



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 1 (25)

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

1.1 Product identifier

Trade name : CP FORMATE APHERMATE
Registration number : 01-2119979543-25-0000
SDS Number : R00000218069

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 Benicarló, S.L.
Avda. Felipe Klein 2
12580 BENICARLÓ
Spain
Telephone : +34964470212
Telefax : +34964473411
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)

Chronic aquatic toxicity, Category 2 H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Version : 5.2
Revision Date : 04.08.2017

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 2 (25)

Hazard pictograms :



Hazard statements : H411 Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:
P273 Avoid release to the environment.

Response:
P391 Collect spillage.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

None reasonably foreseeable.

3. Composition/information on ingredients

3.1 Substances

Chemical name of the substance : #,3,3-trimethylcyclohexylmethyl formate
 Chemical characterization : esters of aliphatic acids
 Molecular formula : C₁₁H₂₀O₂
 Molecular weight : 184,30 g/mol
 CAS-No. : 25225-08-5
 EINECS-No. : 246-735-2
 REACH No. : 01-2119979543-25-0000

Hazardous components

Chemical name	CAS-No. EC-No.	GHS Classification	Concentration [%]
#,3,3-trimethylcyclohexylmethyl formate	25225-08-5 246-735-2	Aquatic Chronic2; H411	90 - 100

For the full text of the R-phrases mentioned in this Section, see Section 16.

Version : 5.2
 Revision Date : 04.08.2017



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 3 (25)

3.2 Mixtures

Not applicable, product is a substance.

4. First aid measures

4.1 Description of first aid measures

- General advice : Take Risk/Hazard and Safety/Precautionary phrases (section 2 or 15) 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 : Water may be ineffective.

Version : 5.2
Revision Date : 04.08.2017



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 4 (25)

firefighting

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.

Version : 5.2

Revision Date : 04.08.2017



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 5 (25)

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: Industrial use, Professional use
The substance does not have to be classified for long-term human health effects and no adverse effects are observed up to the limit dose level for repeated dose toxicity. A DNEL is therefore not required.

PNEC : Fresh water
Value: 0,0077 mg/l

PNEC : Marine water
Value: 0,00077 mg/l

PNEC : Fresh water sediment
Value: 0,78 mg/kg dry weight (d.w.)

PNEC : Marine sediment
Value: 0,078 mg/kg dry weight (d.w.)

PNEC : Sewage treatment plant
Value: 10 mg/l

PNEC : Soil
Value: 0,152 mg/kg dry weight (d.w.)

PNEC : Secondary Poisoning

Version : 5.2

Revision Date : 04.08.2017



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 6 (25)

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 : No personal respiratory protective equipment normally required.

Hand protection : not required

Eye protection : not required

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
Odour : conforms to standard
Odour Threshold : not determined
Flash point : 103 °C
Lower explosion limit : not determined
Upper explosion limit : not determined

Version : 5.2

Revision Date : 04.08.2017



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 7 (25)

Flammability (solid, gas) : Not classified as a flammability hazard

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Auto-ignition temperature : 310 °C at 1.013 hPa

pH : not determined

Melting point : -20 °C at 1.013 hPa

Boiling point : 219,9 °C at 1.013 hPa

Vapour pressure : 0,13 hPa Calculated

Density : not determined

Water solubility : 26,12 g/l at 23 °C
Method: Purge & Trap

Partition coefficient: n-octanol/water : log Pow: 3,8 at 35 °C
Method: OECD Test Guideline 117

Solubility in other solvents : not determined

Viscosity, dynamic : 4,55 mPa.s
at 20 °C
Method: OECD 114

Viscosity, kinematic : not determined

Relative vapour density : not determined

Evaporation rate : not determined

9.2 Other information

Refractive index : not determined

Relative density : 0,9340 - 0,9420

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

Version : 5.2

Revision Date : 04.08.2017



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 8 (25)

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
Remarks: No adverse effect has been observed in acute toxicity tests.

Acute dermal toxicity : LD50: > 5.000 mg/kg
Species: Rabbit
Method: OECD Test Guideline 402
Remarks: No adverse effect has been observed in acute toxicity tests.

Skin corrosion/irritation

Skin irritation : No information available.
Skin irritation : Species: human
Result: No skin irritation
Method: OECD 439
Exposure time: 48 h

Serious eye damage/eye irritation

No information available.
Eye irritation : Species: Chicken eye

Version : 5.2
Revision Date : 04.08.2017



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 9 (25)

Result: No eye irritation
Method: OECD Test Guideline 438

Respiratory or skin sensitisation

No information available.

