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

1.1 Product identifier

Trade name	:	KOAVONE
Registration number	:	01-2119980043-42-0000
IFF Code	:	00110502
Cust. Material	:	KOAVONE
SDS Number	:	R00000225388

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

Use of the Substance/Mixture	:	GES1 Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds) GES2 Formulation of fragranced end-products (mixing of fragrance compounds into fragranced end-products) GES3 Industrial end-use of washing and cleaning products (on request available) GES4 Professional end-use of washing and cleaning products (on request available) GES5 Professional end-use of polishes and wax blends (on request available)

1.3 Details of the supplier of the safety data sheet

Company	:	IFF (GB) Limited DUDDERY HILL CB9 8LG HAVERHILL United Kingdom
Telephone	:	+441440715000
Telefax	:	+441440762199
E-mail address	:	sds@iff.com
Responsible/issuing person		

1.4 Emergency telephone number

Refer to section 16 for country specific emergency contact number.

2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin sensitisation, Sub-category 1B	H317: May cause an allergic skin reaction.
Chronic aquatic toxicity, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Warning

Hazard statements :	H317	May cause an allergic skin reaction.
	H411	Toxic to aquatic life with long lasting effects.
Precautionary statements :	**Prevention:**	
	P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
	P273	Avoid release to the environment.
	P280	Wear protective gloves.
	Response:	
	P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
	P362 + P364	Take off contaminated clothing and wash it before reuse.
	P391	Collect spillage.

Hazardous components which must be listed on the label:

- 81786-73-4, 81786-74-5, 81786-75-6, 86115-11-9, 2020341-69-7 3,4,5,6,6-pentamethylhept-3-en-2-one (and isomers)

2.3 Other hazards

None reasonably foreseeable.

3. Composition/information on ingredients

3.1 Substances

Chemical name of the substance : 3,4,5,6,6-pentamethylhept-3-en-2-one (and isomers)

Chemical characterization : aliphatic ketones
Molecular weight : 182,3 g/mol
CAS-No. : 81786-73-4, 81786-74-5, 81786-75-6, 86115-11-9, 2020341-69-7
EINECS-No. : 279-822-9, 279-823-4, 279-825-5, 289-194-8
REACH No. : 01-2119980043-42-0000

Hazardous components

Chemical name	CAS-No. EC-No.	GHS Classification	Concentration [%]
3,4,5,6,6-pentamethylhept-3-en-2-one (and isomers)	81786-73-4, 81786-74-5, 81786-75-6, 86115-11-9, 2020341-69-7 279-822-9, 279-823-4, 279-825-5, 289-194-8	Skin Sens.1B; H317 Aquatic Chronic2; H411	90 - 100

For the full text of the H-Statements mentioned in this Section, see Section 16.

3.2 Mixtures

Not applicable, product is a substance.

4. First aid measures

4.1 Description of first aid measures

General advice : Take Hazard and Precautionary phrases (section 2) into account.

If inhaled : Remove from exposure site to fresh air and keep at rest. If victim is unconscious, remove foreign bodies from the mouth. If victim has stopped breathing, give artificial respiration. Obtain medical advice.

In case of skin contact : Remove contaminated clothes. Wash thoroughly with water (and soap). Contact physician if symptoms persist.

In case of eye contact : Flush immediately with water for at least 15 minutes. Contact physician if symptoms persist.

If swallowed : Rinse mouth with water and obtain medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No information available.

Risks : No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No information available.

5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Carbondioxide, dry chemical, foam.

Unsuitable extinguishing media : Do not use a direct waterjet on burning material.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Water may be ineffective.

5.3 Advice for firefighters

Further information : Standard procedure for chemical fires.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Avoid inhalation and contact with skin and eyes. A self-contained breathing apparatus is recommended in case of a major spill.

6.2 Environmental precautions

Environmental precautions : Keep away from drains, surface- and groundwater and soil.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Clean up spillage promptly. Remove ignition sources. Provide adequate ventilation. Avoid excessive inhalation of vapours. Gross spillages should be contained by use of sand or inert powder and disposed of according to the local regulations.

6.4 Reference to other sections

Prevent spreading over a wide area (e.g. by containment or oil barriers).

7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid excessive inhalation of concentrated vapors. Follow good manufacturing practices for housekeeping and personal hygiene. Wash any exposed skin immediately after any chemical contact, before breaks and meals, and at the end of each work period. Contaminated clothing and shoes should be thoroughly cleaned before re-use.

If appropriate, procedures used during the handling of this material should also be used when cleaning equipment or removing residual chemicals from tanks or other containers, especially when steam or hot water is used, as this may increase vapor concentrations in the workplace air. Where chemicals are openly handled, access should be restricted to properly trained employees.
Keep all heated processes at the lowest necessary temperature in order to minimize emissions of volatile chemicals into the air.

Advice on protection against fire and explosion : Keep away from ignition sources and naked flame.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in a cool, dry, ventilated area away from heat sources. Keep containers upright and tightly closed when not in use.

7.3 Specific end use(s)

Specific use(s) : Industrial use, Professional use

8. Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

DNEL : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 6 mg/m3

DNEL : End Use: Workers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 1,7 mg/kg bw/day

DNEL	:	End Use: Workers Exposure routes: Skin contact Potential health effects: Long-term local effects Value: 3,6 mg/cm2
DNEL	:	End Use: General population Exposure routes: Inhalation Potential health effects: Long-term systemic effects Value: 1,8 mg/m3
DNEL	:	End Use: General population Exposure routes: Skin contact Potential health effects: Long-term systemic effects Value: 1 mg/kg bw/day
DNEL	:	End Use: General population Exposure routes: Skin contact Potential health effects: Long-term local effects Value: 2,1 mg/cm2
DNEL	:	End Use: General population Exposure routes: Ingestion Potential health effects: Long-term systemic effects Value: 1 mg/kg bw/day
PNEC	:	Fresh water Value: 0,0048 mg/l
PNEC	:	Marine water Value: 0,00048 mg/l
PNEC	:	Fresh water sediment Value: 0,621 mg/kg dry weight (d.w.)
PNEC	:	Marine sediment Value: 0,0621 mg/kg dry weight (d.w.)
PNEC	:	Sewage treatment plant Value: 22 mg/l
PNEC	:	Soil

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Value: 0,126 mg/kg dry weight (d.w.)

