according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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

1.1 Product identifier

Sales No. : 1489703

NYMPHEAL

Substance name

Identifier

: 3-(4-isobutyl-2-methylphenyl)propanal

CAS-No.: 1637294-12-2 EC-No.: 811-285-3

Formula: C14H20O

REACH Registration Number : 01-2120103156-71

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

Intended Use Fragrances : Perfumery ingredient

1.3 Details of the supplier of the safety data sheet

Company

Givaudan Suisse SA Chemin de la Parfumerie 5

CH-1214 VERNIER

Telephone : +41227809111 Telefax : +41227809150

E-mail address : global.sds_info@givaudan.com

Responsible/issuing person

1.4 Emergency Call

Givaudan 24/7 call +33172110003

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

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

H332: Harmful if inhaled. Acute toxicity, Category 4 Skin irritation, Category 2 H315: Causes skin irritation.

ye irritation, Category 2 H319: Causes serious eye irritation. kin sensitisation, Sub-category 1B H317: May cause an allergic skin reaction.

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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024



2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms





Signal word : Warning

Hazard statements : H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention**:

P261 Avoid breathing mist or vapours.
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.

P280 Wear protective gloves/ eye protection/ face

protection.

Response:

P304 + P340 + P312 IF INHALED: Remove person to fresh

air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel

unwell.

P391 Collect spillage.

Hazardous components which must be listed on the label:

• 3-(4-isobutyi-2- 1637294-12-2 methylphenyl)propanal

2.3 Other hazards

Hazards not Otherwise : None

Classified.

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

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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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
3-(4-isobutyl-2- methylphenyl)propanal	1637294-12-2 811-285-3 01-2120103156-71	>= 90 - <= 100	

SECTION 4. First aid measures

4.1 Description of first aid measures

General advice : Move out of dangerous area.

Show this safety data sheet to the doctor in attendance.

Do not leave the victim unattended.

If inhaled : Move to fresh air.

If unconscious, place in recovery position and seek medical

advice.

If symptoms persist, call a physician.

In case of skin contact : If skin irritation persists, call a physician.

If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Remove contact lenses.

Immediately flush eyes for at least 15 minutes. Get medical

attention.

If swallowed : Keep respiratory tract clear.

Do not give milk or alcoholic beverages.

Never give anything by mouth to an unconscious person.

If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : no data available

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Risks : Causes skin irritation.

> May cause an allergic skin reaction. Causes serious eye irritation.

Harmful if inhaled.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : no data available

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Dry chemical

> Alcohol-resistant foam Carbon dioxide (CO2)

Water spray

Unsuitable extinguishing

media

: High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during

firefighting

: Do not allow run-off from fire fighting to enter drains or water

courses.

5.3 Advice for firefighters

Special protective equipment

for firefighters

: Wear self-contained breathing apparatus for firefighting if

necessary.

Further information : Collect contaminated fire extinguishing water separately. This

must not be discharged into drains.

Fire residues and contaminated fire extinguishing water must

be disposed of in accordance with local regulations.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : no data available

6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains.

If the product contaminates rivers and lakes or drains inform

respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel,

acid binder, universal binder, sawdust).

Keep in suitable, closed containers for disposal.

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

6.4 Reference to other sections

Not applicable

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid formation of aerosol.

Do not breathe vapours/dust.

Avoid exposure - obtain special instructions before use.

Avoid contact with skin and eyes. For personal protection see section 8.

Smoking, eating and drinking should be prohibited in the

application area.

Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national

regulations.

Advice on protection against

fire and explosion

: Normal measures for preventive fire protection.

Temperature class : no data available Fire-fighting class : no data available Dust explosion class : no data available

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage

areas and containers

: Keep container tightly closed in a dry and well-ventilated

place.

Containers which are opened must be carefully resealed and

kept upright to prevent leakage.

Electrical installations / working materials must comply with

the technological safety standards.

Further information on

storage conditions

: Store Ambient 10-30℃ (50-85℃)

Dry, well ventilated, preferably full, hermetically sealed

Advice on common storage

: Protect against light.Store under nitrogen: 10 Combustible liquids

Storage class (TRGS 510) 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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Contains no substances with occupational exposure limit values.

DNEL : End Use: Consumer use

Exposure routes: Dermal

Potential health effects: Long-term local effects

Value: 0,08929 mg/cm2

DNEL : End Use: Consumer use

Exposure routes: Dermal

Potential health effects: Long-term systemic effects

Value: 0,42 mg/kg bw/day

DNEL : End Use: Consumer use

Exposure routes: Inhalation

Potential health effects: Long-term systemic effects

Value: 0,435 mg/m3

DNEL : End Use: Consumer use

Exposure routes: Oral

Potential health effects: Long-term systemic effects

Value: 0,25 mg/kg bw/day

DNEL : End Use: Workers

Exposure routes: Dermal

Potential health effects: Long-term local effects

Value: 0,17857 mg/cm2

DNEL : End Use: Workers

Exposure routes: Dermal

Potential health effects: Long-term systemic effects

Value: 0,83 mg/kg bw/day

DNEL : End Use: Workers

Exposure routes: Inhalation

Potential health effects: Long-term systemic effects

Value: 2,47 mg/m3

PNEC : Fresh water

Value: 0,0064 mg/l

PNEC : Marine water

Value: 0,00064 mg/l

PNEC : Oral

Value: 5,0 mg/kg

PNEC : Fresh water sediment

Value: 1,3 mg/kg dry weight (d.w.)

PNEC : Marine sediment

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Value: 0,13 mg/kg dry weight (d.w.)

PNEC : Soil

Value: 0,256 mg/kg dry weight (d.w.)

PNEC : Sewage treatment plant

Value: 1,0 mg/l

8.2 Exposure controls

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

PPE is always the last resort to avoid exposure. In any case technical and organisational measures have to be explored and used prior to the selection of PPE. The PPE selection is for operators trained to work with chemicals according to good industrial hygiene and safety practice. Operators have to be trained on the use of PPE.

8.2.1 Engineering measures

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

8.2.2 Personal protective equipment

Eye/face protection : Use safety goggles and faceshield 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.

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01 Shipping Order Information: 29 030 297/24 588 809

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Other skin protection : Wear working clothes covering arms and legs.

The type of protective equipment must be selected according to the concentration and amount of the hazardous substance at the specific workplace. Use apron and sleeve covers or

complete chemical suit if exposure is expected.

Respiratory protection : Respiratory protection should be worn when workplace

exposures exceed exposure limit requirements or guidelines. If there are no applicable exposure limits or guidelines, use an approved respirator where there is a potential for adverse effects, including but not limited to respiratory irritation or odor, or where indicated by the exposure assessment. Selection of air-purifying or positive-pressure supplied-air will depend on the results of the exposure assessment which includes an evaluation of the specific operations and the potential airborne concentrations. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

In case a risk analysis proved the cartridge respirator as

acceptable, use type:

ABEK-P3 (EN 14387) OR Combination Multi-gas/P100 (42CFR84.193; ANSI Z88.7 or equivalent local standard) as a

backup to engineering controls.

In absence of engineering controls, use self-contained breathing apparatus or full face supplied air respirators. Use respirators and components tested and approved under appropriate government standards such as CEN (EU) or

NIOSH 42 CFR 84(US).

Thermal hazards : Wear appropriate thermal protective clothing, when

necessary.

Hygiene measures : Remove contaminated clothing and protective equipment

before entering eating areas.

Do not eat, drink or smoke during work.

Wash hands any time after handling the product.

8.2.3 Environmental exposure controls

General advice : Prevent product from entering drains.

If the product contaminates rivers and lakes or drains inform

respective authorities.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid Form : liquid

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Colour : colorless to Pale yellow

Taste : not determined

: Floral, Aldehydic, Green, Lily-of-the-valley Odour

Odour Threshold : 0,06 ng/l

Flash point : 144,5 °C Method: Pensky-Martens closed cup Regulation

(EC) No. 440/2008, Annex, A.9

: not determined Lower explosion limit 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.

: 395 ℃ Method: A15 Auto-ignition temperature Decomposition temperature : no data available Molecular weight 204,2 g/mol : no data available

Melting point : < -50 ℃

Method: OECD Test Guideline 102

Boiling point : 284 ℃ at 1 013 hPa

Method: OECD Test Guideline 103

Vapour pressure : 0.001 hPa at 20 ℃

Method: OECD Test Guideline 104

: 950,28 kg/m3 at 20 ℃ Density Bulk density : Not applicable Water solubility : 24,5 mg/l at 20 ℃

Method: OECD Test Guideline 105

Solubility/qualitative
Partition coefficient: n-: practically insoluble : log Pow: 3,7

octanol/water Method: OECD Test Guideline 117

Viscosity, kinematic : no data available Relative vapour density : no data available

Surface tension : 45,9 mN/m Method: OECD Test Guideline 115

Evaporation rate : no data available : Not explosive Explosive properties

9.2 Other information

Not applicable

SECTION 10. Stability and reactivity

10.1 Reactivity

none

10.2 Chemical stability

The product is chemically stable.

