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

1.1 Product identifier

Sales No. : 8810001
AMYL SALICYLATE

Substance name : Reaction mass of 2-methylbutyl salicylate and pentyl salicylate
Identifier
CAS-No. : 2050-08-0
51115-63-0
EC-No. : 911-280-7
REACH Registration Number : 01-2119969444-27

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)

Acute toxicity, Category 4	H302: Harmful if swallowed.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.

Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word	:	Warning
Hazard statements	:	H302 Harmful if swallowed. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements	:	**Prevention:** P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P273 Avoid release to the environment. **Response:** P301 + P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. P391 Collect spillage. **Disposal:** P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:

- Pentyl 2-hydroxybenzoate 2050-08-0
- 2-Methylbutyl salicylate 51115-63-0

2.3 Other hazards

Hazards not Otherwise Classified. : None

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
Pentyl 2-hydroxybenzoate	2050-08-0 218-080-2 01-2119969444-27	>= 50 - < 70	M-Factor (Acute aquatic toxicity):1 M-Factor (Chronic aquatic toxicity):1 Acute toxicity estimate Acute oral toxicity:2 000 mg/kg
2-Methylbutyl salicylate	51115-63-0 256-972-3 01-2119969444-27	>= 30 - < 50	Acute toxicity estimate Acute oral toxicity:1 406 mg/kg

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 : 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 : Harmful if swallowed.

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.

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	:	Do not breathe vapours/dust. 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: 0,605 mg/kg bw/day

DNEL : End Use: Consumer use
Exposure routes: Inhalation
Potential health effects: Acute systemic effects
Value: 34,78 mg/m3

DNEL : End Use: Consumer use
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 1,05 mg/m3

DNEL : End Use: Consumer use
Exposure routes: Oral
Potential health effects: Long-term systemic effects
Value: 0,605 mg/kg bw/day

DNEL : End Use: Workers
Exposure routes: Dermal
Potential health effects: Long-term systemic effects
Value: 1,69 mg/kg bw/day

DNEL : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Acute systemic effects
Value: 141,05 mg/m3

DNEL : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 5,97 mg/m3

PNEC : Marine water
Value: 0,000244 mg/l

PNEC	:	Oral Value: 40,33 mg/kg
PNEC	:	Fresh water sediment Value: 1,23 mg/kg dry weight (d.w.)
PNEC	:	Marine sediment Value: 0,123 mg/kg dry weight (d.w.)
PNEC	:	Soil Value: 5,33 mg/kg dry weight (d.w.)
PNEC	:	Sewage treatment plant Value: 10,0 mg/l

8.2 Exposure controls

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

8.2.1 Engineering measures

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

8.2.2 Personal protective equipment

Eye/face protection	:	Use safety glasses 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.
Respiratory protection	:	Under normal use conditions, no respiratory protection should be needed. However, if discomfort is experienced, use an approved air-purifying respirator.
Thermal hazards	:	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	:	Remove contaminated clothing and protective equipment before entering eating areas. Do not eat, drink or smoke during work. Wash hands any time after handling the product.

8.2.3 Environmental exposure controls

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

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Form	:	liquid
Colour	:	colorless to Pale yellow
Taste	:	not determined
Odour	:	Balsamic, Floral, Warm, mild
Odour Threshold	:	5,171 ng/l
Flash point	:	126 ℃ Method: Pensky-Martens closed cup
Lower explosion limit	:	not determined
Upper explosion limit	:	not determined
Flammability	:	no data available
Particle size	:	no data available
Oxidizing properties	:	The substance or mixture is not classified as oxidizing. Information taken from reference works and the literature.
Auto-ignition temperature	:	380 ℃ Method: DIN 51794
Decomposition temperature	:	no data available
Molecular weight	:	208,30 g/mol
pH	:	no data available

Melting point	:	-12 ℃
Boiling point	:	282 ℃ at 1 013 hPa
Vapour pressure	:	0,0024 hPa at 20 ℃ Method: OECD Test Guideline 104
Density	:	1 053,96 kg/m3 at 20 ℃
Bulk density	:	Not applicable
Water solubility	:	5,5 mg/l at 20 ℃
Solubility/qualitative	:	practically insoluble
Partition coefficient: n-octanol/water	:	log Pow: > 4,4 Method: OECD Test Guideline 117
Viscosity, kinematic	:	5,5 mm2/s at 20 ℃ Method: OECD Test Guideline 114
Relative vapour density	:	no data available
Surface tension	:	71,1 - 72,6 mN/m at 19 ℃ Method: OECD Test Guideline 115
Evaporation rate	:	no data available
Explosive properties	:	Not explosive

9.2 Other information

Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

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: 2 000 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.Based on data from similar materials

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

Skin corrosion/irritation

Skin irritation : Species: reconstructed human epidermis (RhE)
No skin irritation
Method: OECD Test Guideline 439
Species: Rabbit
No skin irritation
Method: Directive 67/548/EEC, Annex V, B.4.
Test substance:Cyclohexyl salicylate

Serious eye damage/eye irritation

Eye irritation : Species: Bovine cornea
No eye irritation
Method: OECD Test Guideline 437
Species: Rabbit
No eye irritation
Method: Directive 67/548/EEC, Annex V, B.5.
Test substance: Cyclohexyl salicylate

Respiratory or skin sensitisation

Sensitisation : Maximisation Test Guinea pig
Result: Not sensitizing

Germ cell mutagenicity

Genotoxicity in vitro	:	Ames test negative Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay) Ames test negative Method: Mutagenicity (Escherichia coli - reverse mutation assay) In vitro mammalian cell gene mutation test In vitro negative Method: OECD Test Guideline 476 Micronucleus test In vitro negative Method: OECD Test Guideline 487

Carcinogenicity

Carcinogenicity	:	No data is available on the product itself.

Reproductive toxicity

Not classified due to lack of data.

Effects on fertility	:	Test Type: reproductive and developmental toxicity study Species: Rat, male and female Strain: wistar Application Route: Oral General Toxicity - Parent: NOAEL: 333 mg/kg body weight General Toxicity F1: NOAEL: 333 mg/kg body weight Method: OECD Test Guideline 421 Result: Not classified GLP: yes
Effects on foetal development	:	Test Type: Pre-natal Species: Rat, female Strain: wistar Application Route: Oral Duration of Single Treatment: 21 d General Toxicity Maternal: NOAEL: 121 mg/kg body weight Developmental Toxicity: NOAEL: 391 mg/kg body weight Embryo-foetal toxicity: NOAEL: 121 mg/kg body weight Method: OECD Test Guideline 414 Result: Not classified GLP: yes

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 Application Route: Oral Exposure time: 90 d () NOAEL: 281 mg/kg Method: OECD Test Guideline 408

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)): 1,34 mg/l Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0,88 mg/l Exposure time: 48 h Test Type: semi-static test Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (algae)): 0,77 mg/l Exposure time: 72 h Test Type: static test ErC50 (Pseudokirchneriella subcapitata (algae)): 0,94 mg/l Exposure time: 96 h Test Type: static test NOEC (Pseudokirchneriella subcapitata (algae)): 0,6 mg/l Exposure time: 96 h Test Type: static test
Toxicity to fish (Chronic toxicity)	:	EC10: 143 µg/l Exposure time: 33 d Species: Pimephales promelas (fathead minnow) Method: OECD Test Guideline 210 GLP: yes Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	EC10: 0,05 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211 GLP: yes Remarks: Based on data from similar materials

Ecotoxicology Assessment

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

Components:

pentyl salicylate:

M-Factor (Acute aquatic toxicity)	:	1
M-Factor (Chronic aquatic toxicity)	:	1

12.2 Persistence and degradability

Product:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 86 %

Exposure time: 28 d
Method: OECD Test Guideline 301 F
GLP: yes

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

Product:

Distribution among environmental compartments	:	log Koc: 3,7 Method: OECD Test Guideline 121

12.5 Results of PBT and vPvB assessment

Product:

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

12.6 Endocrine disrupting properties

Product:

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

12.7 Other adverse effects

Product:

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	:	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.
(pentyl salicylate, 2-methylbutyl salicylate)

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(pentyl salicylate, 2-methylbutyl salicylate)

IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(pentyl salicylate, 2-methylbutyl salicylate)

IATA : Environmentally hazardous substance, liquid, n.o.s.
(pentyl salicylate, 2-methylbutyl salicylate)

