2.1.2)	0.132

Sediment (marine water)	3.67E-3 mg/kg dw (EUSES 2.1.2)	0.132
Sewage Treatment Plant	5.81E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.015 mg/kg dw (EUSES 2.1.2)	0.117
Predator's prey (freshwater)	0.133 mg/kg ww (EUSES 2.1.2)	0.027
Predator's prey (marine water)	0.013 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	3.08E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.106 mg/kg ww (EUSES 2.1.2)	0.021
Man via environment - Inhalation (systemic effects)	1.63E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.4E-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	0.156 mg/m³ (TRA Consumers 3.1)	0.096
Dermal, systemic, long term	0.143 mg/kg bw/day (TRA Consumers 3.1)	0.154
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.25

6.3.3. Consumer exposure: CS2; 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; CARPET CLEANERS (spray, liquid) for consumer use; AISE-C11; WIPES (bathroom, kitchen, floor) for consumer use; AISE-C15; High Pressure washers/cleaners; AISE-C21 (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.348 mg/m³ (TRA Consumers 3.1)	0.215
Dermal, systemic, long term	0.143 mg/kg bw/day (TRA Consumers 3.1)	0.154
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.368

6.3.4. Consumer exposure: CS2; Consumer uses; Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners); TOILET CLEANERS (powder, liquid, gel, tablet) for consumer use; AISE-C8 (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.52 mg/m³ (TRA Consumers 3.1)	0.321
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Consumers 3.1)	0.461
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.782

6.3.5. Consumer exposure: CS2; Consumer uses; Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners); Automotive Care (spray, liquid); AISE-C22 (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.625 mg/m³ (TRA Consumers 3.1)	0.064
Dermal, systemic, long term	0.357 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		0.128

6.3.6. 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 (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.515 mg/m³ (TRA Consumers 3.1)	0.318
Dermal, systemic, long term	0.143 mg/kg bw/day (TRA Consumers 3.1)	0.154
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.471

6.3.7. Consumer exposure: CS3; Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners); Automotive Care (spray, liquid); AISE-C22 (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.167 mg/m³ (TRA Consumers 3.1)	0.429
Dermal, systemic, long term	0.357 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		0.493

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		SPERC
1: GES 7; Consumer end-use of air care products	ERC 8a	
Consumer		SCED
2: CS1; Consumer uses; AIR FRESHENERS AEROSOL (aqueous, non aqueous, concentrated (mini-aerosol, Timed-release aerosols) for consumer use; AISE-C17	PC 3	*PC3/CS1/AISE C17_Refined Tier 1.5*
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)

Amount used, frequency and duration of use (or from service life)
Daily local widespread use amount; <=; 0; tonnes/day

7.2.2. Control of consumer exposure: CS1; Consumer uses; AIR FRESHENERS AEROSOL

(aqueous, non aqueous, concentrated (mini-aerosol, Timed-release aerosols) for consumer use; AISE-C17 (PC 3)

Product (article) characteristics
Exposure route; dermal; No.
Exposure route; Inhalation; Yes
Spraying; Yes
Oral exposure is considered to be not relevant.
Covers concentrations up to 0.25 %
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 8.4 g/event
Exposure duration = 0.25 h/event
Frequency of use over a year; Frequent
Covers use up to 1.14 events per day
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)

[ECETOC TRA: *Aircare, continuous action (solid & liquid)*]

Product (article) characteristics
Covers concentrations up to 0.99 %
Exposure route; Inhalation; Yes
Exposure route; dermal; Yes
Oral exposure is considered to be not relevant.
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 50 g/event
Exposure duration = 8 h/event
Frequency of use over a year; Frequent
Covers use up to 1 events per day
Information and behavioral advice for consumers
Covers adult use.
Indoor use
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to fingertips.
Inhalation; transfer factor; =; 1
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	0 kg/day	ERC