PNEC : Secondary Poisoning
No potential to cause toxic effects if accumulated.

8.2 Exposure controls

Engineering measures

Where appropriate, use closed systems to transfer and process this material.
If appropriate, isolate mixing rooms and other areas where this material is used or openly handled. Maintain these areas under negative air pressure relative to the rest of the plant.

Personal protective equipment

Respiratory protection	:	Refer to attached exposure scenario in the Annex.
Hand protection	:	Refer to attached exposure scenario in the Annex.
Eye protection	:	Refer to attached exposure scenario in the Annex.
Hygiene measures	:	To the extent deemed appropriate, implement pre-placement and regularly scheduled ascertainment of symptoms and spirometry testing of lung function for workers who are regularly exposed to this material. To the extent deemed appropriate, use an experienced air sampling expert to identify and measure volatile chemicals that could be present in the workplace air to determine potential exposures and to ensure the continuing effectiveness of engineering controls and operational practices to minimize exposure.

Environmental exposure controls

General advice	:	Keep away from drains, surface- and groundwater and soil.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	colorless to pale yellow
Odour	:	conforms to standard
Odour Threshold	:	not determined

Flash point	:	86 °C
Lower explosion limit	:	not determined
Upper explosion limit	:	not determined
Flammability (solid, gas)	:	The product is not flammable.
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Auto-ignition temperature	:	308 °C at 1.013 hPa Method: Tested according to Annex V of Directive 67/548/EEC.
pH	:	not determined
Melting point	:	-25 °Cat 1.013 hPa Method: OECD Test Guideline 102
Boiling point	:	200 °C at 1.013 hPa Method: OECD Test Guideline 103
Vapour pressure	:	0,01 hPa Calculated
Density	:	not determined
Water solubility	:	42 g/l at 20 °C Method: OECD Test Guideline 105
Partition coefficient: n-octanol/water	:	log Pow: 4,44 at 25 °C Method: OECD Test Guideline 117
Solubility in other solvents	:	not determined
Viscosity, dynamic	:	3,26 mPa.s at 20 °C Method: OECD 114
Viscosity, kinematic	:	not determined
Relative vapour density	:	not determined
Surface tension	:	57,5 mN/m at 20 °C Method: OECD 115
Evaporation rate	:	not determined

9.2 Other information

Refractive index	:	not determined
Relative density	:	0,8650 - 0,8690

10. Stability and reactivity

10.1 Reactivity

No hazards to be specially mentioned.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Note: Presents no significant reactivity hazard, by itself or in contact with water. Avoid contact with strong acids, alkali or oxidizing agents.

10.4 Conditions to avoid

Conditions to avoid : Direct sources of heat.

10.5 Incompatible materials

Materials to avoid : Avoid contact with strong acids, alkali or oxidizing agents.

10.6 Hazardous decomposition products

Hazardous decomposition products : Carbon monoxide and unidentified organic compounds may be formed during combustion.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity : LD50: > 5.000 mg/kg
Species: Rat
Method: OECD Test Guideline 401
Symptoms: No adverse effects
Remarks: Read-across (Analogy)

Acute dermal toxicity : LD50: > 5.000 mg/kg
Species: Rabbit
Method: OECD Test Guideline 402
Symptoms: No adverse effects

Skin corrosion/irritation

Skin irritation : No information available.
Skin irritation : Species: reconstructed human epidermis (RhE)
Result: No skin irritation
Method: OECD Test Guideline 439
Exposure time: 42 h
Remarks: No adverse effects

Serious eye damage/eye irritation

No information available.
Eye irritation : Species: Chicken eye
Result: No eye irritation
Method: OECD Test Guideline 438
Exposure time: 4 h
Remarks: No adverse effects

Respiratory or skin sensitisation

No information available.
Sensitisation : LLNA
Species: Mouse
Result: Causes sensitisation.
Method: OECD Test Guideline 429
Test substance: (undiluted)

: repeated insult patch test
Species: Humans
Result: causes no sensitization
Test substance: 15.00%

Germ cell mutagenicity

No information available.
Genotoxicity in vitro : Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

: In vitro mammalian cell gene mutation test
mouse lymphoma cells
Result: negative
Method: OECD Test Guideline 476

: Micronucleus test

Human lymphocytes
Result: negative
Method: OECD Test Guideline 487

Carcinogenicity

No information available.
Remarks : not required

Reproductive toxicity

No information available.
Remarks : not required

Target Organ Systemic Toxicant - Single exposure

No information available.

Target Organ Systemic Toxicant - Repeated exposure

No information available.

: Species: Rat, male and female
Application Route: Oral
Exposure time: 90-day ()
NOEL: 41 mg/kg
Method: OECD Test Guideline 422

: Species: Rat, male and female
Application Route: Oral
Exposure time: 90-day ()
NOEL: 129 mg/kg
Method: OECD Test Guideline 422

Aspiration hazard

No information available.