14.3 Transport hazard class(es)

ADR : 9

RID : 9

IMDG : 9

IATA : 9

14.4 Packing group

ADR : III

RID : III

IMDG : III

IATA : III

14.5 Environmental hazards

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes

IATA (Passenger)
Environmentally hazardous : yes

IATA (Cargo)
Environmentally hazardous : yes

14.6 Special precautions for user

ADR
Tunnel restriction code : (-)

IMDG
IMDG Code Segregation Group : None

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

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

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

Water hazard class (Germany) : WGK 3 highly hazardous to water
Classification according to AwSV, Annex 1 (5.2)

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: 31 882 959/27 457 272

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

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

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

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

Annex

Exposure Scenario

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

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

1.1. Title section

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

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

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: GES 1; Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds); 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 <= 30 tonnes/year

Daily amount per site <= 0.12 tonnes/day
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
application of the STP sludge on agricultural soil; Yes
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

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

Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 0.06 tonnes/day
Annual amount per site <= 15 tonnes/year
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
application of the STP sludge on agricultural soil; Yes
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

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.
Other conditions affecting workers exposure
Body parts potentially exposed; One hand face only (240 cm2)
Indoor use
Assumes process temperature up to 40 ℃

Specific conditions of use per contributing scenario

Contributing scenario	Specific conditions of use
CS1; Transfer of substance or mixture (charging/discharging) at dedicated facilities; IFRA F-1 (PROC 8b)	Covers concentrations up to 25 % Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95%. Respiratory protection; No. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
CS2; Storage; IFRA F-2 (PROC 1)	Covers concentrations up to 0 % Covers use up to 1 h/day

	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Local exhaust ventilation; No. Respiratory protection; No. 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.
CS3; Mixing operations; Closed systems; Filling of articles/equipment; With sample collection; IFRA F-3 (PROC 3)	Covers concentrations up to 100 % Covers use up to 4 h/day Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Respiratory protection; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
CS4; Mixing operations; Open systems; Filling of articles/equipment; With sample collection; IFRA F-4 (PROC 5)	Covers concentrations up to 100 % Covers use up to 4 h/day Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear 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 Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
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 Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Respiratory protection; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
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 Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Respiratory protection; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
CS7; Equipment cleaning and maintenance; IFRA F-7 (PROC 8a)	Covers concentrations up to 25 % Covers use up to 4 h/day Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear 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 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.

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); Large scale; AISE SPERC 2.1.a.v1

Administrative information:
Report Information: SDS_FR/EN/GHS_SDS_EU_CNTRY/44
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 31 882 959/27 457 272

(ERC 2)

Release route	Release rate	Release estimation method
Water	0.24 kg/day	Estimated release factor
Air	3 kg/day	ERC
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	1.17E-3 mg/L (EUSES 2.1.2)	0.479
Sediment (freshwater)	0.59 mg/kg dw (EUSES 2.1.2)	0.479
Marine water	1.16E-4 mg/L (EUSES 2.1.2)	0.475
Sediment (marine water)	0.059 mg/kg dw (EUSES 2.1.2)	0.476
Sewage Treatment Plant	0.011 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.224 mg/kg dw (EUSES 2.1.2)	0.042
Predator's prey (freshwater)	0.259 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	0.025 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	8.35E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.307 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.76E-4 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	4.44E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

Release route	Release rate	Release estimation method
Water	0.3 kg/day	Estimated release factor
Air	1.5 kg/day	ERC
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	1.44E-3 mg/L (EUSES 2.1.2)	0.59
Sediment (freshwater)	0.727 mg/kg dw (EUSES 2.1.2)	0.591
Marine water	1.43E-4 mg/L (EUSES 2.1.2)	0.586
Sediment (marine water)	0.072 mg/kg dw (EUSES 2.1.2)	0.587
Sewage Treatment Plant	0.014 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.28 mg/kg dw (EUSES 2.1.2)	0.052
Predator's prey (freshwater)	0.312 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	0.031 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	9.41E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.381 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	2.91E-4 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	4.74E-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	0.26 mg/m³ (TRA Workers 3.0)	0.044
Inhalation, systemic, acute	5.206 mg/m³ (TRA Workers 3.0)	0.037
Dermal, systemic, long term	0.411 mg/kg bw/day (TRA Workers 3.0)	0.243
Combined, systemic, long term		0.287

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.21E-3 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	0.024 mg/m³ (TRA Workers 3.0)	< 0.01
Dermal, systemic, long term	3.4E-4 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	1.562 mg/m³ (TRA Workers 3.0)	0.262
Inhalation, systemic, acute	10.41 mg/m³ (TRA Workers 3.0)	0.074
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.041
Combined, systemic, long term		0.302

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	0.26 mg/m³ (TRA Workers 3.0)	0.044
Inhalation, systemic, acute	1.735 mg/m³ (TRA Workers 3.0)	0.012
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.406
Combined, systemic, long term		0.449

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.434 mg/m³ (TRA Workers 3.0)	0.073
Inhalation, systemic, acute	17.35 mg/m³ (TRA Workers 3.0)	0.123
Dermal, systemic, long term	0.034 mg/kg bw/day (TRA Workers 3.0)	0.02
Combined, systemic, long term		0.093

1.3.8. Worker exposure: CS6; Transfer of substance or mixture into small containers (dedicated filling line, including weighing); IFRA F-6 (PROC 9)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.521 mg/m³ (TRA Workers 3.0)	0.087
Inhalation, systemic, acute	10.41 mg/m³ (TRA Workers 3.0)	0.074
Dermal, systemic, long term	0.412 mg/kg bw/day (TRA Workers 3.0)	0.244
Combined, systemic, long term		0.331

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.312 mg/m³ (TRA Workers 3.0)	0.052
Inhalation, systemic, acute	2.083 mg/m³ (TRA Workers 3.0)	0.015
Dermal, systemic, long term	0.823 mg/kg bw/day (TRA Workers 3.0)	0.487
Combined, systemic, long term		0.539

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

Administrative information:
Report Information: SDS_FR/EN/GHS_SDS_EU_CNTRY/44
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 31 882 959/27 457 272

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 <= 0.375 tonnes/day
Annual amount per site <= 93.75 tonnes/year
Conditions and measures related to biological sewage treatment plant
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
application of the STP sludge on agricultural soil; Yes
Municipal sewage treatment plant is assumed.
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

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)
Daily amount per site <= 0.14 tonnes/day
Annual amount per site <= 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.
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 <= 0.115 tonnes/day
Annual amount per site <= 28.75 tonnes/year
Conditions and measures related to biological sewage treatment plant
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
application of the STP sludge on agricultural soil; Yes
Municipal sewage treatment plant is assumed.
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

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 <= 0.105 tonnes/day
Annual amount per site <= 26.25 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.
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 <= 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.
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 <= 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.
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 <= 0.16 tonnes/day
Annual amount per site <= 40 tonnes/year
Conditions and measures related to biological sewage treatment plant
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
application of the STP sludge on agricultural soil; Yes
Municipal sewage treatment plant is assumed.
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

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)
Daily amount per site <= 0.015 tonnes/day
Annual amount per site <= 3.75 tonnes/year
Conditions and measures related to biological sewage treatment plant
Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day
application of the STP sludge on agricultural soil; Yes
Municipal sewage treatment plant is assumed.
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

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
Room ventilation; Basic; Up to 3 air change per hour
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Respiratory protection; No.
Use suitable eye protection.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 ℃

Specific conditions of use per contributing scenario

Contributing scenario	Specific conditions of use
CS1; Transfer of substance or mixture (charging/discharging) at dedicated facilities; AISE M-6 (PROC 8b)	Covers concentrations up to 25 % Covers use up to 1 h/day Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95%. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If

	skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
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 Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
CS3; Storage; AISE M-1 (PROC 1)	Covers concentrations up to 25 % Covers use up to 1 h/day Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
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% 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.
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% Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
CS6; Equipment cleaning and maintenance (PROC 8a)	Covers concentrations up to 1 % 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% 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.
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 Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
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 Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
CS8; Tabletting, compression, extrusion or pelletisation; AISE M-8 (PROC 14)	Covers concentrations up to 1 % 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% 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.