Air	0 kg/day	ERC
Soil	0 kg/day	ERC

Protection target	**Exposure estimate**	**RCR**
Fresh water	1.47E-5 mg/L (EUSES 2.1.2)	< 0.01
Sediment (freshwater)	9.09E-4 mg/kg dw (EUSES 2.1.2)	< 0.01
Marine water	1.25E-6 mg/L (EUSES 2.1.2)	< 0.01
Sediment (marine water)	7.75E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	1.51E-6 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	6.41E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	1.33E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.63E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.1E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

7.3.2. Consumer exposure: CS1; 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	0.347 mg/m³ (TRA Consumers 3.1)	0.214
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		0.214

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	0.284 mg/m³ (TRA Consumers 3.1)	0.176
Dermal, systemic, long term	5.89E-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		0.182

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; (; except; Annual site tonnage; Industrial end-use of washing and cleaning products; GES 3; ERC 4;); 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	SPERC
1: GES 8; Consumer end-use of biocides	ERC 8d, ERC

	8a	
Consumer		SCED
2: CS1; INSECTICIDES (liquid electric, spray neat); AISE-C19	PC 8	*PC8/CS1/AISE C19a_Refined Tier 1.5*
3: CS1; INSECTICIDES (liquid electric, spray neat); AISE-C19	PC 8	*PC8/CS1/AISE C19b_Tier 1.5*
4: *CS2 Repellents ; 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, ERC 8a)

Amount used, frequency and duration of use (or from service life)
Daily local widespread use amount; <=; 0; tonnes/day

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

Product (article) characteristics
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
Spraying; Yes
Oral exposure is considered to be not relevant.
Covers concentrations up to 0.99 %
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 10.1 g/event
Exposure duration = 0.25 h/event
Frequency of use over a year; Frequent
Covers use up to 1 events per day
Information and behavioral advice for consumers
Indoor use
Covers adult use.
Other conditions affecting consumers exposure
Inhalation; transfer factor; =; 1
dermal; transfer factor; =; 1
Assumes that potential dermal contact is limited to fingertips.

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

Product (article) characteristics
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
No spraying
Oral exposure is considered to be not relevant.
Covers concentrations up to 0.99 %
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 50 g/event
Exposure duration = 8 h/event
Frequency of use over a year; Frequent
Covers use up to 1 events per day
Information and behavioral advice for consumers

Indoor use
Covers adult use.
Other conditions affecting consumers exposure
dermal; transfer factor; =; 1
Assumes that potential dermal contact is limited to fingertips.
Inhalation; transfer factor; =; 1

8.2.4. Control of consumer exposure: *CS2 Repellents ; AISE C19.* (PC 8)

Product (article) characteristics
Physical form of product; Liquids
Covers concentrations up to 0.99 %
Inhalation exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Frequency of use over a year; Frequent
Covers use up to 2 events per day
Assumes product amount in contact to skin; <=; 6; g/event
Exposure duration <= 180 min; oral; <=; 180; min
Covers use up to 54 event(s)/year
Information and behavioral advice for consumers
Covers adult use.
Other conditions affecting consumers exposure
Covers skin contact area up to 1.75E4 cm²
ingestion rate; =; 1.33E-3; g/min

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	0 kg/day	ERC
Air	0 kg/day	ERC
Soil	0 kg/day	ERC

Protection target	Exposure estimate	RCR
Fresh water	1.47E-5 mg/L (EUSES 2.1.2)	< 0.01
Sediment (freshwater)	9.09E-4 mg/kg dw (EUSES 2.1.2)	< 0.01
Marine water	1.25E-6 mg/L (EUSES 2.1.2)	< 0.01
Sediment (marine water)	7.75E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	1.51E-6 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	6.41E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	1.33E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.63E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.1E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.137 mg/m³ (AISE REACT)	0.085
Dermal, systemic, long term	0.059 mg/kg bw/day (TRA Consumers 3.1)	0.063
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.148