Toxicology Assessment

12. Ecological information

12.1 Toxicity

Toxicity to fish : LC50: 4,8 mg/l
Exposure time: 96 h

Species: Cyprinus carpio (Carp)
semi-static test Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates	:	EC50: 6,1 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202
Toxicity to algae	:	EC50: 21 mg/l Exposure time: 72 h Species: Desmodesmus subspicatus (green algae) static test Method: OECD Test Guideline 201
	:	NOEC: 12 mg/l
Toxicity to bacteria	:	EC50: 910 mg/l Exposure time: 3 h Species: activated sludge static test Method: OECD Test Guideline 209
	:	NOEC: 220 mg/l Exposure time: 3 h Species: activated sludge static test Method: OECD Test Guideline 209

12.2 Persistence and degradability

No information available.

Biodegradability	:	Closed Bottle test Result: Not inherently biodegradable. 0 % Method: OECD Test Guideline 301D

12.3 Bioaccumulative potential

12.4 Mobility in soil

12.5 Results of PBT and vPvB assessment

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

12.6 Other adverse effects

No information available.

13. Disposal considerations

13.1 Waste treatment methods

Product	:	Dispose of according to local regulations. Avoid disposing into drainage systems and into the environment.
Contaminated packaging	:	Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

ADR

UN number	:	3082
Description of the goods	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (3,4,5,6,6-pentamethylhept-3-en-2-one)
Labels	:	9
Packing group	:	III
Environmentally hazardous	:	yes

IATA

UN number	:	3082
Description of the goods	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (3,4,5,6,6-pentamethylhept-3-en-2-one)
Labels	:	9
Packing group	:	III
Environmentally hazardous	:	yes

IMDG

UN number	:	3082
Description of the goods	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (3,4,5,6,6-pentamethylhept-3-en-2-one)
Labels	:	9
Packing group	:	III
Marine pollutant	:	yes (3,4,5,6,6-pentamethylhept-3-en-2-one)

Special precautions for user	:	No special precautions required.

15. Regulatory information

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

Water contaminating class	:	WGK 3highly water endangering

(Germany)

15.2 Chemical safety assessment

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

16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H317	May cause an allergic skin reaction.
H411	Toxic to aquatic life with long lasting effects.

Further information

In December 2003, the National Institute for Occupational Safety and Health ("NIOSH") published an Alert on preventing lung disease in workers who use or make flavorings [NIOSH Publication Number 2004-110].
In August 2004, the United States Flavor and Extract Manufacturers Association (FEMA) issued a report entitled "Respiratory Safety in the Flavor Manufacturing Workplace".
Both of these reports provide recommendations for reducing employee exposure and for medical surveillance in the workplace. The recommendations in these reports are generally applicable to the use of any chemical in the workplace and you are strongly urged to review both of these reports.
The report published by FEMA also contains a list of "high priority" chemicals. If any of these chemicals are present in this product at a concentration >= 1.0% due to an intentional addition by IFF, the chemical(s) will be identified in this safety data sheet.

According to Regulation (EC) No. 1907/2006 the information in this safety data sheet is based on the properties of the material known to IFF at the time the data sheet was issued. The safety data sheet is intended to provide information for a health and safety assessment of the material and the circumstances, under which it is packaged, stored or applied in the workplace. For such a safety assessment International Flavors & Fragrances holds no responsibility. This document is not intended for quality assurance purposes.

Emergency telephone number

Austria	+43 1 406 43 43
Belgium	+32 70 245 245
Bulgaria	+359 2 9154 409 (N. I. Pirogov). poison_centre@mail.orbitel.bg
Croatia	(+385 1) 2348342
Czech Republic	+420 224 919 293 / +420 224 915 402
Denmark	+45 82 12 12 12

Estonia	16662 (National), International (+372) 626 93 90
Finland	+358 9 471977
France	+ 33 (0)1 45 42 59 59
Germany	+31 13 4642 211
Greece	+31 13 4642 211
Hungary	(+36-80) 201-199
Iceland	+354 543 2222
Ireland	+353 1 8092566 / +353 1 8379964
Italy	+39 06 68593726
Latvia	+371 67042473
Lithuania	+370 5 236 20 52 or +370 687 53378
Luxembourg	+352 8002 5500
Malta	+356 21224071
Netherlands	+31 30 2748888 (Only for the purpose of informing medical personnel in cases of acute intoxications).
Norway	+47 22 59 13 00
Poland	+31 13 4642 211
Portugal	808 250 143
Poland	+31 13 4642 211
Portugal	808 250 143
Romania	+31 13 4642 211
Slovakia	+31 13 4642 211
Slovenia	+31 13 4642 211
Spain	+34 91 562 04 20 (only for the purpose of informing medical personnel in cases of acute intoxications).
Sweden	+46 112
United Kingdom	+44 111 (England, Wales & Scotland)

INDEX

1. **GES1 Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds)**
2. **GES2 Formulation of fragranced end-products (mixing of fragrance compounds into fragranced end-products)**

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1. Short title of Exposure Scenario: GES1 Formulation of fragrance compounds (mixing of fragrance substances into fragrance compounds)

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	**PROC 8b (IFRA F-1):** Material transfers from/to vessel/container at dedicated facility (IFRA F-1) **PROC 1 (IFRA F-2):** Storage (IFRA F-2) **PROC 3 (IFRA F-3):** Mixing operations (closed systems) in batch process including filling of equipment and sample collection (IFRA F-3) **PROC 5 (IFRA-F4):** Mixing operations (open systems) in batch process including filling of equipment and sample collection (IFRA F-4) **PROC 15 (IFRA F-5):** QC laboratory (IFRA F-5) **PROC 9 (IFRA F-6):** Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (IFRA F-6) **PROC 8a (IFRA F-7):** Equipment cleaning and maintenance (IFRA F-7)
Environmental release category	:	**spERC 2 IFRA 2.1a.v1:** Formulation of fragrance compounds at large medium sites **spERC IFRA 2.1b.v1:** Formulation of fragrance compounds at small sites