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

Protection target	Exposure estimate	RCR
Fresh water	2.51E-4 mg/L (EUSES 2.1.2)	0.103
Sediment (freshwater)	0.127 mg/kg dw (EUSES 2.1.2)	0.103
Marine water	2.42E-5 mg/L (EUSES 2.1.2)	0.099
Sediment (marine water)	0.012 mg/kg dw (EUSES 2.1.2)	0.099
Sewage Treatment Plant	1.71E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.035 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	0.08 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	7.42E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	4.77E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.051 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.12E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	6.03E-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	0.14 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	7.15E-4 mg/L (EUSES 2.1.2)	0.293
Sediment (freshwater)	0.361 mg/kg dw (EUSES 2.1.2)	0.294
Marine water	7.06E-5 mg/L (EUSES 2.1.2)	0.289
Sediment (marine water)	0.036 mg/kg dw (EUSES 2.1.2)	0.29
Sewage Treatment Plant	6.39E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.13 mg/kg dw (EUSES 2.1.2)	0.024
Predator's prey (freshwater)	0.17 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	0.016 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	6.58E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.179 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.39E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.01E-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	0.23 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-3 mg/L (EUSES 2.1.2)	0.46
Sediment (freshwater)	0.567 mg/kg dw (EUSES 2.1.2)	0.461
Marine water	1.11E-4 mg/L (EUSES 2.1.2)	0.456
Sediment (marine water)	0.056 mg/kg dw (EUSES 2.1.2)	0.457
Sewage Treatment Plant	0.01 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.214 mg/kg dw (EUSES 2.1.2)	0.04
Predator's prey (freshwater)	0.25 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	0.024 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	8.17E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.292 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.63E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	3.25E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

Release route	Release rate	Release estimation method
Water	0.105 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	5.57E-4 mg/L (EUSES 2.1.2)	0.228
Sediment (freshwater)	0.281 mg/kg dw (EUSES 2.1.2)	0.229
Marine water	5.48E-5 mg/L (EUSES 2.1.2)	0.224
Sediment (marine water)	0.028 mg/kg dw (EUSES 2.1.2)	0.225
Sewage Treatment Plant	4.79E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.098 mg/kg dw (EUSES 2.1.2)	0.018
Predator's prey (freshwater)	0.139 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	0.013 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	5.96E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.135 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.3E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.53E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

Release route	Release rate	Release estimation method
Water	0.09 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	4.89E-4 mg/L (EUSES 2.1.2)	0.2
Sediment (freshwater)	0.247 mg/kg dw (EUSES 2.1.2)	0.201

Marine water	4.8E-5 mg/L (EUSES 2.1.2)	0.197
Sediment (marine water)	0.024 mg/kg dw (EUSES 2.1.2)	0.197
Sewage Treatment Plant	4.11E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.084 mg/kg dw (EUSES 2.1.2)	0.016
Predator's prey (freshwater)	0.126 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	0.012 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	5.7E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.117 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.26E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.33E-3 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	0.18 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	8.96E-4 mg/L (EUSES 2.1.2)	0.367
Sediment (freshwater)	0.453 mg/kg dw (EUSES 2.1.2)	0.368
Marine water	8.87E-5 mg/L (EUSES 2.1.2)	0.364
Sediment (marine water)	0.045 mg/kg dw (EUSES 2.1.2)	0.364
Sewage Treatment Plant	8.21E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.168 mg/kg dw (EUSES 2.1.2)	0.031
Predator's prey (freshwater)	0.205 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	0.02 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	7.29E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.23 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.5E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.56E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

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

Protection target	Exposure estimate	RCR
Fresh water	8.13E-5 mg/L (EUSES 2.1.2)	0.033
Sediment (freshwater)	0.041 mg/kg dw (EUSES 2.1.2)	0.033
Marine water	7.2E-6 mg/L (EUSES 2.1.2)	0.03
Sediment (marine water)	3.64E-3 mg/kg dw (EUSES 2.1.2)	0.03
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	9.29E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	0.046 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	4.11E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	4.11E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	3.46E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.02E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	8.77E-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	0.3 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	1.44E-3 mg/L (EUSES 2.1.2)	0.59
Sediment (freshwater)	0.727 mg/kg dw (EUSES 2.1.2)	0.591
Marine water	1.43E-4 mg/L (EUSES 2.1.2)	0.586
Sediment (marine water)	0.072 mg/kg dw (EUSES 2.1.2)	0.587
Sewage Treatment Plant	0.014 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.279 mg/kg dw (EUSES 2.1.2)	0.052
Predator's prey (freshwater)	0.312 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	0.031 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	9.41E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.38 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	5.82E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	4.22E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.26 mg/m³ (TRA Workers 3.0)	0.044
Inhalation, systemic, acute	5.206 mg/m³ (TRA Workers 3.0)	0.037
Dermal, systemic, long term	0.823 mg/kg bw/day (TRA Workers 3.0)	0.487
Combined, systemic, long term		0.53

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.26 mg/m³ (TRA Workers 3.0)	0.044
Inhalation, systemic, acute	10.41 mg/m³ (TRA Workers 3.0)	0.074
Dermal, systemic, long term	0.02 mg/kg bw/day (TRA Workers 3.0)	0.012
Combined, systemic, long term		0.056

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
Inhalation, systemic, acute	0.208 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	0.937 mg/m³ (TRA Workers 3.0)	0.157
Inhalation, systemic, acute	6.248 mg/m³ (TRA Workers 3.0)	0.044
Dermal, systemic, long term	0.041 mg/kg bw/day (TRA Workers 3.0)	0.024
Combined, systemic, long term		0.181

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	1.562 mg/m³ (TRA Workers 3.0)	0.262
Inhalation, systemic, acute	10.41 mg/m³ (TRA Workers 3.0)	0.074
Dermal, systemic, long term	0.411 mg/kg bw/day (TRA Workers 3.0)	0.243
Combined, systemic, long term		0.505

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.521 mg/m³ (TRA Workers 3.0)	0.087
Inhalation, systemic, acute	3.471 mg/m³ (TRA Workers 3.0)	0.025
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.168

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	0.104 mg/m³ (TRA Workers 3.0)	0.017
Inhalation, systemic, acute	2.083 mg/m³ (TRA Workers 3.0)	0.015
Dermal, systemic, long term	0.082 mg/kg bw/day (TRA Workers 3.0)	0.049
Combined, systemic, long term		0.066

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	0.087 mg/m³ (TRA Workers 3.0)	0.015
Inhalation, systemic, acute	1.735 mg/m³ (TRA Workers 3.0)	0.012
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.041
Combined, systemic, long term		0.055

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	0.434 mg/m³ (TRA Workers 3.0)	0.073
Inhalation, systemic, acute	1.735 mg/m³ (TRA Workers 3.0)	0.012
Dermal, systemic, long term	0.034 mg/kg bw/day (TRA Workers 3.0)	0.02
Combined, systemic, long term		0.093

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

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

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

3.1. Title section

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

Environment	
1: GES 3; Industrial end-use of washing and cleaning products	ERC 4
Worker	

2: Industrial use of food beverage and pharmaceutical products; CS13-u; Food process cleaner. Cleaning In place (CIP) process; AISE-P801; CS17-u; Defoaming product. Automatic process; AISE-P805	PROC 1
3: Industrial use of laundry products; CS1-u; Laundry detergent. Automatic process; AISE-P101; CS2-u; Conditioner (softner/starch). Automatic process; AISE-P104; CS3-u; Laundry aid (gasing). Automatic process; AISE-P107; CS4-u; Laundry aid (non-gasing). Automatic process; AISE-P110	PROC 2
4: Industrial use; Dedicated equipment; Pharmaceuticals; CS21-u; Disinfection product. Semi-automatic process; AISE-P810	PROC 4
5: Industrial use of vehicle cleaning products; CS5-u; Train cleaner. Semi-Automatic process; AISE-P707; CS6-u; Aeroplane cleaner. Semi-Automatic process; AISE-P708; CS7-u; Car wash product. Semi-Automatic process; AISE-P709; CS10-u; Dewaxing product. Semi-Automatic process; AISE-P712; CS14-u; Food process cleaner. Semi closed cleaning process; AISE-P802	PROC 4
6: Industrial use of water treatment products; CS24-u; Preservation and sanitation agent . Drink and pool water; AISE-P904; CS23-u; Sanitation agent. Waste water; AISE-P905	PROC 4
7: Industrial use of 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; 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; AISE-P811	PROC 8b
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)

3.2.2. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Product (article) characteristics

Liquid
Covers concentrations up to 1 %
Technical and organisational conditions and measures
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Other conditions affecting workers exposure
Assumes process temperature up to 40 ℃