10.3 Possibility of hazardous reactions

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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

10.4 Conditions to avoid

Conditions to avoid : no data available

10.5 Incompatible materials

Materials to avoid : no data available

10.6 Hazardous decomposition products

Hazardous decomposition : no data available

products

Thermal decomposition : no data available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity : LD50 Rat

Dose: > 2 000 mg/kg

Method: OECD Test Guideline 420

Acute inhalation toxicity : LC50 Rat

> Exposure time: 4 h Dose: > 1,00 mg/l

Acute inhalation toxicity

Acute dermal toxicity : LD50 Dermal Rat

Dose: > 2 000 mg/kg

Method: OECD Test Guideline 402

of administration)

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

Skin corrosion/irritation

Skin irritation : Species: In vitro

Skin irritation

Method: OECD Test Guideline 439

Serious eye damage/eye irritation

Eye irritation Species: Rabbit

Mild eye irritation

Method: OECD Test Guideline 405

Respiratory or skin sensitisation

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

: LLNA Sensitisation

> Result: Causes sensitisation. Method: OECD Test Guideline 429

Germ cell mutagenicity

Genotoxicity in vitro : Ames test

Escherichia coli

negative

Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test

mouse lymphoma cells

negative

Method: OECD Test Guideline 490

Micronucleus test **Human lymphocytes**

negative

Method: OECD Test Guideline 487

Carcinogenicity

Carcinogenicity : No data is available on the product itself.

Reproductive toxicity

Not classified based on available information.

Effects on foetal development

Test Type: reproductive and developmental toxicity study

Species: Rat, male and female

Strain: wistar

Application Route: Dermal

General Toxicity Maternal: NOAEL: > 250 mg/kg body weight Developmental Toxicity: NOAEL F1: > 250 mg/kg body weight

Method: OECD Test Guideline 421

Result: Not classified

GLP: yes

Target Organ Systemic Toxicant - Single exposure

Target Organ Systemic : No data is available on the product itself.

Toxicant - Single exposure

Target Organ Systemic Toxicant - Repeated exposure

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Target Organ Systemic Toxicant - Repeated

: Species: Rat, male and female Application Route: Oral

NOAEL: 150 mg/kg exposure

Method: OECD Test Guideline 407

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:

LC50 (Danio rerio (zebra fish)): 1,09 mg/l Toxicity to fish

Exposure time: 96 h Test Type: semi-static test

Method: OECD Test Guideline 203

GLP: yes

aquatic invertebrates

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 1,01 mg/l

Exposure time: 48 h Test Type: Immobilization

Method: OECD Test Guideline 202

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

GLP: yes

Toxicity to algae/aquatic

plants

ErC50 (Desmodesmus subspicatus (green algae)): 1,55 mg/l

Exposure time: 72 h

Test Type: Growth inhibition Method: OECD Test Guideline 201

GLP: yes

NOEC (Desmodesmus subspicatus (green algae)): 0,123 mg/l

Exposure time: 72 h

Test Type: Growth inhibition Method: OECD Test Guideline 201

GLP: yes

Toxicity to daphnia and other :

aquatic invertebrates

(Chronic toxicity)

NOEC: 0,32 mg/l Exposure time: 21 d

Method: OECD Test Guideline 211

Toxicity to microorganisms EC50 : > 100 mg/l

Exposure time: 3 h

Method: OECD Test Guideline 209

GLP: yes

12.2 Persistence and degradability

Product:

Biodegradability Result: Not readily biodegradable.

> Biodegradation: 0 % Exposure time: 28 d

Method: OECD Test Guideline 301 F

GLP: yes

Result: Inherently biodegradable.

Biodegradation: 77 % Exposure time: 60 d

Method: OECD Test Guideline 302 C

GLP: yes

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

Product:

: log Koc: 3,3 Distribution among

environmental compartments Method: OECD Test Guideline 121

12.5 Results of PBT and vPvB assessment

Product:

Assessment This substance/mixture contains no components considered

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

> to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of

0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components

> considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at

levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological

information

: An environmental hazard cannot be excluded in the event of

unprofessional handling or disposal.

Toxic to aquatic life with long lasting effects.

SECTION 13. Disposal considerations

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water

courses or the soil.

Do not contaminate ponds, waterways or ditches with

chemical or used container.

Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.

Dispose of as unused product. Do not re-use empty containers.

Dispose of in accordance with local regulations.

SECTION 14. Transport information

14.1 UN number

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

14.2 UN proper shipping name

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(3-(4-isobutyl-2-methylphenyl)propanal)

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(3-(4-isobutyl-2-methylphenyl)propanal)

IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(3-(4-isobutyl-2-methylphenyl)propanal)

IATA : Environmentally hazardous substance, liquid, n.o.s.

(3-(4-isobutyl-2-methylphenyl)propanal)

14.3 Transport hazard class(es)

 ADR
 : 9

 RID
 : 9

 IMDG
 : 9

 IATA
 : 9

14.4 Packing group

ADR : ||||
RID : ||||
IMDG : ||||
IATA : ||||

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 : None

Group

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006



NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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 : Neither banned nor restricted

Concern for Authorisation (Article 59).

Major Accident Hazard : ENVIRONMENTAL HAZARDS

Legislation E

Quantity 1: 200 t Quantity 2: 500 t

Water hazard class : WGK 3 highly hazardous to water

(Germany) Classification according to AwSV, Annex 1 (4)

15.2 Chemical safety assessment

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

SECTION 16. Other information

Full list of Emergency response numbers worldwide.

	Country	Phone nr		Country	Phone nr
	All Europe	+44 1235 239670		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
Europe	Netherlands	+31 10 713 8195	APAC	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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0		Revision Date 26 JUI	V 2023	F	Print Date 11 JAN 2024
VCISION 13.	<u> </u>	TREVISION Date 20 001	1 2020		THIL Date 11 0/11 2024
	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
	All Middle East/Africa	+44 1235 239671		New Zealand	+64 9 929 1483
Middle East/Africa	Bahrain and Middle East	+44 1235 239671		China	+86 532 8388 9090
	Africa/South Africa	+27 21 300 2732		Mexico	+52 55 5004 8763
	USA and Canada	+1 866 928 0789		Brazil	+55 11 3197 5891
NOAM	USA and Canada	+1 215 207 0061	LATAM	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_CH/EN/GHS_SDS_EU_CNTRY/43
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 29 030 297/24 588 809

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0

Revision Date 26 JUN 2023

Print Date 11 JAN 2024

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.

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

SAFETY DATA SHEET Givaudan according to Regulation (EC) No. 1907/2006 **NYMPHEAL** Version 19.0 Print Date 11 JAN 2024 Revision Date 26 JUN 2023

Administrative information:
Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 29 030 297/24 588 809

according to Regulation (EC) No. 1907/2006



NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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

Amount used, frequency and duration of use (or from service life)
Annual amount per site <= 14 tonnes/year
Daily amount per site <= 0.056 tonnes/day

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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 2; 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 <= 0.024 tonnes/day

Annual amount per site <= 6 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

Liauid

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)

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	Covers concentrations up to 25 %
(charging/discharging) at dedicated	Covers use up to 1 h/day
facilities; IFRA F-1 (PROC 8b)	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.

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

	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	Covers concentrations up to 100 %
systems; Filling of articles/equipment;	Covers use up to 4 h/day
With sample collection; IFRA F-3	Room ventilation; Basic; Up to 3 air change per hour
(PROC 3)	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.
CS4; Mixing operations; Open systems	Covers concentrations up to 100 %
Filling of articles/equipment; With	Covers use up to 4 h/day
sample collection; IFRA F-4 (PROC 5)	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or
	enclosing hood type). Ensure effectiveness is at least 90%
	Wear 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	Covers concentrations up to 100 %
laboratory reagent; IFRA F-5 (PROC 15)	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	Covers concentrations up to 25 %
into small containers (dedicated filling	Covers use up to 1 h/day
line, including weighing); IFRA F-6	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
(PROC 9)	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 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.
CS7; Equipment cleaning and	Covers concentrations up to 25 %
maintenance; IFRA F-7 (PROC 8a)	Covers use up to 4 h/day
()	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or
	enclosing hood type). Ensure effectiveness is at least 90%
	Wear 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.
<u> </u>	manus., i or further specification, refer to section o 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) (ERC 2)

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Release route	Release rate	Release estimation method
Water	0.112 kg/day	Estimated release factor
Air	1.4 kg/day	ERC
Soil	0 kg/day	Estimated release factor
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Protection target	Exposure estimate	RCR
Fresh water	4.61E-3 mg/L (EUSES 2.1.2)	0.72
Sediment (freshwater)	0.936 mg/kg dw (EUSES 2.1.2)	0.72
Marine water	4.6E-4 mg/L (EUSES 2.1.2)	0.719
Sediment (marine water)	0.093 mg/kg dw (EUSES 2.1.2)	0.719
Sewage Treatment Plant	0.045 mg/L (EUSES 2.1.2)	0.045
Agricultural soil	0.073 mg/kg dw (EUSES 2.1.2)	0.287
Predator's prey (freshwater)	0.112 mg/kg ww (EUSES 2.1.2)	0.022
Predator's prey (marine water)	0.011 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	3.07E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.045 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	2.68E-4 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.81E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01
ivian via environment - combined routes		

1.3.2. Environmental release and exposure: GES 2; 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	0.12 kg/day	Estimated release factor
Air	0.6 kg/day	ERC
Soil	0 kg/day	Estimated release factor
	3,	

Protection target	Exposure estimate	RCR
Fresh water	4.92E-3 mg/L (EUSES 2.1.2)	0.77
Sediment (freshwater)	1 mg/kg dw (EUSES 2.1.2)	0.769
Marine water	4.92E-4 mg/L (EUSES 2.1.2)	0.768
Sediment (marine water)	0.1 mg/kg dw (EUSES 2.1.2)	0.768
Sewage Treatment Plant	0.048 mg/L (EUSES 2.1.2)	0.048
Agricultural soil	0.078 mg/kg dw (EUSES 2.1.2)	0.306
Predator's prey (freshwater)	0.119 mg/kg ww (EUSES 2.1.2)	0.024
Predator's prey (marine water)	0.012 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	3.21E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.048 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.15E-4 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.31E-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	0.255 mg/m³ (TRA Workers 3.0)	0.103
Dermal, systemic, long term	0.411 mg/kg bw/day (TRA Workers 3.0)	0.496
Dermal, local, long term	0.03 mg/cm² (TRA Workers 3.0)	0.168
Combined, systemic, long term		0.599