2.1 Contributing scenario controlling environmental exposure for: spERC 2 IFRA 2.1a.v1, spERC IFRA 2.1b.v1

Amount used

Daily amount per site	:	30 kg (Large/medium site)
	:	13 kg (Small site)
Annual amount per site	:	8300 kg (Large/medium site)
	:	3300 kg (Small site)

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Environment factors not influenced by risk management

Flow rate	:	18.000 m3/d
Remarks	:	Large/medium site, Small site

Other given operational conditions affecting environmental exposure

Continuous exposure

Number of emission days per year	:	250
Emission or Release Factor: Water	:	0,2 %
Remarks	:	Large/medium site
Emission or Release Factor: Water	:	0,5 %
Remarks	:	Small site
Emission or Release Factor: Air	:	0 %
Emission or Release Factor: Soil	:	0 %
Remarks	:	Large/medium site, Small site

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Effectiveness (of a measure)	:	79,3 %
Sludge Treatment	:	Can be landfilled, when in compliance with local regulations.
Remarks	:	Large/medium site, Small site

Conditions and measures related to external treatment of waste for disposal

Disposal methods	:	Dispose of waste or used sacks/containers according to local regulations.
Remarks	:	Large/medium site, Small site

2.2 Contributing scenario controlling worker exposure for: PROC 8b (IFRA F-1)

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor, Outdoor
Remarks	:	Assumes process temperature up to 40 °C

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Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

2.3 Contributing scenario controlling worker exposure for: PROC 1 (IFRA F-2)

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Frequency and duration of use

Remarks	:	Avoid carrying out activities involving exposure for more than 1 hour.

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Assumes process temperature up to 40 °C

Technical conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed process, no likelihood of exposure., Basic (professionel) exposure controls assumed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

2.4 Contributing scenario controlling worker exposure for: PROC 3 (IFRA F-3)

Product characteristics

Concentration of the Substance in Mixture/Article		Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Frequency and duration of use

Remarks	:	Avoid carrying out activities involving exposure for more than 4 hours.

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Assumes process temperature up to 40 °C

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Technical conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed batch process (synthesis or formulation)., Basic (professionel) exposure controls assumed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

2.5 Contributing scenario controlling worker exposure for: PROC 5 (IFRA-F4)

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Assumes process temperature up to 40 °C

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

2.6 Contributing scenario controlling worker exposure for: PROC 15 (IFRA F-5)

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Frequency and duration of use

Remarks	:	Avoid carrying out activities involving exposure for more than 15 minutes.

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Assumes process temperature up to 40 °C

Technical conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Basic (professionel) exposure controls assumed.

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Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

2.7 Contributing scenario controlling worker exposure for: PROC 9 (IFRA F-6)

Frequency and duration of use
Remarks : Avoid carrying out activities involving exposure for more than 1 hour.

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor
Remarks : Assumes process temperature up to 40 °C

Technical conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in semi-closed process with opportunity for exposure., Advanced (industrial) exposure controles assumed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

2.8 Contributing scenario controlling worker exposure for: PROC 8a (IFRA F-7)

Frequency and duration of use
Remarks : Avoid carrying out activities involving exposure for more than 4 hours.

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor
Remarks : Assumes process temperature up to 40 °C

Technical conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Advanced (industrial) exposure controles assumed.

Conditions and measures related to personal protection, hygiene and health evaluation

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Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterisation ratio (PEC/PNEC):
spERC 2 IFRA 2.1a.v1	EUSES	Large/medium site	Fresh water		0,6724µg/L	0,14
spERC 2 IFRA 2.1a.v1	EUSES	Large/medium site	Fresh water sediment		0,087mg/kg dw	0,14
spERC 2 IFRA 2.1a.v1	EUSES	Large/medium site	Marine water		0,0664µg/L	0,138
spERC 2 IFRA 2.1a.v1	EUSES	Large/medium site	Marine sediment		0,009mg/kg dw	0,138
spERC 2 IFRA 2.1a.v1	EUSES	Large/medium site	Sewage treatment plant		0,006mg/L	< 0,01
spERC 2 IFRA 2.1a.v1	EUSES	Large/medium site	Soil		0,107mg/kg dw	0,882
spERC IFRA 2.1b.v1	EUSES	Small site	Fresh water		0,724µg/L	0,151
spERC IFRA 2.1b.v1	EUSES	Small site	Fresh water sediment		0,094mg/kg dw	0,151
spERC IFRA 2.1b.v1	EUSES	Small site	Marine water		0,0715µg/L	0,149
spERC IFRA 2.1b.v1	EUSES	Small site	Marine sediment		0,009mg/kg dw	0,149

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spERC IFRA 2.1b.v1	EUSES	Small site	Sewage treatment plant		0,007mg/L	< 0,01
spERC IFRA 2.1b.v1	EUSES	Small site	Soil		0,114mg/kg dw	0,946