Specific conditions of use per contributing scenario

Contributing scenario	Specific conditions of use
Industrial use of food beverage and pharmaceutical products; CS13-u; Food process cleaner. Cleaning In place (CIP) process; AISE-P801; CS17-u; Defoaming product. Automatic process; AISE-P805 (PROC 1)	Covers use up to 8 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Local exhaust ventilation; No. Respiratory protection; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; One hand face only (240 cm2) 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 Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands face only (480 cm2) 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 Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Respiratory protection; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands face only (480 cm2) Indoor use
Industrial use of vehicle cleaning products; CS5-u; Train cleaner. Semi-Automatic process; AISE-P707; CS6-u; Aeroplane cleaner. Semi-Automatic process; AISE-P708; CS7-u; Car wash product. Semi-Automatic process; AISE-P709; CS10-u; Dewaxing product. Semi-Automatic process; AISE-P712; CS14-u; Food process cleaner. Semi closed cleaning process; AISE-P802 (PROC 4)	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Body parts potentially exposed; Two hands face only (480 cm2) Outdoor use
Industrial use of water treatment products; CS24-u; Preservation and sanitation agent . Drink and pool water;	Covers use up to 8 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: 31 882 959/27 457 272

AISE-P904; CS23-u; Sanitation agent. Waste water; AISE-P905 (PROC 4)	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Body parts potentially exposed; Two hands face only (480 cm2) 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 Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Outdoor 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 wipe manual process; AISE-P714 (PROC 7)	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Outdoor use
Industrial use of food beverage and pharmaceutical products; CS18-u; Foam cleaner. Semi-Automatic with venting process; AISE-P806 (PROC 7)	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95%. Wear 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 Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Indoor use
Industrial use of food beverage and pharmaceutical products; CS15-u; Chain maintenance product. Automatic spray process; AISE-P803; CS19-u; Foam cleaner. Semi-Automatic without venting process; AISE-P807; CS22-u; Animal housing care. Semi-Automatic process; AISE-P809; CS20-u; Disinfection product. Fogging and gassing Semi-automatic process; AISE-P811 (PROC 7)	Covers use up to 8 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Local exhaust ventilation; No. Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) 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. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Outdoor use

Administrative information:
Report Information: SDS_FR/EN/GHS_SDS_EU_CNTRY/44
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 31 882 959/27 457 272

Industrial use of laundry products; CS1-p; Laundry detergent. Automatic process; AISE-P101; CS2-p; Conditioner (softner/starch). Automatic process; AISE-P104; CS3-p; Laundry aid (gasing). Automatic process; AISE-P107; CS4-p; Laundry aid (non-gasing). Automatic process; AISE-P110; CS13-p; Industrial use of food beverage and pharmaceutical products; AISE-P801; CS14-p; Food process cleaner. Cleaning In place (CIP) process; AISE-P802; CS15-p; Chain maintenance product. Automatic spray process; AISE-P803; CS17-p; Defoaming product. Automatic process; AISE-P805 (PROC 8b)	Covers use up to 0.25 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Local exhaust ventilation; No. Respiratory protection; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Industrial use of water treatment products; CS23-p; Preservation and sanitation agent . Drink and pool water; AISE-P904; CS24-p; Sanitation agent. Waste water; AISE-P905; Industrial use of façade/surface cleaning products; CS25-p; Façade/surface cleaner. High pressure process; AISE-P906; CS26-p; Façade/surface cleaner. Medium pressure process; AISE-P907 (PROC 8b)	Covers use up to 0.25 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Body parts potentially exposed; Two hands (960 cm2) Outdoor use
Industrial use of vehicle cleaning products; CS5-p; Train cleaner. Semi-Automatic process; AISE-P707; CS6-p; Aeroplane cleaner. Semi-Automatic process; AISE-P708; CS7-p; Car wash product. Semi-Automatic process; AISE-P709; CS8-p; Car wash product. Spray and rinse process; AISE-P710; CS10-p; Dewaxing product. Semi-Automatic process; AISE-P712; Industrial use of food beverage and pharmaceutical products; CS19-p; Foam cleaner. Semi-Automatic without venting process; AISE-P807; CS22-p; Disinfection product. Fogging and gassing Semi-automatic process; AISE-P811 (PROC 8b)	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Body parts potentially exposed; Two hands (960 cm2) Outdoor use
Industrial use of vehicle cleaning products; CS9-p; Car wash product. Spray and wipe manual process; AISE-P711; CS11-p; Boat cleaner. Manual process; AISE-P713; CS12-p; Boat cleaner. Spray and wipe manual process; AISE-P714 (PROC 8b)	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Body parts potentially exposed; Two hands (960 cm2) Outdoor use
Industrial use of food beverage and pharmaceutical products; CS20-p; Animal housing care. Semi-Automatic process; AISE-P809; CS21-p; Disinfection product. Semi-automatic	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Respiratory protection; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If

process; AISE-P810 (PROC 8b)	skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Industrial use of food beverage and pharmaceutical products; CS18-p; Foam cleaner. Semi-Automatic with venting process; AISE-P806 (PROC 8b)	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95%. Respiratory protection; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Industrial use of vehicle cleaning products; CS9-u2; Car wash product. Spray and wipe manual process; AISE-P711; CS12-u2; Boat cleaner. Manual process; AISE-P713; CS11-u; Boat cleaner. Spray and wipe manual process; AISE-P714 (PROC 10)	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands (960 cm2) Outdoor use
Industrial use of food beverage and pharmaceutical products; CS16-u; Chain maintenance product. Automatic drip and brush process; AISE-P804 (PROC 13)	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90% Respiratory protection; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands face only (480 cm2) Indoor use

3.3. Exposure estimation and reference to its source

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

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

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	6.07E-3 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	0.024 mg/m³ (TRA Workers 3.0)	< 0.01
Dermal, systemic, long term	3.4E-4 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	0.607 mg/m³ (TRA Workers 3.0)	0.102
Inhalation, systemic, acute	2.43 mg/m³ (TRA Workers 3.0)	0.017
Dermal, systemic, long term	0.014 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Combined, systemic, long term		0.11

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	0.26 mg/m³ (TRA Workers 3.0)	0.044
Inhalation, systemic, acute	1.735 mg/m³ (TRA Workers 3.0)	0.012
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.041
Combined, systemic, long term		0.084

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	3.037 mg/m³ (TRA Workers 3.0)	0.509
Inhalation, systemic, acute	12.14 mg/m³ (TRA Workers 3.0)	0.086
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.041
Combined, systemic, long term		0.549

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	3.037 mg/m³ (TRA Workers 3.0)	0.509
Inhalation, systemic, acute	12.14 mg/m³ (TRA Workers 3.0)	0.086
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.041
Combined, systemic, long term		0.549

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	1.215 mg/m³ (TRA Workers 3.0)	0.203
Inhalation, systemic, acute	24.29 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.254
Combined, systemic, long term		0.457

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	1.215 mg/m³ (TRA Workers 3.0)	0.203
Inhalation, systemic, acute	24.29 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.254
Combined, systemic, long term		0.457

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	0.434 mg/m³ (TRA Workers 3.0)	0.073
Inhalation, systemic, acute	1.735 mg/m³ (TRA Workers 3.0)	0.012
Dermal, systemic, long term	0.857 mg/kg bw/day (TRA Workers 3.0)	0.507
Combined, systemic, long term		0.58

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	3.037 mg/m³ (TRA Workers 3.0)	0.509
Inhalation, systemic, acute	12.14 mg/m³ (TRA Workers 3.0)	0.086
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.254
Combined, systemic, long term		0.762

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	3.037 mg/m³ (TRA Workers 3.0)	0.509
Inhalation, systemic, acute	12.14 mg/m³ (TRA Workers 3.0)	0.086
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.254
Combined, systemic, long term		0.762

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; 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	0.304 mg/m³ (TRA Workers 3.0)	0.051
Inhalation, systemic, acute	12.14 mg/m³ (TRA Workers 3.0)	0.086
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.132

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	0.304 mg/m³ (TRA Workers 3.0)	0.051
Inhalation, systemic, acute	12.14 mg/m³ (TRA Workers 3.0)	0.086
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.132

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	0.607 mg/m³ (TRA Workers 3.0)	0.102
Inhalation, systemic, acute	12.14 mg/m³ (TRA Workers 3.0)	0.086
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.183

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)	0.102
Inhalation, systemic, acute	12.14 mg/m³ (TRA Workers 3.0)	0.086
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.183

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	0.868 mg/m³ (TRA Workers 3.0)	0.145
Inhalation, systemic, acute	17.35 mg/m³ (TRA Workers 3.0)	0.123
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.226

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
Inhalation, systemic, acute	0.868 mg/m³ (TRA Workers 3.0)	< 0.01
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.088

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	0.607 mg/m³ (TRA Workers 3.0)	0.102
Inhalation, systemic, acute	2.43 mg/m³ (TRA Workers 3.0)	0.017
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.162
Combined, systemic, long term		0.264