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

, ,	Route of exposure and type of effects	Exposure estimate	RCR	
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Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01 Shipping Order Information: 29 030 297/24 588 809

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Inhalation, systemic, long term	1.19E-3 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
Dermal, local, long term	9.92E-5 mg/cm ² (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	0.153 mg/m³ (TRA Workers 3.0)	0.062
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.083
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.113
Combined, systemic, long term		0.145

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.077 mg/m³ (TRA Workers 3.0)	0.031
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.826
Dermal, local, long term	0.1 mg/cm² (TRA Workers 3.0)	0.56
Combined, systemic, long term		0.857

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	0.426 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	0.034 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	9.92E-3 mg/cm ² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.213

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	0.358 mg/m³ (TRA Workers 3.0)	0.145
Dermal, systemic, long term	0.206 mg/kg bw/day (TRA Workers 3.0)	0.248
Dermal, local, long term	0.03 mg/cm ² (TRA Workers 3.0)	0.168
Combined, systemic, long term		0.393

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	0.092 mg/m³ (TRA Workers 3.0)	0.037
Dermal, systemic, long term	0.411 mg/kg bw/day (TRA Workers 3.0)	0.496
Dermal, local, long term	0.03 mg/cm ² (TRA Workers 3.0)	0.168
Combined, systemic, long term		0.533

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_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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

les name: Ges 2; Formulation of fragranced end-products (mixing of fragrance compounds into fragranced end-products)	ducts)
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	ERC 2
2.1.a.v2	
5: IFRA SG-5; AISE SPERC 2.1.k.v2; Cosmetics Europe / AISE SPERC 2.3.b.v2; Cosmetics Europe SPERC	ERC 2
2.1.b.v2	
6: IFRA SG-6; AISE SPERC 2.1.I.v2; Cosmetics Europe / AISE SPERC 2.3.c.v2; Cosmetics Europe SPERC	ERC 2
2.1.c.v2	
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	PROC 2
with equivalent containment conditions	
16: CS7; Transfer of substance or mixture into small containers (dedicated filling line, including weighing); AISE M-	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 <= 0.075 tonnes/day

Annual amount per site <= 18.75 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 <= 0.028 tonnes/day

Annual amount per site <= 7 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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0

Revision Date 26 JUN 2023

Print Date 11 JAN 2024

2.1.i.v2 (ERC 2)

Amount used, frequency and duration of use (or from service life)

Daily amount per site <= 0.023 tonnes/day

Annual amount per site <= 5.75 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 <= 0.021 tonnes/day

Annual amount per site <= 5.25 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 <= 9E-3 tonnes/day

Annual amount per site <= 2.25 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.I.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 <= 9E-3 tonnes/day

Annual amount per site <= 2.25 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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006



NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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 <= 0.032 tonnes/day

Annual amount per site <= 8 tonnes/year

Conditions and measures related to biological sewage treatment plant

Assumed domestic sewage treatment plant flow; >=; 2E3; m3/day

application of the STP sludge on agricultural soil; Yes

Municipal sewage treatment plant is assumed.

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 <= 3E-3 tonnes/day

Annual amount per site <= 0.75 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

iquid

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

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
CS1; Transfer of substance or mixture	Covers concentrations up to 25 %
(charging/discharging) at dedicated	Covers use up to 1 h/day
facilities; AISE M-6 (PROC 8b)	Room ventilation; Basic; Up to 3 air change per hour
	Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation
	by spray booth according to EN 16985. Ensure effectiveness is at least 95%.
	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If
	skin contamination is expected to extend to other parts of the body, then these body parts should

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Print Date 11 JAN 2024 Revision Date 26 JUN 2023

	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.
CS2; Laboratory activities; Use as	Covers concentrations up to 25 %
laboratory reagent; AISE M-9 (PROC 15)	·
	Room ventilation; Basic; Up to 3 air change per hour
	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or
	enclosing hood type). Ensure effectiveness is at least 90%
	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If
	skin contamination is expected to extend to other parts of the body, then these body parts should
	also be protected with impervious garments in a manner equivalent to those described for the
	hands.; For further specification, refer to section 8 of the SDS.
	Respiratory protection; No.
CS3; Storage; AISE M-1 (PROC 1)	Covers concentrations up to 25 %
	Covers use up to 1 h/day
	Room ventilation; Basic; Up to 3 air change per hour
	Local exhaust ventilation; No.
	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.
CS4; Mixing operations; Closed	Covers concentrations up to 25 %
systems; Filling of articles/equipment;	Covers use up to 4 h/day
With sample collection; AISE M-3	Room ventilation; Basic; Up to 3 air change per hour
(PROC 3)	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or
(enclosing hood type). Ensure effectiveness is at least 90%
	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If
	skin contamination is expected to extend to other parts of the body, then these body parts should
	also be protected with impervious garments in a manner equivalent to those described for the
	hands.; For further specification, refer to section 8 of the SDS.
	Respiratory protection; No.
CS5; Mixing or blending in batch	Covers concentrations up to 25 %
processes; Open systems; With sample	Covers use up to 4 h/day
collection; AISE M-5 (PROC 5)	Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or
	enclosing hood type). Ensure effectiveness is at least 90%
	Wear chemically resistant gloves (tested to EN374) in combination with 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 10 (APF >= 10). For further
CS6; Equipment cleaning and	specification, refer to section 8 of the SDS Covers concentrations up to 1 %
maintenance (PROC 8a)	Covers use up to 4 h/day
maintenance (Fixoc oa)	Room ventilation; Basic; Up to 3 air change per hour
	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or
	enclosing hood type). Ensure effectiveness is at least 90%
	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If
	skin contamination is expected to extend to other parts of the body, then these body parts should
	also be protected with impervious garments in a manner equivalent to those described for the
	hands.; For further specification, refer to section 8 of the SDS.
	Respiratory protection; No.
Chemical production or refinery in	Covers concentrations up to 25 %
closed continuous process with	Covers use up to 1 h/day
occasional controlled exposure or	Room ventilation; Basic; Up to 3 air change per hour
processes with equivalent containment	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or
conditions (PROC 2)	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.

Administrative information:
Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43
Sales & Distribution Information: VE01/FR/CH11/01
Shipping Order Information: 29 030 297/24 588 809

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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CS7; Transfer of substance or mixture	Covers concentrations up to 1 %
into small containers (dedicated filling	Covers use up to 1 h/day
line, including weighing); AISE M-7	Room ventilation; Basic; Up to 3 air change per hour
(PROC 9)	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or
	enclosing hood type). Ensure effectiveness is at least 90%
	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If
	skin contamination is expected to extend to other parts of the body, then these body parts should
	also be protected with impervious garments in a manner equivalent to those described for the
	hands.; For further specification, refer to section 8 of the SDS.
	Respiratory protection; No.
CS8; Tabletting, compression,	Covers concentrations up to 1 %
extrusion or pelletisation; AISE M-8	Covers use up to 8 h/day
(PROC 14)	Room ventilation; Basic; Up to 3 air change per hour
	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or
	enclosing hood type). Ensure effectiveness is at least 90%
	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If
	skin contamination is expected to extend to other parts of the body, then these body parts should
	also be protected with impervious garments in a manner equivalent to those described for the
	hands.; For further specification, refer to section 8 of the SDS.
	Respiratory protection; No.

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	7.5E-3 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	4.63E-4 mg/L (EUSES 2.1.2)	0.072
Sediment (freshwater)	0.094 mg/kg dw (EUSES 2.1.2)	0.072
Marine water	4.55E-5 mg/L (EUSES 2.1.2)	0.071
Sediment (marine water)	9.24E-3 mg/kg dw (EUSES 2.1.2)	0.071
Sewage Treatment Plant	2.98E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	4.96E-3 mg/kg dw (EUSES 2.1.2)	0.019
Predator's prey (freshwater)	0.018 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	1.72E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.18E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	3.24E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.02E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	8.16E-5 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	0.028 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	1.28E-3 mg/L (EUSES 2.1.2)	0.199
Sediment (freshwater)	0.259 mg/kg dw (EUSES 2.1.2)	0.199

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Marine water	1.27E-4 mg/L (EUSES 2.1.2)	0.198
Sediment (marine water)	0.026 mg/kg dw (EUSES 2.1.2)	0.198
Sewage Treatment Plant	0.011 mg/L (EUSES 2.1.2)	0.011
Agricultural soil	0.018 mg/kg dw (EUSES 2.1.2)	0.071
Predator's prey (freshwater)	0.036 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	3.57E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.55E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.011 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.05E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.31E-4 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	0.046 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	1.99E-3 mg/L (EUSES 2.1.2)	0.311
Sediment (freshwater)	0.404 mg/kg dw (EUSES 2.1.2)	0.311
Marine water	1.98E-4 mg/L (EUSES 2.1.2)	0.31
Sediment (marine water)	0.04 mg/kg dw (EUSES 2.1.2)	0.31
Sewage Treatment Plant	0.018 mg/L (EUSES 2.1.2)	0.018
Agricultural soil	0.03 mg/kg dw (EUSES 2.1.2)	0.117
Predator's prey (freshwater)	0.052 mg/kg ww (EUSES 2.1.2)	0.01
Predator's prey (marine water)	5.2E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.88E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.018 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.08E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	3.62E-4 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