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterisation ratio (PEC/PNEC):
PROC 8b (IFRA F-1)	ART 1.5 + ECETOC TRA v3	Indoor	Inhalation, systemic, long-term	1,2 mg/m3	0,2
PROC 8b (IFRA F-1)	ART 1.5 + ECETOC TRA v3	Indoor	Dermal, systemic, long-term	0,686 mg/kg bw/day	0,404
PROC 8b (IFRA F-1)	ART 1.5 + ECETOC TRA v3	Indoor	Dermal, local, long-term	0,05 mg/cm2	0,604
PROC 8b (IFRA F-1)	ART 1.5 + ECETOC TRA v3	Outdoor	Inhalation, systemic, long-term	0,26 mg/m3	0,043
PROC 8b (IFRA F-1)	ART 1.5 + ECETOC TRA v3	Outdoor	Dermal, systemic, long-term	1,371 mg/kg bw/day	0,806
PROC 8b (IFRA F-1)	ART 1.5 + ECETOC TRA v3	Outdoor	Dermal, local, long-term	0,1 mg/cm2	0,028
PROC 1 (IFRA F-2)	TRA Worker v3		Inhalation, systemic, long-term	0,015 mg/m3	< 0,01
PROC 1 (IFRA F-2)	TRA Worker v3		Dermal, systemic, long-term	0,003 mg/kg bw/day	< 0,01
PROC 1 (IFRA F-2)	TRA Worker v3		Dermal, local, long-term	0,9917 µg/cm2	< 0,01
PROC 3 (IFRA F-3)	TRA Worker v3		Inhalation, systemic, long-term	4,102 mg/m3	0,684
PROC 3 (IFRA F-3)	TRA Worker v3		Dermal, systemic, long-term	0,069 mg/kg bw/day	0,041
PROC 3 (IFRA F-3)	TRA Worker v3		Dermal, local, long-term	0,02 mg/cm2	< 0,01
PROC 5 (IFRA-F4)	ART 1.5 + ECETOC TRA v3		Inhalation, systemic, long-term	2,5 mg/m3	0,417
PROC 5 (IFRA-F4)	ART 1.5 + ECETOC TRA v3		Dermal, systemic, long-term	0,686 mg/kg bw/day	0,404
PROC 5	ART 1.5 +		Dermal, local, long-term	0,1 mg/cm2	0,028

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(IFRA-F4)	ECETOC TRA v3				
PROC 15 (IFRA F-5)	TRA Worker v3		Inhalation, systemic, long-term	3,798 mg/m3	0,633
PROC 15 (IFRA F-5)	TRA Worker v3		Dermal, systemic, long-term	0,034 mg/kg bw/day	0,02
PROC 15 (IFRA F-5)	TRA Worker v3		Dermal, local, long-term	0,01 mg/cm2	< 0,01
PROC 9 (IFRA F-6)	Extended ECETOC TRA workers		Inhalation, systemic, long-term	0,798 mg/m3	0,133
PROC 9 (IFRA F-6)	Extended ECETOC TRA workers		Dermal, systemic, long-term	0,072 mg/kg bw/day	0,072
PROC 9 (IFRA F-6)	Extended ECETOC TRA workers		Dermal, local, long-term	10,5 µg/cm2	< 0,01
PROC 8a (IFRA F-7)	Extended ECETOC TRA workers		Inhalation, systemic, long-term	0,798 mg/m3	0,798
PROC 8a (IFRA F-7)	Extended ECETOC TRA workers		Dermal, systemic, long-term	0,144 mg/kg bw/day	0,085
PROC 8a (IFRA F-7)	Extended ECETOC TRA workers		Dermal, local, long-term	10,5 µg/cm2	< 0,01

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

As a downstream user your main obligations under REACH are to:

1. Check if your use is covered by the exposure scenario(s). If this is not the case, you can communicate with your supplier with the aim of having your use covered by an exposure scenario or you may develop your own chemical safety report;

2.a. (Workers) Follow the instructions in this safety data sheet and the conditions of use indicated in the exposure scenario(s) in section 2.2. However, if you have another combination of operational conditions (OCs) and/or risk management measures (RMMs) which allow you to achieve the same level of safety (RCRs <1) you can use scaling to demonstrate that you are in compliance. If scaling is not possible or still results in RCRs >1 then you should implement the OCs and RMMs recommended in this exposure scenario or contact your Supplier in case you need further support;

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2.b. (Environment) Follow the instructions in this safety data sheet and check if your daily and annual amounts used are below the default maximum values indicated in section 2.1. In case you are above the indicated values you can use scaling to demonstrate that you are in compliance, e.g. by replacing the default figure for the river and/or sewage treatment plant flow rates with the actual rates. Background information on PEC Regional freshwater is 5.368E-5 mg/L. If scaling is not possible or still results in RCRs >1, then you should contact your Supplier for further support;

3. Contact your Supplier if you have new information on the hazard of the substance or mixture or if you believe that the risk management measures are not appropriate;

4. Provide your own downstream users with information on hazards, safe conditions of use and appropriate risk management advice for your mixtures if you are a formulator.

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1. Short title of Exposure Scenario: GES2 Formulation of fragranced end-products (mixing of fragrance compounds into fragranced end-products)

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Process category	:	**PROC 8b (AISE M-6):** Material transfers from/to vessel/container at dedicated facility (AISE M-6) **PROC 1 (AISE M-1):** Storage (AISE M-1) **PROC 3 (AISE M-3):** Mixing operations (closed systems) in batch process including filling of equipment and sample collection (AISE M-3) **PROC 5 (AISE M-5):** Mixing operations (open systems) in batch process including filling of equipment and sample collection (AISE M-5) **PROC 15 (AISE M-9):** QC Laboratory (AISE M-9) **PROC 9 (AISE M-7):** Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (AISE M-7) **PROC 8a:** Equipment cleaning and maintenance **PROC 14 (AISE M-8):** Production of mixtures or articles by tabletting, compression, extrusion or pelletisation (AISE M-8)
Environmental release category	:	**AISE 2.1.a,g:** spERC AISE Granular & Low Viscosity Liquids - large scale **AISE 2.1.b,h:** spERC AISE Granular & Low Viscosity Liquids - medium scale **AISE 2.1.c,i:** spERC AISE Granular & Low Viscosity Liquids - small scale **AISE 2.1.j CE/AISE 2.3a CE 2.1.a:** spERC AISE High Viscosity Liquids + CE/AISE Solid Products + CE Low Viscosity Liquids - large scale **AISE 2.1.k CE/AISE 2.3.b CE 2.1.b:** spERC AISE High Viscosity Liquids + CE/AISE Solid Products + CE Low Viscosity Liquids - medium scale **AISE 2.1.l CE/AISE 2.3.c CE 2.1.c:** spERC AISE High Viscosity Liquids + CE/AISE Solid Products + CE Low Viscosity Liquids - small scale **CE 2.1.d-j:** GES2H default - all scales **CE 2.2.a-c:** spERC AISE & CE Fine Fragrances (cleaning with solvent) - all scales