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	0.868 mg/m³ (TRA Workers 3.0)	0.145
Inhalation, systemic, acute	3.471 mg/m³ (TRA Workers 3.0)	0.025
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.226

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

Guidance: The total tonnage of all end-uses for environmental exposure is covered under GES6. ERC4 is covered under ERC8. In accordance with IFRA REACH Exposure Scenarios for Fragrance Substances Version 2.1, 11th December 2012), the total tonnage under ERC4 can be considered under ERC8. This approach can be justified since the total volume for fragrance substances that is applied for industrial use is only a

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

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

4.1. Title section

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

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

use of medical devices; CS50-p; Medical devices . Manual process; AISE-P1103	
11: Professional use of vehicle cleaning products; CS41-p; Car wash product. Spray and wipe manual process; AISE-P703; CS43-p; Boat cleaner. Manual process; AISE-P705; CS44-p; Boat cleaner. Spray and wipe manual process; AISE-P706	PROC 8a
12: Professional use of dishwashing products; CS9-p; Dishwash product. Automatic process; AISE-P202	PROC 8b
13: Professional use of general surface cleaning products; CS21-u; Oven/Grill Cleaner. Manual process; AISE-P310	PROC 10
14: Professional use of laundry products; CS2-u; Laundry detergent. Manual process; AISE-P103; Professional use of dishwashing products; CS8-u; Dishwash product. Manual process; AISE-P201; Professional use of general surface cleaning products; CS28-u; Wet wipe. Manual process; AISE-P317; Professional use of floor care products; CS36-u1; Carpet cleaner. Spray and brush manual process; AISE-P411	PROC 10
15: Professional use of general surface cleaning products; CS18-u; Descaling agent. Manual process; AISE-P307	PROC 10
16: Professional use of floor care products; CS31-u; Floor cleaner. Manual process; AISE-P403; Professional use of laundry products; CS7-u1; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general 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 disinfectant. Manual process; AISE-P314; CS26-u1; Surface disinfectant. Spray and rinse manual process; AISE-P315; CS27-u; Metal cleaning agent. Manual process; AISE-P316; CS29-u; Floor cleaner. Semi-Automatic process; AISE-P401; CS30-u1; Floor cleaner. Spray and wipe manual process; AISE-P402; CS33-u; Floor stripper. Semi-Automatic process; AISE-P405; CS34-u; Carpet cleaner. Manual process; AISE-P409; CS35-u; Carpet cleaner. Semi-Automatic process; AISE-P410; Professional use; Pharmaceuticals; CS45-u; Animal housing care. Manual process; AISE-P808; Professional use of medical devices; CS50-u; Medical devices . Manual process; AISE-P1103; CS51-u1; Medical devices . Spray process; AISE-P1104	PROC 10
17: Professional use of general surface cleaning products; CS19-u1; Descaling agent. Spray and rinse manual process; AISE-P308; CS22-u1; Oven/Grill Cleaner. Spray and wipe manual process; AISE-P311; Professional use of floor care products; CS32-u; Floor stripper. Manual process; AISE-P404	PROC 10
18: Professional use of vehicle cleaning products; CS41-u1; Car wash product. Spray and wipe manual process; AISE-P703; CS43-u; Boat cleaner. Manual process; AISE-P705; CS44-u1; Boat cleaner. Spray and wipe manual process; AISE-P706	PROC 10
19: Professional use of façade/surface cleaning products; CS47-u1; Façade/surface cleaner. Medium pressure process; AISE-P902	PROC 10
20: Professional use of vehicle cleaning products; CS40-u; Car wash product. Spray and rinse process; AISE-P702; Professional use of laundry products; CS7-u2; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general surface cleaning products; CS13-u2; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS15-u2; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS17-u2; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS24-u2; Glass cleaner. Spray and wipe manual process; AISE-P313; CS26-u2; Surface disinfectant. Spray and rinse manual process; AISE-P315; Professional use of floor care products; CS30-u2; Floor cleaner. Spray and wipe manual process; AISE-P402; CS36-u2; Carpet cleaner. Spray and brush manual process; AISE-P411; Professional use of medical devices; CS51-u2; Medical devices . Spray process; AISE-P1104	PROC 11
21: Professional use of general surface cleaning products; CS19-u2; Descaling agent. Spray and rinse manual process; AISE-P308; CS22-u2; Oven/Grill Cleaner. Spray and wipe manual process; AISE-P311	PROC 11
22: Professional use of vehicle cleaning products; CS41-u2; Car wash product. Spray and wipe manual process; AISE-P703; CS44-u2; Boat cleaner. Spray and wipe manual process; AISE-P706	PROC 11
23: Professional use of façade/surface cleaning products; CS47-u2; Façade/surface cleaner. Medium pressure process; AISE-P902	PROC 11
24: Professional use of façade/surface cleaning products; CS46-u; Façade/surface cleaner. High pressure process; AISE-P901	PROC 11
25: Professional use of maintenance products; CS37; Drain unblocker. Manual process; AISE-P606; CS38; Drain cleaner. Manual process; AISE-P607	PROC 13
26: Professional use of general surface cleaning products; CS20-u; Descaling agent. Dipping process; AISE-P309; Professional use of medical devices; CS49-u; Medical devices . Dipping process; AISE-P1102	PROC 13

4.2. Conditions of use affecting exposure

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

4.2.2. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Administrative information:
Report Information: SDS_FR/EN/GHS_SDS_EU_CNTRY/44
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 31 882 959/27 457 272

Product (article) characteristics
Liquid
Covers concentrations up to 1 %
Technical and organisational conditions and measures
Occupational Health and Safety Management System; Basic
Local exhaust ventilation; No.
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 Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; No. Use suitable eye protection. Personal protection; dermal; No. Body parts potentially exposed; One hand face only (240 cm2) Indoor use
Professional use of dishwashing products; CS9-u; Dishwash product. Automatic process; AISE-P202 (PROC 2)	Covers use up to 8 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; No. Use suitable eye protection. Personal protection; dermal; No. Body parts potentially exposed; Two hands face only (480 cm2) Indoor use
Professional use of laundry products; CS6-u; Laundry aid (non-gasing). Manual process; AISE-P112 (PROC 4)	Covers use up to 0.25 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; 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. Body parts potentially exposed; Two hands face only (480 cm2) Indoor use
Professional use of vehicle cleaning products; Semi-automated task; CS39-u; Car wash product. Semi-Automatic process; AISE-P701; CS42-u; Dewaxing product. Semi-Automatic process; AISE-P704 (PROC 4)	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Personal protection; dermal; No. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Use suitable eye protection. Body parts potentially exposed; Two hands face only (480 cm2) Outdoor 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;	Covers use up to 0.25 h/day 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

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)	also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2) 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 Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; 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. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of dishwashing products; CS8-p; Dishwash product. Manual process; AISE-P201 (PROC 8a)	Covers use up to 0.25 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; No. Use suitable eye protection. Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of floor care products; CS31-p; Floor cleaner. Manual process; AISE-P403; CS29-p; Floor cleaner. Semi-Automatic process; AISE-P401; CS30-p; Floor cleaner. Spray and wipe manual process; AISE-P402; CS34-p; Carpet cleaner. Manual process; AISE-P409; CS35-p; Carpet cleaner. Semi-Automatic process; AISE-P410; Professional use of general surface cleaning products; CS12-p; General purpose cleaner. Manual process; AISE-P301; CS13-p; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS14-p; Kitchen cleaner. Manual process; AISE-P303; CS15-p; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS16-p; Sanitary cleaner. Manual process; AISE-P305; CS17-p; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS23-p; Glass cleaner. Manual process; AISE-P312; Professional use; Pharmaceuticals; CS45-p; Animal housing care. Manual process; AISE-P808; Professional use	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Use suitable eye protection. Body parts potentially exposed; Two hands (960 cm2) Outdoor 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 Room ventilation; Basic; Up to 3 air change per hour Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Respiratory protection; No. Face/eye protection; No. Body parts potentially exposed; Two hands (960 cm2) Outdoor 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 Room ventilation; Basic; Up to 3 air change per hour 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. Use suitable eye protection. Body parts potentially exposed; Two hands (960 cm2) 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 Room ventilation; Basic; Up to 3 air change per hour Respiratory protection; 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. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of general surface cleaning products; CS21-u; Oven/Grill Cleaner. Manual process; AISE-P310 (PROC 10)	Covers use up to 1 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; 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. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of laundry products; CS2-u; Laundry detergent. Manual process; AISE-P103; Professional use of dishwashing products; CS8-u;	Covers use up to 4 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes 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