Release route	Release rate	Release estimation method
Water	0.021 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	9.98E-4 mg/L (EUSES 2.1.2)	0.156
Sediment (freshwater)	0.203 mg/kg dw (EUSES 2.1.2)	0.156
Marine water	9.91E-5 mg/L (EUSES 2.1.2)	0.155
Sediment (marine water)	0.02 mg/kg dw (EUSES 2.1.2)	0.155
Sewage Treatment Plant	8.35E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.014 mg/kg dw (EUSES 2.1.2)	0.054
Predator's prey (freshwater)	0.03 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	2.94E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.43E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	8.55E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.04E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.8E-4 mg/kg bw/day (EUSES 2.1.2)	< 0.01

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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	0.018 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	8.79E-4 mg/L (EUSES 2.1.2)	0.137
Sediment (freshwater)	0.179 mg/kg dw (EUSES 2.1.2)	0.137
Marine water	8.72E-5 mg/L (EUSES 2.1.2)	0.136
Sediment (marine water)	0.018 mg/kg dw (EUSES 2.1.2)	0.136
Sewage Treatment Plant	7.16E-3 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	0.012 mg/kg dw (EUSES 2.1.2)	0.046
Predator's prey (freshwater)	0.027 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	2.67E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.37E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	7.37E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.04E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.58E-4 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

2.3.6. Environmental release and exposure: IFRA SG-6; AISE SPERC 2.1.I.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	0.036 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	1.59E-3 mg/L (EUSES 2.1.2)	0.249
Sediment (freshwater)	0.324 mg/kg dw (EUSES 2.1.2)	0.249
Marine water	1.59E-4 mg/L (EUSES 2.1.2)	0.248
Sediment (marine water)	0.032 mg/kg dw (EUSES 2.1.2)	0.248
Sewage Treatment Plant	0.014 mg/L (EUSES 2.1.2)	0.014
Agricultural soil	0.023 mg/kg dw (EUSES 2.1.2)	0.092
Predator's prey (freshwater)	0.043 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	4.29E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.7E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.014 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.06E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.89E-4 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Fresh water	1.65E-4 mg/L (EUSES 2.1.2)	0.026
Sediment (freshwater)	0.034 mg/kg dw (EUSES 2.1.2)	0.026
Marine water	1.58E-5 mg/L (EUSES 2.1.2)	0.025
Sediment (marine water)	3.2E-3 mg/kg dw (EUSES 2.1.2)	0.025
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	8.48E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	0.011 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	2.84E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.01E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.69E-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	0.06 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	2.54E-3 mg/L (EUSES 2.1.2)	0.398
Sediment (freshwater)	0.517 mg/kg dw (EUSES 2.1.2)	0.398
Marine water	2.54E-4 mg/L (EUSES 2.1.2)	0.396
Sediment (marine water)	0.052 mg/kg dw (EUSES 2.1.2)	0.396
Sewage Treatment Plant	0.024 mg/L (EUSES 2.1.2)	0.024
Agricultural soil	0.039 mg/kg dw (EUSES 2.1.2)	0.153
Predator's prey (freshwater)	0.065 mg/kg ww (EUSES 2.1.2)	0.013
Predator's prey (marine water)	6.46E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	2.13E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.024 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.1E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	4.65E-4 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	0.255 mg/m³ (TRA Workers 3.0)	0.103
Dermal, systemic, long term	0.411 mg/kg bw/day (TRA Workers 3.0)	0.496
Dermal, local, long term	0.03 mg/cm² (TRA Workers 3.0)	0.168
Combined, systemic, long term		0.599

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	0.255 mg/m³ (TRA Workers 3.0)	0.103
Dermal, systemic, long term	0.02 mg/kg bw/day (TRA Workers 3.0)	0.025
Dermal, local, long term	5.95E-3 mg/cm ² (TRA Workers 3.0)	0.033
Combined, systemic, long term		0.128

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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01 Shipping Order Information: 29 030 297/24 588 809

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023

Print Date 11 JAN 2024

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.01 mg/m³ (TRA Workers 3.0)	< 0.01
Dermal, systemic, long term	2.04E-3 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Dermal, local, long term	5.95E-4 mg/cm ² (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	0.919 mg/m³ (TRA Workers 3.0)	0.372
Dermal, systemic, long term	0.041 mg/kg bw/day (TRA Workers 3.0)	0.05
Dermal, local, long term	0.012 mg/cm ² (TRA Workers 3.0)	0.068
Combined, systemic, long term		0.422

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.046 mg/m³ (TRA Workers 3.0)	0.019
Dermal, systemic, long term	0.411 mg/kg bw/day (TRA Workers 3.0)	0.496
Dermal, local, long term	0.06 mg/cm² (TRA Workers 3.0)	0.336
Combined, systemic, long term		0.514

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	0.511 mg/m³ (TRA Workers 3.0)	0.207
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.372

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	0.102 mg/m³ (TRA Workers 3.0)	0.041
Dermal, systemic, long term	0.082 mg/kg bw/day (TRA Workers 3.0)	0.099
Dermal, local, long term	0.012 mg/cm ² (TRA Workers 3.0)	0.067
Combined, systemic, long term		0.14

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	0.085 mg/m³ (TRA Workers 3.0)	0.034
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.083
Dermal, local, long term	0.01 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.117

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	0.426 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	0.034 mg/kg bw/day (TRA Workers 3.0)	0.041
Dermal, local, long term	5E-3 mg/cm² (TRA Workers 3.0)	0.028
Combined, systemic, long term		0.214

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,

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006



NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023

Print Date 11 JAN 2024

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)

Froduct category. Washing and Cleaning Froducts (FC 33)	
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
AISE-F107, CSF41, Lauritity and (noirgasing). Automatic process, AISE-F104 4: Industrial use; Dedicated equipment; Pharmaceuticals; CS21-u; Disinfection product. Semi-automatic process; AISE-R810	PROC 4
S: 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 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 PROC 7
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	
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	PROC 10
Administrative information:	

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006



NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

process; AISE-P714

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

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

Draduct	(article)	characteri	ctice

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	Covers use up to 8 h/day
pharmaceutical products; CS13-u; Food	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
process cleaner. Cleaning In place (CIP)	Local exhaust ventilation; No.
process; AISE-P801; CS17-u;	Respiratory protection; No.
Defoaming product. Automatic	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If
process; AISE-P805 (PROC 1)	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;	Covers use up to 8 h/day
CS1-u; Laundry detergent. Automatic	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
process; AISE-P101; CS2-u;	Local exhaust ventilation; No.
Conditioner (softner/starch). Automatic	
process; AISE-P104; CS3-u; Laundry	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
Automatic process; AISE-P110 (PROC	hands.; For further specification, refer to section 8 of the SDS.
2)	Body parts potentially exposed; Two hands face only (480 cm2)
	Indoor use
Industrial use; Dedicated equipment;	Covers use up to 4 h/day
	Room ventilation; Basic; Up to 3 air change per hour
product. Semi-automatic process;	Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or
AISE-P810 (PROC 4)	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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudar

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Industrial use of vehicle cleaning Covers use up to 8 h/day products; CS5-u; Train cleaner. Semi-Room ventilation; Basic; Up to 3 air change per hour Automatic process; AISE-P707; CS6-u; Local exhaust ventilation: No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If Aeroplane cleaner. Semi-Automatic process; AISE-P708; CS7-u; Car wash 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 product. Semi-Automatic process; AISE-P709; CS10-u; Dewaxing product. hands.; For further specification, refer to section 8 of the SDS. Semi-Automatic process; AISE-P712; 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 CS14-u: Food process cleaner, Semi closed cleaning process; AISE-P802 Body parts potentially exposed; Two hands face only (480 cm2) (PROC 4) Outdoor use Industrial use of water treatment Covers use up to 8 h/day products; CS24-u; Preservation and Room ventilation; Basic; Up to 3 air change per hour Local exhaust ventilation: No. sanitation agent . Drink and pool water: AISE-P904; CS23-u; Sanitation agent. 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 Waste water; AISE-P905 (PROC 4) also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS Body parts potentially exposed; Two hands face only (480 cm2) Outdoor use Industrial use of vehicle cleaning Covers use up to 1 h/day products; CS8-u; Car wash product. Room ventilation; Basic; Up to 3 air change per hour Spray and rinse process; AISE-P710 Local exhaust ventilation: No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If (PROC 7) 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 Industrial use of vehicle cleaning Covers use up to 1 h/day products; CS12-u1; Car wash product. Room ventilation; Basic; Up to 3 air change per hour Spray and wipe manual process; AISE-Local exhaust ventilation; No. P711; CS9-u1; Boat cleaner. Spray and Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If wipe manual process; AISE-P714 skin contamination is expected to extend to other parts of the body, then these body parts should (PROC 7) 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 Industrial use of food beverage and Covers use up to 8 h/day pharmaceutical products; CS18-u; Room ventilation; Basic; Up to 3 air change per hour Foam cleaner. Semi-Automatic with Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation venting process; AISE-P806 (PROC 7) 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 chemically resistant gloves (tested to EN374) in combination with specific activity training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.

Body parts potentially exposed; 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;

Covers use up to 8 h/day

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Local exhaust ventilation; No.