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2.1 Contributing scenario controlling environmental exposure for: AISE 2.1.a,g, AISE 2.1.b,h, AISE 2.1.c,i, AISE 2.1.j CE/AISE 2.3a CE 2.1.a, AISE 2.1.k CE/AISE 2.3.b CE 2.1.b, AISE 2.1.l CE/AISE 2.3.c CE 2.1.c, CE 2.2.a-c, CE 2.1.d-j

Amount used

Daily amount per site	:	350 kg (AISE 2.1.a,g)
	:	67 kg (AISE 2.1.b,h)
	:	30 kg (AISE 2.1.c,i)
	:	50 kg (AISE 2.1.j CE/AISE 2.3.a CE 2.1.a)
	:	20 kg (AISE 2.1.k CE/AISE 2.3.b CE 2.1.b)
	:	16 kg (AISE 2.1.l CE/AISE 2.3.c CE 2.1.c)
	:	150 kg (CE 2.2.a-c)
	:	2,8 kg (CE 2.1.d-j)
Annual amount per site	:	87800 kg (AISE 2.1.a,g)
	:	16800 kg (AISE 2.1.b,h)
	:	6600 kg (AISE 2.1.c,i)
	:	12700 kg (AISE 2.1.j CE/AISE 2.3.a CE 2.1.a)
	:	4600 kg (AISE 2.1.k CE/AISE 2.3.b CE 2.1.b)
	:	4000 kg (AISE 2.1.l CE/AISE 2.3.c CE 2.1.c)
	:	37000 kg (CE 2.2.a-c)
	:	700 kg (CE 2.1.d-j)

Environment factors not influenced by risk management

Flow rate	:	18.000 m3/d
Remarks	:	Large/medium site, Small site

Other given operational conditions affecting environmental exposure

Continuous exposure		
Number of emission days per year	:	250
Emission or Release Factor: Air	:	0 %
Emission or Release Factor: Soil	:	0 %
Remarks	:	Large/medium site, Small site
Emission or Release Factor: Water	:	0,01 %
Remarks	:	AISE 2.1.a,g, AISE 2.1.b,h, AISE 2.1.j CE/AISE 2.3.a CE 2.1.a

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Emission or Release Factor: Water	:	0,2 %
Remarks	:	AISE 2.1.c,i, AISE 2.1.k CE/AISE 2.3.b CE 2.1.b
Emission or Release Factor: Water	:	0,4 %
Remarks	:	AISE 2.1.l CE/AISE 2.3.c CE 2.1.c
Emission or Release Factor: Water	:	0 %
Remarks	:	CE 2.2.a-c
Emission or Release Factor: Water	:	2 %
Remarks	:	CE 2.1.d-j

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Effectiveness (of a measure)	:	79,3 %
Remarks	:	AISE 2.1.a,g, AISE 2.1.b,h, AISE 2.1.c,i, AISE 2.1.j CE/AISE 2.3.a CE 2.1.a, AISE 2.1.k CE/AISE 2.3.b CE 2.1.b, AISE 2.1.l CE/AISE 2.3.c CE 2.1.c, CE 2.1.d-j
Effectiveness (of a measure)	:	100 %
Remarks	:	CE 2.2.a-c

Conditions and measures related to external treatment of waste for disposal

Disposal methods	:	Dispose of waste or used sacks/containers according to local regulations.
Remarks	:	Large/medium site, Small site

2.2 Contributing scenario controlling worker exposure for: PROC 8b (AISE M-6)

Frequency and duration of use

Remarks	:	Avoid carrying out activities involving exposure for more than 1 hour.

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Assumes process temperature up to 40 °C

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Technical conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in semi-closed process with opportunity for exposure., Advanced (industrial) exposure controles assumed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

2.3 Contributing scenario controlling worker exposure for: PROC 1 (AISE M-1)

Frequency and duration of use
Remarks : Avoid carrying out activities involving exposure for more than 1 hour.

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor
Remarks : Assumes process temperature up to 40 °C

Technical conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed process, no likelihood of exposure., Advanced (industrial) exposure controles assumed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

2.4 Contributing scenario controlling worker exposure for: PROC 3 (AISE M-3)

Frequency and duration of use
Remarks : Avoid carrying out activities involving exposure for more than 4 hours.

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor
Remarks : Assumes process temperature up to 40 °C

Technical conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in closed batch process (synthesis

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or formulation)., Advanced (industrial) exposure controles assumed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

2.5 Contributing scenario controlling worker exposure for: PROC 5 (AISE M-5)

Frequency and duration of use

Remarks	:	Avoid carrying out activities involving exposure for more than 4 hours.

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Assumes process temperature up to 40 °C

Technical conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Advanced (industrial) exposure controles assumed.

Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

2.6 Contributing scenario controlling worker exposure for: PROC 15 (AISE M-9)

Frequency and duration of use

Remarks	:	Avoid carrying out activities involving exposure for more than 15 minutes.

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor
Remarks	:	Assumes process temperature up to 40 °C

Technical conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Advanced (industrial) exposure controles assumed.

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Conditions and measures related to personal protection, hygiene and health evaluation
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.

2.7 Contributing scenario controlling worker exposure for: PROC 9 (AISE M-7)

Frequency and duration of use
Remarks : Avoid carrying out activities involving exposure for more than 1 hour.

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor
Remarks : Assumes process temperature up to 40 °C

Technical conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Use in semi-closed process with opportunity for exposure., Advanced (industrial) exposure controles assumed.

2.8 Contributing scenario controlling worker exposure for: PROC 8a

Frequency and duration of use
Remarks : Avoid carrying out activities involving exposure for more than 4 hours.