Administrative information:
Report Information: SDS_FR/EN/GHS_SDS_EU_CNTRY/44
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 34 288 053/30 049 145

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.284 mg/m³ (TRA Consumers 3.1)	0.176
Dermal, systemic, long term	0.059 mg/kg bw/day (TRA Consumers 3.1)	0.063
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.239

8.3.4. Consumer exposure: *CS2 Repellents ; AISE C19.* (PC 8)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	0.146 mg/kg bw/day (ConsExpo)	0.157
Oral, systemic, long term	5.91E-3 mg/kg bw/day (ConsExpo)	< 0.01
Combined, systemic, long term		0.163

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; (; except; Annual site tonnage; Industrial end-use of washing and cleaning products; GES 3; ERC 4;); 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 8d, 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 8d, ERC 8a)

Amount used, frequency and duration of use (or from service life)
Daily local widespread use amount; <=; 0; tonnes/day

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)

[ECETOC TRA: *Polishes, wax / cream (floor, furniture, shoes)*]

Product (article) characteristics
Covers concentrations up to 0.1 %
Exposure route; Inhalation; Yes
Exposure route; dermal; Yes

Oral exposure is considered to be not relevant.
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 550 g/event
Exposure duration = 4 h/event
Frequency of use over a year; Frequent
Covers use up to 1 events per day
Information and behavioral advice for consumers
Covers adult use.
Indoor use
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.
Inhalation; transfer factor; =; 1
dermal; 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
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
Spraying; Yes
Oral exposure is considered to be not relevant.
Covers concentrations up to 0.1 %
Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 1 h/event
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.

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 8d)

Release route	Release rate	Release estimation method
Water	0 kg/day	ERC
Air	0 kg/day	ERC
Soil	0 kg/day	ERC

Protection target	Exposure estimate	RCR
Fresh water	1.47E-5 mg/L (EUSES 2.1.2)	< 0.01
Sediment (freshwater)	9.09E-4 mg/kg dw (EUSES 2.1.2)	< 0.01
Marine water	1.25E-6 mg/L (EUSES 2.1.2)	< 0.01
Sediment (marine water)	7.75E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	1.51E-6 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	6.41E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01

Predator's prey (terrestrial)	1.33E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.63E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.1E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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
Inhalation, systemic, long term	0.809 mg/m³ (TRA Consumers 3.1)	0.499
Dermal, systemic, long term	0.143 mg/kg bw/day (TRA Consumers 3.1)	0.154
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.653

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	3.7E-3 mg/m³ (AISE REACT)	< 0.01
Dermal, systemic, long term	0.061 mg/kg bw/day (AISE REACT)	0.066
Oral, systemic, long term	0 mg/kg bw/day (AISE REACT)	< 0.01
Combined, systemic, long term		0.068

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; (; except; Annual site tonnage; Industrial end-use of washing and cleaning products; GES 3; ERC 4;); 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; Consumer (and Professional) end-use of cosmetics

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 8d, 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 8d, ERC 8a)

Amount used, frequency and duration of use (or from service life)
Daily local widespread use amount; <=; 0; tonnes/day

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 8d)

Release route	Release rate	Release estimation method
Water	0 kg/day	ERC
Air	0 kg/day	ERC
Soil	0 kg/day	ERC

Protection target	Exposure estimate	RCR
Fresh water	1.47E-5 mg/L (EUSES 2.1.2)	< 0.01
Sediment (freshwater)	9.09E-4 mg/kg dw (EUSES 2.1.2)	< 0.01
Marine water	1.25E-6 mg/L (EUSES 2.1.2)	< 0.01
Sediment (marine water)	7.75E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	1.51E-6 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	6.41E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	5.46E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	1.33E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.63E-7 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.1E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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; (; except; Annual site tonnage; Industrial end-use of washing and cleaning products; GES 3; ERC 4;); 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).