Wear 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 specific activity training.; If

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01 Shipping Order Information: 29 030 297/24 588 809

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Animal housing care. Semi-Automatic skin contamination is expected to extend to other parts of the body, then these body parts should process; AISE-P809; CS20-u; also be protected with impervious garments in a manner equivalent to those described for the Disinfection product. Fogging and hands.; For further specification, refer to section 8 of the SDS. gassing Semi-automatic process; AISE-P811 (PROC 7) Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Indoor use Industrial use of façade/surface Covers use up to 8 h/day cleaning products; CS25-u; Room ventilation; Basic; Up to 3 air change per hour Façade/surface cleaner. High pressure Local exhaust ventilation; No. process; AISE-P906; CS26-u; 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 Façade/surface cleaner. Medium pressure process; AISE-P907 (PROC 7) Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.: For further specification, refer to section 8 of the SDS. Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2) Outdoor use Industrial use of laundry products; Covers use up to 0.25 h/day CS1-p; Laundry detergent. Automatic Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). process; AISE-P101; CS2-p; Local exhaust ventilation; No. Conditioner (softner/starch). Automatic Respiratory protection; No. process; AISE-P104; CS3-p; Laundry Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If aid (gasing). Automatic process; AISEskin contamination is expected to extend to other parts of the body, then these body parts should P107; CS4-p; Laundry aid (non-gasing). also be protected with impervious garments in a manner equivalent to those described for the Automatic process; AISE-P110; CS13-p hands.; For further specification, refer to section 8 of the SDS. Industrial use of food beverage and Body parts potentially exposed; Two hands (960 cm2) pharmaceutical products; AISE-P801; Indoor use 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) Industrial use of water treatment Covers use up to 0.25 h/day products; CS23-p; Preservation and Room ventilation; Basic; Up to 3 air change per hour sanitation agent . Drink and pool water; Local exhaust ventilation: No. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If AISE-P904; CS24-p; Sanitation agent. Waste water; AISE-P905; Industrial use skin contamination is expected to extend to other parts of the body, then these body parts should of façade/surface cleaning products; also be protected with impervious garments in a manner equivalent to those described for the CS25-p; Façade/surface cleaner. High hands.; For further specification, refer to section 8 of the SDS. pressure process; AISE-P906; CS26-p; Respiratory protection: No. Façade/surface cleaner. Medium Body parts potentially exposed; Two hands (960 cm2) pressure process; AISE-P907 (PROC Outdoor use 8b) Industrial use of vehicle cleaning Covers use up to 1 h/day products; CS5-p; Train cleaner. Semi-Room ventilation; Basic; Up to 3 air change per hour Automatic process; AISE-P707; CS6-p; Local exhaust ventilation; No. Aeroplane cleaner. Semi-Automatic Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If process; AISE-P708; CS7-p; Car wash skin contamination is expected to extend to other parts of the body, then these body parts should product. Semi-Automatic process; also be protected with impervious garments in a manner equivalent to those described for the AISE-P709; CS8-p; Car wash product. hands.; For further specification, refer to section 8 of the SDS. Spray and rinse process; AISE-P710; Respiratory protection: No. CS10-p; Dewaxing product. Semi-Body parts potentially exposed; Two hands (960 cm2) Automatic process; AISE-P712; Outdoor use 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-

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

P811 (PROC 8b)	
Industrial use of vehicle cleaning	Covers use up to 1 h/day
products; CS9-p; Car wash product.	Room ventilation; Basic; Up to 3 air change per hour
Spray and wipe manual process; AISE-	Local exhaust ventilation; No.
P711; CS11-p; Boat cleaner. Manual	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If
process; AISE-P713; CS12-p; Boat	skin contamination is expected to extend to other parts of the body, then these body parts should
cleaner. Spray and wipe manual	also be protected with impervious garments in a manner equivalent to those described for the
process; AISE-P714 (PROC 8b)	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	Covers use up to 1 h/day
pharmaceutical products; CS20-p;	Room ventilation; Basic; Up to 3 air change per hour
Animal housing care. Semi-Automatic	Local exhaust ventilation; No.
process; AISE-P809; CS21-p;	Respiratory protection; No.
Disinfection product. Semi-automatic	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	Covers use up to 1 h/day
pharmaceutical products; CS18-p;	Room ventilation; Basic; Up to 3 air change per hour
Foam cleaner. Semi-Automatic with	Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation
venting process; AISE-P806 (PROC 8b)	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	Covers use up to 8 h/day
products; CS9-u2; Car wash product.	Room ventilation; Basic; Up to 3 air change per hour
Spray and wipe manual process; AISE-	Local exhaust ventilation; No.
P711; CS12-u2; Boat cleaner. Manual	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If
process; AISE-P713; CS11-u; Boat	skin contamination is expected to extend to other parts of the body, then these body parts should
cleaner. Spray and wipe manual	also be protected with impervious garments in a manner equivalent to those described for the
process; AISE-P714 (PROC 10)	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	Covers use up to 8 h/day
pharmaceutical products; CS16-u; Chain maintenance product. Automatic	Room ventilation; Basic; Up to 3 air change per hour Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or
drip and brush process; AISE-P804	enclosing hood type). Ensure effectiveness is at least 90%
(PROC 13)	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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

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Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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	5.96E-3 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
Dermal, local, long term	9.92E-5 mg/cm² (TRA Workers 3.0)	< 0.01
Combined, systemic, long term		< 0.01

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.596 mg/m³ (TRA Workers 3.0)	0.241
Dermal, systemic, long term	0.014 mg/kg bw/day (TRA Workers 3.0)	0.017
Dermal, local, long term	2E-3 mg/cm ² (TRA Workers 3.0)	0.011
Combined, systemic, long term		0.258

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	0.255 mg/m³ (TRA Workers 3.0)	0.103
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.083
Dermal, local, long term	0.01 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.186

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.298 mg/m³ (TRA Workers 3.0)	0.121
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.083
Dermal, local, long term	0.01 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.203

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.298 mg/m³ (TRA Workers 3.0)	0.121
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.083
Dermal, local, long term	0.01 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.203

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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Inhalation, systemic, long term	0.596 mg/m³ (TRA Workers 3.0)	0.241
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.516
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.758

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	0.596 mg/m³ (TRA Workers 3.0)	0.241
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.516
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.758

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	0.426 mg/m³ (TRA Workers 3.0)	0.172
Dermal, systemic, long term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.258
Dermal, local, long term	0.01 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.431

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	1.277 mg/m³ (TRA Workers 3.0)	0.517
Dermal, systemic, long term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.258
Dermal, local, long term	0.01 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.775

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
Dermal, systemic, long term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.258
Dermal, local, long term	0.01 mg/cm ² (TRA Workers 3.0)	0.056

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 (nongasing). 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	0.298 mg/m³ (TRA Workers 3.0)	0.121
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm ² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.286

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;

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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	0.298 mg/m³ (TRA Workers 3.0)	0.121
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.286

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	0.596 mg/m³ (TRA Workers 3.0)	0.241
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.406

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	0.596 mg/m³ (TRA Workers 3.0)	0.241
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.406

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	0.851 mg/m³ (TRA Workers 3.0)	0.345
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm ² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.51

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)	0.017
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.182

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	0.596 mg/m³ (TRA Workers 3.0)	0.241
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006



NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.572

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	0.851 mg/m³ (TRA Workers 3.0)	0.345
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	0.02 mg/cm ² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.51

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	PROC 8a
Administrative information:	

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01 Shipping Order Information: 29 030 297/24 588 809

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023

Print Date 11 JAN 2024

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 10: Professional use of vehicle cleaning products; CS39-p; Car wash product. Semi-Automatic process; AISE-PROC 8a 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 11: Professional use of vehicle cleaning products; CS41-p; Car wash product. Spray and wipe manual process; PROC 8a AISE-P703; CS43-p; Boat cleaner. Manual process; AISE-P705; CS44-p; Boat cleaner. Spray and wipe manual process; AISE-P706 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-PROC 10 P310 14: Professional use of laundry products; CS2-u; Laundry detergent. Manual process; AISE-P103; Professional use PROC 10 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 15: Professional use of general surface cleaning products; CS18-u; Descaling agent. Manual process; AISE-P307 PROC 10 16: Professional use of floor care products; CS31-u; Floor cleaner. Manual process; AISE-P403; Professional use of laundry products; CS7-u1; Prespotter/Stain remover. Manual process; AISE-P113; Professional use of general surface cleaning products; CS12-u; General purpose cleaner. Manual process; AISE-P301; CS13-u1; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS14-u; Kitchen cleaner. Manual process; AISE-P303; CS15-u1; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS16-u; Sanitary cleaner. Manual process; AISE-P305; CS17-u1; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS23-u; Glass cleaner. Manual process; AISE-P312; CS24-u1; Glass cleaner. Spray and wipe manual process; AISE-P313; CS25-u; Surface disinfactant. Manual process; AISE-P314; CS26-u1; Surface disinfactant. Spray and rinse manual process; AISE-P315; CS27-u; Metal cleaning agent. Manual process; AISE-P316 17: Professional use of floor care products; CS29-u; Floor cleaner. Semi-Automatic process; AISE-P401; CS30-u1; PROC 10 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 18: Professional use of general surface cleaning products; CS19-u1; Descaling agent. Spray and rinse manual PROC 10 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 19: Professional use of vehicle cleaning products; CS41-u1; Car wash product. Spray and wipe manual process; PROC 10 AISE-P703; CS43-u; Boat cleaner. Manual process; AISE-P705; CS44-u1; Boat cleaner. Spray and wipe manual process; AISE-P706 20: Professional use of facade/surface cleaning products; CS47-u1; Facade/surface cleaner. Medium pressure PROC 10 process; AISE-P902 21: Professional use of vehicle cleaning products; CS40-u; Car wash product. Spray and rinse process; AISE-PROC 11 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 22: Professional use of general surface cleaning products; CS19-u2; Descaling agent. Spray and rinse manual PROC 11 process; AISE-P308; CS22-u2; Oven/Grill Cleaner. Spray and wipe manual process; AISE-P311 23: Professional use of vehicle cleaning products; CS41-u2; Car wash product. Spray and wipe manual process; PROC 11 AISE-P703; CS44-u2; Boat cleaner. Spray and wipe manual process; AISE-P706