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor
Remarks : Assumes process temperature up to 40 °C

Technical conditions and measures
Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Advanced (industrial) exposure controles assumed.

2.9 Contributing scenario controlling worker exposure for: PROC 14 (AISE M-8)

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Frequency and duration of use

Remarks : Covers daily exposures up to 8 hours (unless stated differently).

Other operational conditions affecting workers exposure

Outdoor / Indoor : Indoor

Remarks : Assumes process temperature up to 40 °C

Technical conditions and measures

Provide a basic standard of general ventilation (1 to 3 air changes per hour)., Advanced (industrial) exposure controles assumed.

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterisation ratio (PEC/PNEC):
AISE 2.1.a,g	EUSES	Large scale	Fresh water		0,4146µg/L	0,086
AISE 2.1.a,g	EUSES	Large scale	Fresh water sediment		0,054mg/kg dw	0,086
AISE 2.1.a,g	EUSES	Large scale	Marine water		0,0406µg/L	0,085
AISE 2.1.a,g	EUSES	Large scale	Marine sediment		0,005mg/kg dw	0,085
AISE 2.1.a,g	EUSES	Large scale	Sewage treatment plant		0,004mg/L	< 0,01
AISE 2.1.a,g	EUSES	Large scale	Soil		0,061mg/kg dw	0,507
AISE 2.1.b,h	EUSES	Medium scale	Fresh water		0,7446mg/L	0,155
AISE 2.1.b,h	EUSES	Medium scale	Fresh water sediment		0,096mg/kg dw	0,155
AISE 2.1.b,h	EUSES	Medium scale	Marine water		0,0736µg/L	0,153
AISE 2.1.b,h	EUSES	Medium scale	Marine sediment		0,01mg/kg dw	0,154
AISE 2.1.b,h	EUSES	Medium scale	Sewage treatment plant		0,007mg/L	< 0,01
AISE 2.1.b,h	EUSES	Medium scale	Soil		0,117mg/kg dw	0,97
AISE 2.1.c,i	EUSES	Small scale	Fresh water		0,6724µg/L	0,14
AISE 2.1.c,i	EUSES	Small scale	Fresh water		0,087mg/kg dw	0,14

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			sediment			
AISE 2.1.c,i	EUSES	Small scale	Marine water		0,0664µg/L	0,138
AISE 2.1.c,i	EUSES	Small scale	Marine sediment		0,009mg/kg dw	0,138
AISE 2.1.c,i	EUSES	Small scale	Sewage treatment plant		0,006mg/L	< 0,01
AISE 2.1.c,i	EUSES	Small scale	Soil		0,105mg/kg dw	0,869
AISE 2.1.j CE/AISE 2.3a CE 2.1.a	EUSES	Large scale	Fresh water		0,5693µg/L	0,119
AISE 2.1.j CE/AISE 2.3a CE 2.1.a	EUSES	Large scale	Fresh water sediment		0,074mg/kg dw	0,119
AISE 2.1.j CE/AISE 2.3a CE 2.1.a	EUSES	Large scale	Marine water		0,0561µg/L	0,117
AISE 2.1.j CE/AISE 2.3a CE 2.1.a	EUSES	Large scale	Marine sediment		0,007mg/kg dw	0,117
AISE 2.1.j CE/AISE 2.3a CE 2.1.a	EUSES	Large scale	Sewage treatment plant		0,005mg/L	< 0,01
AISE 2.1.j CE/AISE 2.3a CE 2.1.a	EUSES	Large scale	Soil		0,088mg/kg dw	0,724
AISE 2.1.k CE/AISE 2.3.b CE 2.1.b	EUSES	Medium scale	Fresh water		0,4662µg/L	0,097
AISE 2.1.k CE/AISE 2.3.b CE 2.1.b	EUSES	Medium scale	Fresh water sediment		0,06mg/kg dw	0,097
AISE 2.1.k CE/AISE 2.3.b CE 2.1.b	EUSES	Medium scale	Marine water		0,0457µg/L	0,095
AISE 2.1.k CE/AISE	EUSES	Medium scale	Marine sediment		0,006mg/kg dw	0,095

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2.3.b CE 2.1.b						
AISE 2.1.k CE/AISE 2.3.b CE 2.1.b	EUSES	Medium scale	Sewage treatment plant		0,004mg/L	< 0,01
AISE 2.1.k CE/AISE 2.3.b CE 2.1.b	EUSES	Medium scale	Soil		0,07mg/kg dw	0,579
AISE 2.1.l CE/AISE 2.3.c CE 2.1.c	EUSES	Small scale	Fresh water		0,7137µg/L	0,149
AISE 2.1.l CE/AISE 2.3.c CE 2.1.c	EUSES	Small scale	Fresh water sediment		0,092mg/kg dw	0,149
AISE 2.1.l CE/AISE 2.3.c CE 2.1.c	EUSES	Small scale	Marine water		0,0705µg/L	0,147
AISE 2.1.l CE/AISE 2.3.c CE 2.1.c	EUSES	Small scale	Marine sediment		0,009mg/kg dw	0,147
AISE 2.1.l CE/AISE 2.3.c CE 2.1.c	EUSES	Small scale	Sewage treatment plant		0,007mg/L	< 0,01
AISE 2.1.l CE/AISE 2.3.c CE 2.1.c	EUSES	Small scale	Soil		0,112mg/kg dw	0,927
CE 2.2.a-c	EUSES	all scales	Fresh water		0,0537µg/L	0,011
CE 2.2.a-c	EUSES	all scales	Fresh water sediment		0,007mg/kg dw	0,011
CE 2.2.a-c	EUSES	all scales	Marine water		0,0045µg/L	< 0,01
CE 2.2.a-c	EUSES	all scales	Marine sediment		0,5822µg/kg dw	< 0,01
CE 2.2.a-c	EUSES	all scales	Sewage treatment plant		0mg/L	< 0,01
CE 2.2.a-c	EUSES	all scales	Soil		0,0019µg/kg dw	< 0,01
CE 2.1.d-j	EUSES	all scales	Fresh water		0,6312µg/L	0,132
CE 2.1.d-j	EUSES	all scales	Fresh water		0,082mg/kg dw	0,132