Administrative information:
Report Information: SDS_FR/EN/GHS_SDS_EU_CNTRY/44
Sales & Distribution Information: VE01/FR/CH11/01
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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)	Use suitable eye protection. Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2) 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 Provide a good standard of general ventilation (not less than 3 to 5 air changes 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 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. Body parts potentially exposed; Two hands (960 cm2) Indoor use
Professional use of floor care products; CS31-u; Floor cleaner. Manual process; AISE-P403; Professional use of laundry products; CS7-u1; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general surface cleaning products; CS12-u; General purpose cleaner. Manual process; AISE-P301; CS13-u1; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS14-u; Kitchen cleaner. Manual process; AISE-P303; CS15-u1; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS16-u; Sanitary cleaner. Manual process; AISE-P305; CS17-u1; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS23-u; Glass cleaner. Manual process; AISE-P312; CS24-u1; Glass cleaner. Spray and wipe manual process; AISE-P313; CS25-u; Surface disinfactant. Manual process; AISE-P314; CS26-u1; Surface disinfactant. Spray and rinse manual process; AISE-P315; CS27-u; Metal cleaning agent. Manual process; AISE-P316; CS29-u; Floor cleaner. Semi-Automatic process; AISE-P401; CS30-u1; Floor cleaner. Spray and wipe manual process; AISE-P402; CS33-u; Floor stripper. Semi-Automatic process; AISE-P405; CS34-u; Carpet cleaner. Manual process; AISE-P409; CS35-u; Carpet cleaner. Semi-Automatic process; AISE-P410; Professional use; Pharmaceuticals; CS45-u; Animal housing care. Manual process; AISE-P808; Professional use of medical devices; CS50-u; Medical devices . Manual process; AISE-P1103; CS51-u1; Medical devices . Spray process; AISE-P1104 (PROC 10)	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Face/eye protection; No. Body parts potentially exposed; Two hands (960 cm2) Outdoor 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 Provide a good standard of general ventilation (not less than 3 to 5 air changes 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 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. Body parts potentially exposed; Two hands (960 cm2) 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 Room ventilation; Basic; Up to 3 air change per hour Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Use suitable eye protection. Body parts potentially exposed; Two hands (960 cm2) 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 Room ventilation; Basic; Up to 3 air change per hour 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 Use suitable eye protection. Body parts potentially exposed; Two hands (960 cm2) Outdoor use
Professional use of vehicle cleaning products; CS40-u; Car wash product. Spray and rinse process; AISE-P702; Professional use of laundry products; CS7-u2; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general surface cleaning products; CS13-u2; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS15-u2; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS17-u2; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS24-u2; Glass cleaner. Spray and wipe manual process; AISE-P313; CS26-u2; Surface disinfactant. Spray and rinse manual process; AISE-P315; Professional use of floor care products; CS30-u2; Floor cleaner. Spray and wipe manual process; AISE-P402; CS36-u2; Carpet cleaner. Spray and brush manual process; AISE-P411; Professional use of medical devices; CS51-u2; Medical devices . Spray process; AISE-P1104 (PROC 11)	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour 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 Use suitable eye protection. Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Outdoor use
Professional use of general surface cleaning products; CS19-u2; Descaling agent. Spray and rinse manual process; AISE-P308; CS22-u2; Oven/Grill	Covers use up to 1 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes 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

Cleaner. Spray and wipe manual process; AISE-P311 (PROC 11)	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. Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Indoor use
Professional use of vehicle cleaning products; CS41-u2; Car wash product. Spray and wipe manual process; AISE-P703; CS44-u2; Boat cleaner. Spray and wipe manual process; AISE-P706 (PROC 11)	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour 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 Use suitable eye protection. Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Outdoor use
Professional use of façade/surface cleaning products; CS47-u2; Façade/surface cleaner. Medium pressure process; AISE-P902 (PROC 11)	Covers use up to 1 h/day Room ventilation; Basic; Up to 3 air change per hour 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 Use suitable eye protection. Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Outdoor use
Professional use of façade/surface cleaning products; CS46-u; Façade/surface cleaner. High pressure process; AISE-P901 (PROC 11)	Covers use up to 8 h/day Room ventilation; Basic; Up to 3 air change per hour Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS Use suitable eye protection. Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Outdoor use
Professional use of maintenance products; CS37; Drain unblocker. Manual process; AISE-P606; CS38; Drain cleaner. Manual process; AISE-P607 (PROC 13)	Covers use up to 0.25 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; 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. Body parts potentially exposed; Two hands face only (480 cm2) Indoor use
Professional use of general surface cleaning products; CS20-u; Descaling agent. Dipping process; AISE-P309; Professional use of medical devices; CS49-u; Medical devices . Dipping process; AISE-P1102 (PROC 13)	Covers use up to 1 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). Respiratory protection; 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. Body parts potentially exposed; Two hands face only (480 cm2) Indoor use

4.3. Exposure estimation and reference to its source

4.3.1. Environmental release and exposure: GES 4; Professional end-use of washing and

cleaning products (ERC 8a)

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

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	6.07E-3 mg/m³ (TRA Workers 3.0)	< 0.01
Inhalation, systemic, acute	0.024 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	3.037 mg/m³ (TRA Workers 3.0)	0.509
Inhalation, systemic, acute	12.14 mg/m³ (TRA Workers 3.0)	0.086
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.59

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	0.607 mg/m³ (TRA Workers 3.0)	0.102
Inhalation, systemic, acute	24.29 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.041
Combined, systemic, long term		0.142

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	0.607 mg/m³ (TRA Workers 3.0)	0.102
Inhalation, systemic, acute	2.43 mg/m³ (TRA Workers 3.0)	0.017
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.406
Combined, systemic, long term		0.508

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	1.519 mg/m³ (TRA Workers 3.0)	0.254
Inhalation, systemic, acute	60.74 mg/m³ (TRA Workers 3.0)	0.431
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.335

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	1.519 mg/m³ (TRA Workers 3.0)	0.254
Inhalation, systemic, acute	60.74 mg/m³ (TRA Workers 3.0)	0.431
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.335

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	1.519 mg/m³ (TRA Workers 3.0)	0.254
Inhalation, systemic, acute	60.74 mg/m³ (TRA Workers 3.0)	0.431
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.162
Combined, systemic, long term		0.417

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	3.037 mg/m³ (TRA Workers 3.0)	0.509
Inhalation, systemic, acute	60.74 mg/m³ (TRA Workers 3.0)	0.431
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.162
Combined, systemic, long term		0.671

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	3.037 mg/m³ (TRA Workers 3.0)	0.509
Inhalation, systemic, acute	60.74 mg/m³ (TRA Workers 3.0)	0.431
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.59

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	3.037 mg/m³ (TRA Workers 3.0)	0.509
Inhalation, systemic, acute	60.74 mg/m³ (TRA Workers 3.0)	0.431
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.59

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	0.868 mg/m³ (TRA Workers 3.0)	0.145
Inhalation, systemic, acute	34.70 mg/m³ (TRA Workers 3.0)	0.246
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.226

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	3.037 mg/m³ (TRA Workers 3.0)	0.509
Inhalation, systemic, acute	60.74 mg/m³ (TRA Workers 3.0)	0.431
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.162
Combined, systemic, long term		0.671

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.911 mg/m³ (TRA Workers 3.0)	0.153
Inhalation, systemic, acute	6.074 mg/m³ (TRA Workers 3.0)	0.043
Dermal, systemic, long term	0.549 mg/kg bw/day (TRA Workers 3.0)	0.325
Combined, systemic, long term		0.477

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	0.911 mg/m³ (TRA Workers 3.0)	0.153
Inhalation, systemic, acute	6.074 mg/m³ (TRA Workers 3.0)	0.043
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.162
Combined, systemic, long term		0.315