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023

Print Date 11 JAN 2024

24: Professional use of façade/surface cleaning products; CS47-u2; Façade/surface cleaner. Medium pressure PROC 11 process; AISE-P902

25: Professional use of façade/surface cleaning products; CS46-u; Façade/surface cleaner. High pressure process; PROC 11 AISE-P901

26: Professional use of maintenance products; CS37; Drain unblocker. Manual process; AISE-P606; CS38; Drain PROC 13 cleaner. Manual process; AISE-P607

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

4.2. Conditions of use affecting exposure

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

4.2.2. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Product	(article)	characteristics

Liquid

Covers concentrations up to 1 %

Technical and organisational conditions and measures

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;	Covers use up to 8 h/day
CS1-u; Laundry detergent. Semi	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
automatic process; AISE-P102; CS3-u;	Occupational Health and Safety Management System; Basic
Conditioner (softner/starch). Semi	Respiratory protection; No.
automatic process; AISE-P105; CS4-u;	Use suitable eye protection.
Laundry aid (gasing). Semi automatic	Personal protection; dermal; No.
process; AISE-P108; CS5-u; Laundry	Body parts potentially exposed; One hand face only (240 cm2)
aid (non-gasing). Semi automatic	Indoor use
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)	
Professional use of dishwashing	Covers use up to 8 h/day
products; CS9-u; Dishwash product.	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Automatic process; AISE-P202 (PROC	Occupational Health and Safety Management System; Basic
2)	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.
	Personal protection; dermal; No.
	Body parts potentially exposed; Two hands face only (480 cm2)
	Indoor use
Professional use of laundry products;	Covers use up to 0.25 h/day
CS6-u; Laundry aid (non-gasing).	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Manual process; AISE-P112 (PROC 4)	Occupational Health and Safety Management System; Basic
	Respiratory protection; No.

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudar

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

> 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; CS39u; 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

Occupational Health and Safety Management System, Basic

Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS

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; 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 . Semiautomatic process; AISE-P1101; CS49p; Medical devices . Dipping process;

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).

Occupational Health and Safety Management System, Basic

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)

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)

AISE-P1102 (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). Occupational Health and Safety Management System; Basic

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 eve 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).

Occupational Health and Safety Management System; Basic

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 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.

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Body parts potentially exposed; Two hands (960 cm2) Indoor use

Professional use of floor care products; Covers use up to 1 h/day 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)

Room ventilation; Basic; Up to 3 air change per hour

Occupational Health and Safety Management System, Basic

Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS. Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS

Use suitable eye protection.

Body parts potentially exposed; Two hands (960 cm2)

Outdoor use

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

Occupational Health and Safety Management System; Basic

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.

Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS

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

Covers use up to 1 h/day

Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Print Date 11 JAN 2024 Revision Date 26 JUN 2023

version 19.0	Revision Date 26 Jun 2023 Print Date 11 JAN 202
process; AISE-P706 (PROC 8a)	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 dishwashing	Covers use up to 0.25 h/day
products; CS9-p; Dishwash product. Automatic process; AISE-P202 (PROC	Room ventilation; Basic; Up to 3 air change per hour Occupational Health and Safety Management System; Basic
8b)	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)
Professional use of general surface	Indoor use Covers use up to 1 h/day
cleaning products; CS21-u; Oven/Grill	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Cleaner. Manual process; AISE-P310	Occupational Health and Safety Management System; Basic
(PROC 10)	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 laundry products; CS2-u; Laundry detergent. Manual	Covers use up to 4 h/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
process; AISE-P103; Professional use	Occupational Health and Safety Management System; Basic
of dishwashing products; CS8-u;	Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further
Dishwash product. Manual process; AISE-P201; Professional use of general	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
wipe. Manual process; AISE-P317;	skin contamination is expected to extend to other parts of the body, then these body parts should
Professional use of floor care products; CS36-u1; Carpet cleaner. Spray and	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.
brush manual process; AISE-P411	Body parts potentially exposed; Two hands (960 cm2)
(PROC 10)	Indoor use
Professional use of general surface	Covers use up to 4 h/day
cleaning products; CS18-u; Descaling	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
agent. Manual process; AISE-P307 (PROC 10)	Occupational Health and Safety Management System; Basic Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further
(1.13.6.13)	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;	Covers use up to 8 h/day
CS31-u; Floor cleaner. Manual process;	Room ventilation; Basic; Up to 3 air change per hour
AISE-P403; Professional use of laundry	Occupational Health and Safety Management System; Basic
products; CS7-u1; Prespotter/Stain remover. Manual process; AISE-P113;	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should
Professional use of general surface	also be protected with impervious garments in a manner equivalent to those described for the
cleaning products; CS12-u; General	hands.; For further specification, refer to section 8 of the SDS.
purpose cleaner. Manual process; AISE-P301; CS13-u1; General purpose	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
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Administrative information:
Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01 Shipping Order Information: 29 030 297/24 588 809

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0

P316 (PROC 10)

P1104 (PROC 10)

Revision Date 26 JUN 2023

Print Date 11 JAN 2024

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: AISF-P315: CS27-u: Metal cleaning agent. Manual process; AISE-

Face/eye protection; No.

Body parts potentially exposed; Two hands (960 cm2)

Outdoor use

Professional use of floor care products; Covers use up to 8 h/day

CS29-u; Floor cleaner. Semi-Automatic Room ventilation; Basic; Up to 3 air change per hour 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;

Occupational Health and Safety Management System; Basic

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.

Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS

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)

Medical devices . Spray process; AISE-

Covers use up to 8 h/day

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Occupational Health and Safety Management System; Basic

Wear 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 eve 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

Occupational Health and Safety Management System; Basic

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands: For further specification, refer to section 8 of the SDS

Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further specification, refer to section 8 of the SDS

Use suitable eye protection.

Body parts potentially exposed; Two hands (960 cm2)

Outdoor use

Professional use of facade/surface cleaning products; CS47-u1;

Covers use up to 8 h/day

Room ventilation; Basic; Up to 3 air change per hour

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudar

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Façade/surface cleaner. Medium pressure process; AISE-P902 (PROC 10)

Occupational Health and Safety Management System; Basic

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.

Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). 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)

(PROC 11)

Covers use up to 1 h/day

Handling with enhanced room ventilation; Basic; Up to 3 air change per hour

Occupational Health and Safety Management System; Basic

Wear chemically resistant gloves (tested to EN374) in combination with 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 general surface cleaning products; CS19-u2; Descaling agent. Spray and rinse manual process AISE-P308; CS22-u2; Oven/Grill Cleaner. Spray and wipe manual process; AISE-P311 (PROC 11)

Covers use up to 1 h/day

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Occupational Health and Safety Management System; Basic

Wear 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 eve protection.

Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.

Body parts potentially exposed; 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-

wipe manual process; AISE-P706

Covers use up to 1 h/day

Room ventilation; Basic; Up to 3 air change per hour

Occupational Health and Safety Management System; Basic

P703; CS44-u2; Boat cleaner. Spray and 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 façade/surface cleaning products; CS47-u2;

Covers use up to 1 h/day

Room ventilation; Basic; Up to 3 air change per hour

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Façade/surface cleaner. Medium	Occupational Health and Safety Management System; Basic
pressure process; AISE-P902 (PROC	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If
11)	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	Covers use up to 8 h/day
cleaning products; CS46-u;	Room ventilation; Basic; Up to 3 air change per hour
Façade/surface cleaner. High pressure	Assumes that activities are undertaken with appropriate and well maintained equipment by trained
process; AISE-P901 (PROC 11)	personnel operating under supervision.; Ensure regular inspection, cleaning and maintenance of
	equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
	Wear chemically resistant gloves (tested to EN374) in combination with 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	Covers use up to 0.25 h/day
products; CS37; Drain unblocker.	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Manual process; AISE-P606; CS38;	Occupational Health and Safety Management System; Basic
Drain cleaner. Manual process; AISE-	Respiratory protection; No.
P607 (PROC 13)	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	Covers use up to 1 h/day
cleaning products; CS20-u; Descaling	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
agent. Dipping process; AISE-P309;	Occupational Health and Safety Management System; Basic
Professional use of medical devices;	Respiratory protection; No.
CS49-u; Medical devices . Dipping	Use suitable eye protection.
process; AISE-P1102 (PROC 13)	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
	1

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

Protection target	Exposure estimate	RCR
Fresh water	1.65E-4 mg/L (EUSES 2.1.2)	0.026
Sediment (freshwater)	0.034 mg/kg dw (EUSES 2.1.2)	0.026
Marine water	1.58E-5 mg/L (EUSES 2.1.2)	0.025

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Sediment (marine water)	3.2E-3 mg/kg dw (EUSES 2.1.2)	0.025
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	8.48E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	0.011 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	2.84E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.01E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.69E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	5.96E-3 mg/m³ (TRA Workers 3.0)	< 0.01
Dermal, systemic, long term	3.4E-3 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Dermal, local, long term	9.92E-4 mg/cm ² (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	0.298 mg/m³ (TRA Workers 3.0)	0.121
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.286

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.596 mg/m³ (TRA Workers 3.0)	0.241
Dermal, systemic, long term	0.069 mg/kg bw/day (TRA Workers 3.0)	0.083
Dermal, local, long term	0.01 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.324

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	0.596 mg/m³ (TRA Workers 3.0)	0.241
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.407

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-

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023

Print Date 11 JAN 2024

P204; Professional use of general surface cleaning products; CS20-p; Descaling agent. Dipping process; AISE-P309; Professional use of medical devices; CS48-p; Medical devices . Semi-automatic process; AISE-P1101; CS49-p; Medical devices . Dipping process; AISE-P1102 (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.149 mg/m³ (TRA Workers 3.0)	0.06
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.225