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			sediment			
CE 2.1.d-j	EUSES	all scales	Marine water		0,0622µg/L	0,13
CE 2.1.d-j	EUSES	all scales	Marine sediment		0,008mg/kg dw	0,13
CE 2.1.d-j	EUSES	all scales	Sewage treatment plant		0,006mg/L	< 0,01
CE 2.1.d-j	EUSES	all scales	Soil		0,098mg/kg dw	0,811

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterisation ratio (PEC/PNEC):
PROC 8b (AISE M-6)	Extended ECETOC TRA workers	Indoor	Inhalation, systemic, long-term	0,798 mg/m3	0,133
PROC 8b (AISE M-6)	Extended ECETOC TRA workers	Indoor	Dermal, systemic, long-term	0,144 mg/kg bw/day	0,085
PROC 8b (AISE M-6)	Extended ECETOC TRA workers	Indoor	Dermal, local, long-term	10,5 µg/cm2	< 0,01
PROC 1 (AISE M-1)	Extended ECETOC TRA workers		Inhalation, systemic, long-term	0,002 mg/m3	< 0,01
PROC 1 (AISE M-1)	Extended ECETOC TRA workers		Dermal, systemic, long-term	0,004 mg/kg bw/day	< 0,01
PROC 1 (AISE M-1)	Extended ECETOC TRA workers		Dermal, local, long-term	1,1 µg/cm2	< 0,01
PROC 3 (AISE M-3)	Extended ECETOC TRA workers		Inhalation, systemic, long-term	1,436 mg/m3	0,239
PROC 3 (AISE M-3)	Extended ECETOC TRA workers		Dermal, systemic, long-term	0,007 mg/kg bw/day	< 0,01
PROC 3 (AISE M-3)	Extended ECETOC TRA workers		Dermal, local, long-term	2,1 µg/cm2	< 0,01
PROC 5 (AISE M-5)	Extended ECETOC TRA workers		Inhalation, systemic, long-term	2,393 mg/m3	0,399
PROC 5 (AISE M-5)	Extended ECETOC TRA workers		Dermal, systemic, long-term	0,144 mg/kg bw/day	0,085
PROC 5 (AISE M-5)	Extended ECETOC TRA workers		Dermal, local, long-term	21 µg/cm2	< 0,01
PROC 15 (AISE M-9)	Extended ECETOC TRA workers		Inhalation, systemic, long-term	0,399 mg/m3	0,066
PROC 15 (AISE M-9)	Extended ECETOC TRA workers		Dermal, systemic, long-term	0,004 mg/kg bw/day	< 0,01

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PROC 15 (AISE M-9)	Extended ECETOC TRA workers		Dermal, local, long-term	1,1 µg/cm2	< 0,01
PROC 9 (AISE M-7)	Extended ECETOC TRA workers		Inhalation, systemic, long-term	0,048 mg/m3	< 0,01
PROC 9 (AISE M-7)	Extended ECETOC TRA workers		Dermal, systemic, long-term	0,043 mg/kg bw/day	0,025
PROC 9 (AISE M-7)	Extended ECETOC TRA workers		Dermal, local, long-term	6,3 µg/cm2	< 0,01
PROC 8a (IFRA F-7)	Extended ECETOC TRA workers		Inhalation, systemic, long-term	0,287 mg/m3	0,048
PROC 8a (IFRA F-7)	Extended ECETOC TRA workers		Dermal, systemic, long-term	0,086 mg/kg bw/day	0,051
PROC 8a (IFRA F-7)	Extended ECETOC TRA workers		Dermal, local, long-term	6,3 µg/cm2	< 0,01
PROC 14 (AISE M-8)	Extended ECETOC TRA workers		Dermal, local, long-term	3,2 µg/cm2	< 0,01
PROC 14 (AISE M-8)	Extended ECETOC TRA workers		Dermal, systemic, long-term	0,022 mg/kg bw/day	0,013
PROC 14 (AISE M-8)	Extended ECETOC TRA workers		Inhalation, systemic, long-term	0,239 mg/m3	0,04

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

As a downstream user your main obligations under REACH are to:

1. Check if your use is covered by the exposure scenario(s). If this is not the case, you can communicate with your supplier with the aim of having your use covered by an exposure scenario or you may develop your own chemical safety report;

2.a. (Workers) Follow the instructions in this safety data sheet and the conditions of use indicated in the exposure scenario(s) in section 2.2. However, if you have another combination of operational conditions (OCs) and/or risk management measures (RMMs) which allow you to achieve the same level of safety (RCRs <1) you can use scaling to demonstrate that you are in compliance. If scaling is not possible or still results in RCRs >1 then you should implement the OCs and RMMs recommended in this exposure scenario or contact your Supplier in case you need further support;

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2.b. (Environment) Follow the instructions in this safety data sheet and check if your daily and annual amounts used are below the default maximum values indicated in section 2.1. In case you are above the indicated values you can use scaling to demonstrate that you are in compliance, e.g. by replacing the default figure for the river and/or sewage treatment plant flow rates with the actual rates. Background information on PEC Regional freshwater is 5.368E-5 mg/L. If scaling is not possible or still results in RCRs >1, then you should contact your Supplier for further support;

3. Contact your Supplier if you have new information on the hazard of the substance or mixture or if you believe that the risk management measures are not appropriate;

4. Provide your own downstream users with information on hazards, safe conditions of use and appropriate risk management advice for your mixtures if you are a formulator.

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