4.3.16. Worker exposure: Professional use of floor care products; CS31-u; Floor cleaner. Manual process; AISE-P403; Professional use of laundry products; CS7-u1; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general surface cleaning products; CS12-u; General purpose cleaner. Manual process; AISE-P301; CS13-u1; General purpose

cleaner. Spray and wipe manual process; AISE-P302; CS14-u; Kitchen cleaner. Manual process; AISE-P303; CS15-u1; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS16-u; Sanitary cleaner. Manual process; AISE-P305; CS17-u1; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS23-u; Glass cleaner. Manual process; AISE-P312; CS24-u1; Glass cleaner. Spray and wipe manual process; AISE-P313; CS25-u; Surface disinfactant. Manual process; AISE-P314; CS26-u1; Surface disinfactant. Spray and rinse manual process; AISE-P315; CS27-u; Metal cleaning agent. Manual process; AISE-P316; CS29-u; Floor cleaner. Semi-Automatic process; AISE-P401; CS30-u1; Floor cleaner. Spray and wipe manual process; AISE-P402; CS33-u; Floor stripper. Semi-Automatic process; AISE-P405; CS34-u; Carpet cleaner. Manual process; AISE-P409; CS35-u; Carpet cleaner. Semi-Automatic process; AISE-P410; Professional use; Pharmaceuticals; CS45-u; Animal housing care. Manual process; AISE-P808; Professional use of medical devices; CS50-u; Medical devices . Manual process; AISE-P1103; CS51-u1; Medical devices . Spray process; AISE-P1104 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.519 mg/m³ (TRA Workers 3.0)	0.254
Inhalation, systemic, acute	6.074 mg/m³ (TRA Workers 3.0)	0.043
Dermal, systemic, long term	0.549 mg/kg bw/day (TRA Workers 3.0)	0.325
Combined, systemic, long term		0.579

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.519 mg/m³ (TRA Workers 3.0)	0.254
Inhalation, systemic, acute	6.074 mg/m³ (TRA Workers 3.0)	0.043
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.162
Combined, systemic, long term		0.417

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.519 mg/m³ (TRA Workers 3.0)	0.254
Inhalation, systemic, acute	6.074 mg/m³ (TRA Workers 3.0)	0.043
Dermal, systemic, long term	0.549 mg/kg bw/day (TRA Workers 3.0)	0.325
Combined, systemic, long term		0.579

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.519 mg/m³ (TRA Workers 3.0)	0.254
Inhalation, systemic, acute	6.074 mg/m³ (TRA Workers 3.0)	0.043
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.162
Combined, systemic, long term		0.417

4.3.20. Worker exposure: Professional use of vehicle cleaning products; CS40-u; Car wash product. Spray and rinse process; AISE-P702; Professional use of laundry products; CS7-u2; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general surface cleaning products; CS13-u2; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS15-u2; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS17-u2; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS24-u2; Glass cleaner. Spray

and wipe manual process; AISE-P313; CS26-u2; Surface 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	1.215 mg/m³ (TRA Workers 3.0)	0.203
Inhalation, systemic, acute	24.29 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.634
Combined, systemic, long term		0.837

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.215 mg/m³ (TRA Workers 3.0)	0.203
Inhalation, systemic, acute	24.29 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.634
Combined, systemic, long term		0.837

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.215 mg/m³ (TRA Workers 3.0)	0.203
Inhalation, systemic, acute	24.29 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.634
Combined, systemic, long term		0.837

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.215 mg/m³ (TRA Workers 3.0)	0.203
Inhalation, systemic, acute	24.29 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.634
Combined, systemic, long term		0.837

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	3.037 mg/m³ (TRA Workers 3.0)	0.509
Inhalation, systemic, acute	12.14 mg/m³ (TRA Workers 3.0)	0.086

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.607 mg/m³ (TRA Workers 3.0)	0.102
Inhalation, systemic, acute	24.29 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.183

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

Route of exposure and type of effects	Exposure estimate	RCR

Inhalation, systemic, long term	1.215 mg/m³ (TRA Workers 3.0)	0.203
Inhalation, systemic, acute	24.29 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.285

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

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

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

5.1. Title section

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

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

Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.

5.2.2. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Product (article) characteristics

Liquid
Covers concentrations up to 1 %
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Occupational Health and Safety Management System; Basic
Local exhaust ventilation; No.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 ℃

Specific conditions of use per contributing scenario

Contributing scenario	Specific conditions of use
Professional use of maintenance products; CS8-u; Leather care product. Automatic process; AISE-P605 (PROC 2)	Covers use up to 8 h/day Respiratory protection; No. Personal protection; dermal; No. Body parts potentially exposed; Two hands face only (480 cm2)
Professional use of maintenance products; CS8-p; Leather care product. Automatic process; AISE-P605 (PROC 8b)	Covers use up to 1 h/day Respiratory protection; No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2)
Professional use of maintenance products; CS4-u; Furniture care product. Manual process; AISE-P601; Furniture care product. Spray and wipe manual process; AISE-P602; CS6-u; Leather care product. Manual process; AISE-P603; CS7-u1; Leather care product. Spray and wipe manual process; AISE-P604; CS10-u1; Stainless steel care. Spray and wipe manual process; AISE-P609 (PROC 10)	Covers use up to 4 h/day 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 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2)
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 use up to 8 h/day 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 Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Two hands (960 cm2)
Professional use of maintenance products; CS5-u2; Furniture care product. Spray and wipe manual process; AISE-P602; CS7-u2; Leather care product. Spray and wipe manual process; AISE-P604; CS10-u1; Stainless steel care. Spray and wipe manual process; AISE-P609 (PROC 11)	Covers use up to 0.25 h/day 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 Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2)

Professional use of maintenance products; CS3-u2; Polish / impregnating agent. Spray and wipe manual process; AISE-P408 (PROC 11)	Covers use up to 1 h/day Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2)
Professional uses; Mixing or blending in batch processes; Uses in cosmetics/personal care products, perfumes and fragrances (PROC 5)	Covers use up to 8 h/day 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; Transfer of substance or mixture (charging/discharging) at non dedicated-facilities; Uses in cosmetics/personal care products, perfumes and fragrances (PROC 8a)	Covers use up to 8 h/day 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

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

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	3.037 mg/m³ (TRA Workers 3.0)	0.509
Inhalation, systemic, acute	12.14 mg/m³ (TRA Workers 3.0)	0.086
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.59

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	1.215 mg/m³ (TRA Workers 3.0)	0.203
Inhalation, systemic, acute	24.29 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.285

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	0.911 mg/m³ (TRA Workers 3.0)	0.153

Inhalation, systemic, acute	6.074 mg/m³ (TRA Workers 3.0)	0.043
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.162
Combined, systemic, long term		0.315

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	1.519 mg/m³ (TRA Workers 3.0)	0.254
Inhalation, systemic, acute	6.074 mg/m³ (TRA Workers 3.0)	0.043
Dermal, systemic, long term	0.549 mg/kg bw/day (TRA Workers 3.0)	0.325
Combined, systemic, long term		0.579

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	0.607 mg/m³ (TRA Workers 3.0)	0.102
Inhalation, systemic, acute	24.29 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.634
Combined, systemic, long term		0.736

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.607 mg/m³ (TRA Workers 3.0)	0.102
Inhalation, systemic, acute	12.14 mg/m³ (TRA Workers 3.0)	0.086
Dermal, systemic, long term	1.071 mg/kg bw/day (TRA Workers 3.0)	0.634
Combined, systemic, long term		0.736

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.607 mg/m³ (TRA Workers 3.0)	0.102
Inhalation, systemic, acute	2.43 mg/m³ (TRA Workers 3.0)	0.017
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.183

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)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.519 mg/m³ (TRA Workers 3.0)	0.254
Inhalation, systemic, acute	6.074 mg/m³ (TRA Workers 3.0)	0.043
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.081
Combined, systemic, long term		0.335

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

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

parameters and determinants between data presented in the Exposure Scenario (ES) and the data available from the Downstream User to determine the risk characterisation ratios (RCR) under the operational conditions of the DU (eg. quantity of substance used per year and site, emission fraction to water, number of emission days).

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

6.1. Title section

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

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

6.2. Conditions of use affecting exposure

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

Amount used, frequency and duration of use (or from service life)
Daily local widespread use amount; <=; 2.75E-4; tonnes/day
Other conditions affecting environmental exposure
Municipal sewage treatment plant is assumed.

6.2.2. Control of consumer exposure: CS1; Consumer uses; Laundry and dish washing products; LAUNDRY REGULAR (powder, liquid) for consumer use; AISE-C1; LAUNDRY COMPACT (powder, liquid/gel, tablet) for consumer use; AISE-C2; FABRIC CONDITIONERS (liquid regular, liquid concentrate) for consumer use; AISE-C3; LAUNDRY ADDITIVES (powder bleach, liquid bleach, tablet) for consumer use; AISE-C4; HAND DISHWASHING (liquid regular, liquid concentrate) for consumer use; AISE-C5; MACHINE DISHWASHING (powder, liquid, tablet) for consumer use; AISE-C6; LAUNDRY AIDS (ironing aids-starch spray, ironing aids-other) for consumer use; AISE-C12 (PC 35)

Product (article) characteristics
Covers concentrations up to 0.3 %
Physical form of product; Liquids
Exposure route; dermal; Yes
Inhalation exposure is considered to be not relevant.
Oral exposure is considered to be not relevant.

Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 events per day
Frequency of use over a year; Frequent
Information and behavioral advice for consumers
Covers adult use.
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.
dermal; transfer factor; =; 1

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

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

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

Product (article) characteristics
Physical form of product; Liquids
Covers concentrations up to 0.1 %
Exposure route; dermal; Yes
Exposure route; Inhalation
No spraying
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 0.2 h/event
Covers use up to 1 events per day
For each use event, covers use amounts up to 30 g/event
Frequency of use over a year; Frequent

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

6.3. Exposure estimation and reference to its source

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

Release route	Release rate	Release estimation method
Water	0.275 kg/day	ERC
Air	0.275 kg/day	ERC
Soil	0.055 kg/day	ERC

Protection target	Exposure estimate	RCR
Fresh water	1.33E-3 mg/L (EUSES 2.1.2)	0.544
Sediment (freshwater)	0.67 mg/kg dw (EUSES 2.1.2)	0.544
Marine water	1.32E-4 mg/L (EUSES 2.1.2)	0.54
Sediment (marine water)	0.067 mg/kg dw (EUSES 2.1.2)	0.541
Sewage Treatment Plant	0.013 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.256 mg/kg dw (EUSES 2.1.2)	0.048
Predator's prey (freshwater)	0.401 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	0.04 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	0.011 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.349 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	6.08E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	4.24E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

6.3.2. Consumer exposure: CS1; Consumer uses; Laundry and dish washing products; LAUNDRY REGULAR (powder, liquid) for consumer use; AISE-C1; LAUNDRY COMPACT (powder, liquid/gel, tablet) for consumer use; AISE-C2; FABRIC CONDITIONERS (liquid regular, liquid concentrate) for consumer use; AISE-C3; LAUNDRY ADDITIVES (powder bleach, liquid bleach, tablet) for consumer use; AISE-C4; HAND DISHWASHING (liquid regular, liquid concentrate) for consumer use; AISE-C5; MACHINE DISHWASHING (powder, liquid, tablet) for consumer use; AISE-C6; LAUNDRY AIDS (ironing aids-starch spray, ironing aids-other) for consumer use; AISE-C12 (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Consumers 3.1)	0.709
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.709

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

AISE-C22 (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Dermal, systemic, long term	0.143 mg/kg bw/day (TRA Consumers 3.1)	0.236
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.236

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.013 mg/m³ (TRA Consumers 3.1)	0.013
Dermal, systemic, long term	0.143 mg/kg bw/day (TRA Consumers 3.1)	0.236
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.249

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

Guidance: The environmental exposure to all end-use products (professional and consumer) has been combined. Some products will be completely discharged down the drain (rinse-off cosmetics, laundry detergents) whereas others will not be discharged to the sewer (shoe polish, dry cleaning). By nature air fresheners will end up in the air. By using 100% release to water and 100% to air, all consumer end-use products can be covered in one scenario. The main use of products containing fragrance substances is ERC8a (wide dispersive indoor use). The IFRA guideline (2012) also identifies ERC8d (wide dispersive outdoor use) as being relevant for the consumer end-use of washing and cleaning products (GES6) and consumer end-use of biocides (GES 8). Release rates are more conservative for ERC8d. The release factors to water and air are the same as ERC8a but an additional release of 20% to soil is assumed in the ERC for outdoor use. Therefore the assessment on the basis of ERC8d covers also ERC8a
Scaling instructions: As the environmental release factor depends on site specific operational conditions and risk management measures, Downstream Users (DU) are advised to demonstrate that a safe use is given for the amounts used at their site. Scaling may be a suitable option in this case, (ECHA Guidance for downstream users and Guidance on the compilation of safety data sheets). Scaling is a comparison of linear input parameters and determinants between data presented in the Exposure Scenario (ES) and the data available from the Downstream User to determine the risk characterisation ratios (RCR) under the operational conditions of the DU (eg. quantity of substance used per year and site, emission fraction to water, number of emission days).

7. ES 7: Consumer use; Air care products

7.1. Title section

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

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

7.2. Conditions of use affecting exposure

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

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

use; AISE-C17 (PC 3)

Product (article) characteristics
Covers concentrations up to 0.15 %
Physical form of product; Liquid for spraying (spraying can)
Exposure route; dermal; No.
Exposure route; Inhalation; Yes
Spraying; Yes
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 0.25 h/event
Covers use up to 1 events per day
For each use event, covers use amounts up to 10 g/event
Frequency of use over a year; Frequent
Information and behavioral advice for consumers
Indoor use
Covers adult use.
Other conditions affecting consumers exposure
Inhalation; transfer factor; =; 1

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

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

7.3. Exposure estimation and reference to its source

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

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

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	0.652 mg/m³ (TRA Consumers 3.1)	0.621
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		0.621

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

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

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

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

8. ES 8: Consumer use; Biocidal Products

8.1. Title section

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

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

8.2. Conditions of use affecting exposure

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

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

Product (article) characteristics
Covers concentrations up to 0.03 %
Physical form of product; Liquids
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
No spraying
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 0.02 h/event

Covers use up to 1 events per day
For each use event, covers use amounts up to 20 g/event
Frequency of use over a year; Covers use up to ; 2; weeks per year
Information and behavioral advice for consumers
Indoor use
Covers adult use.
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to upper part of the body.
Inhalation; transfer factor; =; 1
dermal; transfer factor; =; 1

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

Product (article) characteristics
Physical form of product; Liquids
Covers concentrations up to 0.03 %
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
Spraying; Yes
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 0.02 h/event
Covers use up to 1 events per day
For each use event, covers use amounts up to 20 g/event
Frequency of use over a year; Covers use up to ; 2; weeks per year
Information and behavioral advice for consumers
Outdoor use
Covers adult use.
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to upper part of the body.
Inhalation; transfer factor; =; 1
dermal; transfer factor; =; 1

8.3. Exposure estimation and reference to its source

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

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

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.96E-3 mg/m³ (TRA Consumers 3.1)	< 0.01
Dermal, systemic, long term	0.437 mg/kg bw/day (TRA Consumers 3.1)	0.723
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.726

8.3.3. Consumer exposure: CS2; Consumer uses; REPELLENTS for consumer use; AISE-C19

(PC 8)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.057 mg/m³ (TRA Consumers 3.1)	0.054
Dermal, systemic, long term	0.437 mg/kg bw/day (TRA Consumers 3.1)	0.723
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.778

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

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

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

9.1. Title section

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

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

9.2. Conditions of use affecting exposure

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

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

Product (article) characteristics
Covers concentrations up to 0.5 %
Physical form of product; Liquids
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
No spraying
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 4 h/event
Covers use up to 1 events per day
For each use event, covers use amounts up to 10 g/event
Frequency of use over a year; Frequent
Information and behavioral advice for consumers
Indoor use

Covers adult use.
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to inside hands / one hand / palm of 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
Physical form of product; Liquids
Covers concentrations up to 0.04 %
Exposure route; dermal; Yes
Exposure route; Inhalation; Yes
Spraying; Yes
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 4 h/event
Covers use up to 1 events per day
For each use event, covers use amounts up to 135 g/event
Frequency of use over a year; Covers use up to ; 2; weeks per year
Information and behavioral advice for consumers
Indoor use
Covers adult use.
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Inhalation; transfer factor; =; 1
dermal; transfer factor; =; 1

9.3. Exposure estimation and reference to its source

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

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

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	7.35E-3 mg/m³ (TRA Consumers 3.1)	< 0.01
Dermal, systemic, long term	0.357 mg/kg bw/day (TRA Consumers 3.1)	0.591
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.598

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.794 mg/m³ (TRA Consumers 3.1)	0.756
Dermal, systemic, long term	0.029 mg/kg bw/day (TRA Consumers 3.1)	0.047

Administrative information:
Report Information: SDS_FR/EN/GHS_SDS_EU_CNTRY/44
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 31 882 959/27 457 272

Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.804

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

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

10. ES 10: Consumer use; Various products; 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 8a
Consumer	
2: Perfumes, fragrances	PC 28
3: Cosmetics, personal care products	PC 39

10.2. Conditions of use affecting exposure

10.2.1. Control of environmental exposure: GES 10; Consumer (and Professional) end-use of cosmetics (ERC 8a)

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

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

10.3. Exposure estimation and reference to its source

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

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

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

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

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

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