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.149 mg/m³ (TRA Workers 3.0)	0.06
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.225

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.149 mg/m³ (TRA Workers 3.0)	0.06
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.391

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-P104 (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.298 mg/m³ (TRA Workers 3.0)	0.121
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.451

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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023

Print Date 11 JAN 2024

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	0.298 mg/m³ (TRA Workers 3.0)	0.121
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm ² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.286

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	0.298 mg/m³ (TRA Workers 3.0)	0.121
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.286

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	0.851 mg/m³ (TRA Workers 3.0)	0.345
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm ² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.51

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	0.298 mg/m³ (TRA Workers 3.0)	0.121
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.451

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	0.447 mg/m³ (TRA Workers 3.0)	0.181
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33
Dermal, local, long term	0.02 mg/cm ² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.511

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	0.447 mg/m³ (TRA Workers 3.0)	0.181
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.511

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;

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

CS12-u; General purpose cleaner. Manual process; AISE-P301; CS13-u1; General purpose cleaner. Spray and wipe manual process; AISE-P302; CS14-u; Kitchen cleaner. Manual process; AISE-P303; CS15-u1; Kitchen cleaner. Spray and wipe manual process; AISE-P304; CS16-u; Sanitary cleaner. Manual process; AISE-P305; CS17-u1; Sanitary cleaner. Spray and wipe manual process; AISE-P306; CS23-u; Glass cleaner. Manual process; AISE-P312; CS24-u1; Glass cleaner. Spray and wipe manual process; AISE-P313; CS25-u; Surface disinfactant. Manual process; AISE-P314; CS26-u1; Surface disinfactant. Spray and rinse manual process; AISE-P315; CS27-u; Metal cleaning agent. Manual process; AISE-P316 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.745 mg/m³ (TRA Workers 3.0)	0.302
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33
Dermal, local, long term	0.02 mg/cm ² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.632

4.3.17. Worker exposure: Professional use of floor care products; CS29-u; Floor cleaner. Semi-Automatic process; AISE-P401; CS30-u1; Floor cleaner. Spray and wipe manual process; AISE-P402; CS33-u; Floor stripper. Semi-Automatic process; AISE-P405; CS34-u; Carpet cleaner. Manual process; AISE-P409; CS35-u; Carpet cleaner. Semi-Automatic process; AISE-P410; Professional use; Pharmaceuticals; CS45-u; Animal housing care. Manual process; AISE-P808; Professional use of medical devices; CS50-u; Medical devices. Manual process; AISE-P1103; CS51-u1; Medical devices. Spray process; AISE-P1104 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.745 mg/m³ (TRA Workers 3.0)	0.302
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.632

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.745 mg/m³ (TRA Workers 3.0)	0.302
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.632

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.745 mg/m³ (TRA Workers 3.0)	0.302
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33
Dermal, local, long term	0.02 mg/cm ² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.632

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.745 mg/m³ (TRA Workers 3.0)	0.302
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.632

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023

Print Date 11 JAN 2024

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.596 mg/m³ (TRA Workers 3.0)	0.241

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.596 mg/m³ (TRA Workers 3.0)	0.241

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.596 mg/m³ (TRA Workers 3.0)	0.241

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.192 mg/m³ (TRA Workers 3.0)	0.483

- 4.3.25. Worker exposure: Professional use of façade/surface cleaning products; CS46-u; Façade/surface cleaner. High pressure process; AISE-P901 (PROC 11)
- 4.3.26. Worker exposure: Professional use of maintenance products; CS37; Drain unblocker. Manual process; AISE-P606; CS38; Drain cleaner. Manual process; AISE-P607 (PROC 13)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.596 mg/m³ (TRA Workers 3.0)	0.241
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.406

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.192 mg/m³ (TRA Workers 3.0)	0.483
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.648

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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006



NYMPHEAL

Version 19.0

Revision Date 26 JUN 2023

Print Date 11 JAN 2024

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

PROC 11

Worker

П		
	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;	PROC 10
	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	

5: Professional use of floor care products; CS1-u; Polish / impregnating agent. Manual process; AISE-P406; Polish PROC 10 / 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

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

6: Professional use of maintenance products; CS5-u2; Furniture care product. Spray and wipe manual process;

8: Professional uses; Mixing or blending in batch processes; Uses in cosmetics/personal care products, perfumes PROC 5 and fragrances

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

5.2. Conditions of use affecting exposure

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

5.2.2. Control of worker exposure

Conditions of use applicable to all contributing scenarios

Product (article) characteristics

Liquid

Covers concentrations up to 1 %

Technical and organisational conditions and measures

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.

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Other conditions affecting workers exposure

Indoor use

Assumes process temperature up to 40 $^{\circ}\mathrm{C}$

Specific conditions of use per contributing scenario

Contributing scenario	Specific conditions of use
Professional use of maintenance	Covers use up to 8 h/day
products; CS8-u; Leather care product.	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further
Automatic process; AISE-P605 (PROC	specification, refer to section 8 of the SDS
2)	Personal protection; dermal; No.
	Body parts potentially exposed; Two hands face only (480 cm2)
Professional use of maintenance	Covers use up to 1 h/day
products; CS8-p; Leather care product.	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further
Automatic process; AISE-P605 (PROC	specification, refer to section 8 of the SDS
8b)	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	Covers use up to 4 h/day
products; CS4-u; Furniture care	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further
product. Manual process; AISE-P601;	specification, refer to section 8 of the SDS
Furniture care product. Spray and wipe	, , , , , , , , , , , , , , , , , , , ,
manual process; AISE-P602; CS6-u;	skin contamination is expected to extend to other parts of the body, then these body parts should
Leather care product. Manual process;	also be protected with impervious garments in a manner equivalent to those described for the
AISE-P603; CS7-u1; Leather care	hands.; For further specification, refer to section 8 of the SDS.
product. Spray and wipe manual	Body parts potentially exposed; Two hands (960 cm2)
process; AISE-P604; CS10-u1;	
Stainless steel care. Spray and wipe manual process; AISE-P609 (PROC 10)	
inanuai process; AISE-P609 (PROC 10)	
Professional use of floor care products	Covers use un to 8 h/day
CS1-u; Polish / impregnating agent.	Wear a respirator which reduces the air impurities by at least a factor of 20 (APF >= 20). For further
Manual process; AISE-P406; Polish /	specification, refer to section 8 of the SDS
impregnating agent. Semi-Automatic	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If
process; AISE-P407; CS3-u1; Polish /	skin contamination is expected to extend to other parts of the body, then these body parts should
impregnating agent. Spray and wipe	also be protected with impervious garments in a manner equivalent to those described for the
manual process; AISE-P408;	hands.; For further specification, refer to section 8 of the SDS.
Professional use of maintenance	Body parts potentially exposed; Two hands (960 cm2)
products; CS9-u; Stainless steel care.	
Manual process; AISE-P608 (PROC 10)	
Desferational way of the	0
Professional use of maintenance	Covers use up to 0.25 h/day
products; CS5-u2; Furniture care	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further
product. Spray and wipe manual process; AISE-P602; CS7-u2; Leather	specification, refer to section 8 of the SDS Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If
care product. Spray and wipe manual	skin contamination is expected to extend to other parts of the body, then these body parts should
process; AISE-P604; CS10-u1;	also be protected with impervious garments in a manner equivalent to those described for the
Stainless steel care. Spray and wipe	hands.; For further specification, refer to section 8 of the SDS.
manual process; AISE-P609 (PROC 11)	
manaar process, Alou 1 000 (1 100 11)	parte potentially expected, recommed 2 Hartes and recomme (1000 only)
Professional use of maintenance	Covers use up to 1 h/day
products; CS3-u2; Polish /	Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further
impregnating agent. Spray and wipe	specification, refer to section 8 of the SDS
manual process; AISE-P408 (PROC 11)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If
, , ,	skin contamination is expected to extend to other parts of the body, then these body parts should
	also be protected with impervious garments in a manner equivalent to those described for the
	, , , , , , , , , , , , , , , , , , ,
	hands.; For further specification, refer to section 8 of the SDS.
	Body parts potentially exposed; Assumes 2 hands and forearms (1500 cm2)
Professional uses; Mixing or blending	

Administrative information:
Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01 Shipping Order Information: 29 030 297/24 588 809

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

cosmetics/personal care products,	skin contamination is expected to extend to other parts of the body, then these body parts should
perfumes and fragrances (PROC 5)	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	Covers use up to 8 h/day
substance or mixture	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If
(charging/discharging) at non	skin contamination is expected to extend to other parts of the body, then these body parts should
dedicated-facilities; Uses in	also be protected with impervious garments in a manner equivalent to those described for the
cosmetics/personal care products,	hands.; For further specification, refer to section 8 of the SDS.
perfumes and fragrances (PROC 8a)	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

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

Protection target	Exposure estimate	RCR
Fresh water	1.65E-4 mg/L (EUSES 2.1.2)	0.026
Sediment (freshwater)	0.034 mg/kg dw (EUSES 2.1.2)	0.026
Marine water	1.58E-5 mg/L (EUSES 2.1.2)	0.025
Sediment (marine water)	3.2E-3 mg/kg dw (EUSES 2.1.2)	0.025
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	8.48E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	0.011 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	2.84E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.01E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.69E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.298 mg/m³ (TRA Workers 3.0)	0.121
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.286

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.119 mg/m³ (TRA Workers 3.0)	0.048
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm ² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.213

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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

wipe manual process; AISE-P609 (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.894 mg/m³ (TRA Workers 3.0)	0.362
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.692

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	0.745 mg/m³ (TRA Workers 3.0)	0.302
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.33
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.632

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	0.596 mg/m³ (TRA Workers 3.0)	0.241

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.192 mg/m³ (TRA Workers 3.0)	0.483

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	0.596 mg/m³ (TRA Workers 3.0)	0.241
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	0.02 mg/cm² (TRA Workers 3.0)	0.112
Combined, systemic, long term		0.406

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	0.745 mg/m³ (TRA Workers 3.0)	0.302
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.165
Dermal, local, long term	1E-2 mg/cm ² (TRA Workers 3.0)	0.056
Combined, systemic, long term		0.467

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,

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0

Revision Date 26 JUN 2023

Print Date 11 JAN 2024

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 PC 35 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
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
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;

PC 35

Automotive Care (spray, liquid); AISE-C22

6.2. Conditions of use affecting exposure

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

Amount used, frequency and duration of use (or from service life)

Daily local widespread use amount; <=; 5.5E-5; tonnes/day

Other conditions affecting environmental exposure

Municipal sewage treatment plant is assumed.

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

Product (article) characteristics

Covers concentrations up to 0.15 %

Physical form of product; Liquids

Exposure route; dermal; Yes

nhalation 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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0

Revision Date 26 JUN 2023

Print Date 11 JAN 2024

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.

lermal: transfer factor: =: 1

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

Product (article) characteristics

Physical form of product; Liquids

Covers concentrations up to 0.1 %

Exposure route; dermal; Yes

Inhalation exposure is considered to be not relevant.

Oral exposure is considered to be not relevant.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 1 events per day

Frequency of use over a year; Frequent

Information and behavioral advice for consumers

Covers adult use.

Other conditions affecting consumers exposure

Assumes that potential dermal contact is limited to hands.

dermal; transfer factor; =; 1

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

Product (article) characteristics

Physical form of product; Liquids

Covers concentrations up to 0.1 %

Exposure route; dermal; Yes

Exposure route; Inhalation; Yes

No spraying

Oral exposure is considered to be not relevant.

Amount used (or contained in articles), frequency and duration of use/exposure

Exposure duration = 0.2 h/event

Covers use up to 1 events per day

For each use event, covers use amounts up to 30 g/event

Frequency of use over a year; Frequent

Information and behavioral advice for consumers

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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	0.055 kg/day	ERC
	3.17	
Air	0.055 kg/day	ERC
	o.ooo ng day	
Soil	0.011 kg/day	ERC
3011	0.011 kg/day	ENG

Protection target	Exposure estimate	RCR
Fresh water	2.35E-3 mg/L (EUSES 2.1.2)	0.367
Sediment (freshwater)	0.477 mg/kg dw (EUSES 2.1.2)	0.367
Marine water	2.34E-4 mg/L (EUSES 2.1.2)	0.365
Sediment (marine water)	0.048 mg/kg dw (EUSES 2.1.2)	0.365
Sewage Treatment Plant	0.022 mg/L (EUSES 2.1.2)	0.022
Agricultural soil	0.036 mg/kg dw (EUSES 2.1.2)	0.14
Predator's prey (freshwater)	0.083 mg/kg ww (EUSES 2.1.2)	0.017
Predator's prey (marine water)	8.29E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	2.49E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	0.022 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.13E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	5.23E-4 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	0.214 mg/kg bw/day (TRA Consumers 3.1)	0.51
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.51

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)

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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)	0.34
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.34

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)	0.031
Dermal, systemic, long term	0.143 mg/kg bw/day (TRA Consumers 3.1)	0.34
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.371

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,	PC 3
Timed-release aerosols) for consumer use; AISE-C17	
3: CS2; Consumer uses; AIR FRESHENERS NON AEROSOL (perfume in/on solid substarte (gel), candles,	PC 3
diffusers (heated) for consumer use; AISE-C18	

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)

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0

Revision Date 26 JUN 2023

Print Date 11 JAN 2024

Product (article) characteristics

Covers concentrations up to 0.05 %

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

Product (article) characteristics

Physical form of product; Liquids

Covers concentrations up to 0.1 %

Exposure route; dermal; Yes

Inhalation exposure is considered to be not relevant.

Oral exposure is considered to be not relevant.

Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 1 events per day

Frequency of use over a year; Frequent

Information and behavioral advice for consumers

Covers adult use.

Other conditions affecting consumers exposure

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
	o ng day	

Protection target	Exposure estimate	RCR
Fresh water	1.65E-4 mg/L (EUSES 2.1.2)	0.026
Sediment (freshwater)	0.034 mg/kg dw (EUSES 2.1.2)	0.026

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Marine water	1.58E-5 mg/L (EUSES 2.1.2)	0.025
Sediment (marine water)	3.2E-3 mg/kg dw (EUSES 2.1.2)	0.025
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	8.48E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	0.011 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	2.84E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.01E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.69E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.217 mg/m³ (TRA Consumers 3.1)	0.5
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		0.5

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
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 8a
2: GES 8; Consumer end-use of biocides	ERC 8b
Consumer	
3: CS1; Consumer uses; INSECTICIDES (liquid electric, spray neat); AISE-C19	PC 8
4: 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 8a)

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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

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

Product (article) characteristics
Covers concentrations up to 0.02 %
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

8.2.4. 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 0.02 %
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.
nhalation; 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 8a)

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

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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

Protection target	Exposure estimate	RCR
Fresh water	1.65E-4 mg/L (EUSES 2.1.2)	0.026
Sediment (freshwater)	0.034 mg/kg dw (EUSES 2.1.2)	0.026
Marine water	1.58E-5 mg/L (EUSES 2.1.2)	0.025
Sediment (marine water)	3.2E-3 mg/kg dw (EUSES 2.1.2)	0.025
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	8.48E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	0.011 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	2.84E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.01E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.69E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

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

Protection target	Exposure estimate	RCR
Fresh water	1.65E-4 mg/L (EUSES 2.1.2)	0.026
Sediment (freshwater)	0.034 mg/kg dw (EUSES 2.1.2)	0.026
Marine water	1.58E-5 mg/L (EUSES 2.1.2)	0.025
Sediment (marine water)	3.2E-3 mg/kg dw (EUSES 2.1.2)	0.025
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	8.48E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	0.011 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	2.84E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.01E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.69E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

8.3.3. 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	1.98E-3 mg/m³ (TRA Consumers 3.1)	< 0.01
Dermal, systemic, long term	0.292 mg/kg bw/day (TRA Consumers 3.1)	0.694
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.699

8.3.4. 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	0.038 mg/m³ (TRA Consumers 3.1)	0.088
Dermal, systemic, long term	0.292 mg/kg bw/day (TRA Consumers 3.1)	0.694
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.782

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006



NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023

Print Date 11 JAN 2024

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

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

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

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;

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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 8E-3 %

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 = 1 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

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

Protection target	Exposure estimate	RCR
Fresh water	1.65E-4 mg/L (EUSES 2.1.2)	0.026
Sediment (freshwater)	0.034 mg/kg dw (EUSES 2.1.2)	0.026
Marine water	1.58E-5 mg/L (EUSES 2.1.2)	0.025
Sediment (marine water)	3.2E-3 mg/kg dw (EUSES 2.1.2)	0.025
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01
Agricultural soil	8.48E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	0.011 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	2.84E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.01E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.69E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	7.35E-3 mg/m³ (TRA Consumers 3.1)	0.017
Dermal, systemic, long term	0.357 mg/kg bw/day (TRA Consumers 3.1)	0.851
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.868

9.3.3. Consumer exposure: CS2; Consumer uses; Polishes and wax blends; FURNITURE

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43

according to Regulation (EC) No. 1907/2006



NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

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	0.338 mg/m³ (TRA Consumers 3.1)	0.776
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01

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

Guidance: The total tonnage of all end-uses is covered under GES6. Since the products used by professionals will not differ much from those used by consumers and since the conditions of environmental release are very similar for professionals and consumers, potential environmental exposure to the substance due to professional and private use was combined under GES6.

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

10. ES 10: Consumer use; Various products

10.1. Title section

ES name: GES 10; Consumer (and Professional) end-use of cosmetics; Only includes environmental exposure, assessment of human exposure is exempt from REACH as it is already covered by the European Cosmetic Regulation No 1223/2009

Product category: Perfumes. Fragrances (PC 28). Cosmetics, personal care products (PC 39)

1. Todast sategory: Terramos, Tragranoss (T. S. 20), Societies, porcental sate products (T. S. 30)	
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		
	3 ,			

Protection target	Exposure estimate	RCR
Fresh water	1.65E-4 mg/L (EUSES 2.1.2)	0.026
Sediment (freshwater)	0.034 mg/kg dw (EUSES 2.1.2)	0.026
Marine water	1.58E-5 mg/L (EUSES 2.1.2)	0.025
Sediment (marine water)	3.2E-3 mg/kg dw (EUSES 2.1.2)	0.025
Sewage Treatment Plant	0 mg/L (EUSES 2.1.2)	< 0.01

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01

according to Regulation (EC) No. 1907/2006

Givaudan

NYMPHEAL

Version 19.0 Revision Date 26 JUN 2023 Print Date 11 JAN 2024

Agricultural soil	8.48E-5 mg/kg dw (EUSES 2.1.2)	< 0.01
Predator's prey (freshwater)	0.011 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Top predator's prey (marine water)	1.05E-3 mg/kg ww (EUSES 2.1.2)	< 0.01
Predator's prey (terrestrial)	2.84E-4 mg/kg ww (EUSES 2.1.2)	< 0.01
Man via environment - Inhalation (systemic effects)	1.01E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	2.69E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

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

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

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

Guidance: The total tonnage of all end-uses is covered under GES6. 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).

Administrative information:

Report Information: SDS_CH/EN/GHS_SDS_EU_CNTRY/43 Sales & Distribution Information: VE01/FR/CH11/01