Sensitisation : maximisation study
Species: Guinea pig
Result: causes no sensitization
Method: OECD Test Guideline 406
Remarks: Information taken from reference works and the literature.

Germ cell mutagenicity

No information available.

Genotoxicity in vitro : Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

Carcinogenicity

No information available.

Carcinogenicity : Species: Rat
Method: not required

Reproductive toxicity

No information available.

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: 28-day ()
NOEL: 1.000 mg/kg
Method: OECD Test Guideline 407
Information taken from reference works and the literature.

Aspiration hazard

No information available.

Version : 5.2
Revision Date : 04.08.2017



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 10 (25)

12. Ecological information

12.1 Toxicity

- Toxicity to fish : LC50: 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: 7,7 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
static test Method: OECD Test Guideline 202
- Toxicity to algae : EC50: > 7,1 mg/l
Exposure time: 48 h
Species: Pseudokirchneriella subcapitata (aglae)
static test Method: OECD Test Guideline 201
- : EC10: 1,5 mg/l
Exposure time: 48 h
Species: Pseudokirchneriella subcapitata (aglae)
static test Method: OECD Test Guideline 201
- Toxicity to bacteria : 1.000 mg/l
Exposure time: 3 h
Species: activated sludge
Respiration inhibition
Method: OECD Test Guideline 209

12.2 Persistence and degradability

No information available.

- Biodegradability : Result: Not readily biodegradable.
8 %
Method: OECD Test Guideline 301D

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

Version : 5.2
Revision Date : 04.08.2017



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 11 (25)

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. (ALPHA,3,3-TRIMETHYL-1-CYCLOHEXANEMETHANOL FORMATE)
- Labels : 9
- Packing group : III
- Environmentally hazardous : yes

IATA

- UN number : 3082
- Description of the goods : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ALPHA,3,3-TRIMETHYL-1-CYCLOHEXANEMETHANOL FORMATE)
- Labels : 9
- Packing group : III
- Environmentally hazardous : yes

IMDG

- UN number : 3082
- Description of the goods : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ALPHA,3,3-TRIMETHYL-1-CYCLOHEXANEMETHANOL FORMATE)
- Labels : 9
- Packing group : III
- Marine pollutant : yes (ALPHA,3,3-TRIMETHYL-1-CYCLOHEXANEMETHANOL)

Version : 5.2

Revision Date : 04.08.2017



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 12 (25)

FORMATE)

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 2 water endangering
(Germany) Classification according to appendix 3

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.

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 $\geq 1.0\%$ 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.

Version : 5.2
Revision Date : 04.08.2017



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 13 (25)

Emergency telephone number

Austria	+43 1 406 43 43
Belgium	+32 70 245 245
Bulgaria	+359 2 9154 233
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	For medical professionals only +44 845 46 47 (England and Wales) + 44 8454 24 24 24 (Scotland)

Version : 5.2
Revision Date : 04.08.2017



ANNEX

INTERNATIONAL FLAVORS & FRAGRANCES

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 14 (25)

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)**

Version : 5.2
Revision Date : 04.08.2017

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 15 (25)

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

Product characteristics

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

Amount used

Daily amount per site	: 23 kg (Large/medium site) : 11 kg (Small site)
Annual amount per site	: 5700 kg (Large/medium site)

Version	: 5.2
Revision Date	: 04.08.2017

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 16 (25)

: 2800 kg (Small site)

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

Emission or Release Factor: Water : 0,5 %
 Remarks : Small site

Emission or Release Factor: Water : 0,2 %
 Remarks : Large 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 : 2.000 m3/d
 effluent
 Effectiveness (of a measure) : 51,3 %
 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), PROC 1 (IFRA F-2), PROC 3 (IFRA F-3), PROC 5 (IFRA-F4), PROC 15 (IFRA F-5), PROC 9 (IFRA F-6), PROC 8a (IFRA F-7)

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

Version : 5.2
 Revision Date : 04.08.2017

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 17 (25)

Exposure assessment and risk characterisation is not required for workers., No hazards for human health have been identified.

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		0,001mg/L	0,146
spERC 2 IFRA 2.1a.v1	EUSES	Large/medium site	Fresh water sediment		0,114mg/kg dw	0,146
spERC 2 IFRA 2.1a.v1	EUSES	Large/medium site	Marine water		0,1125µg/L	0,146
spERC 2 IFRA 2.1a.v1	EUSES	Large/medium site	Marine sediment		0,011mg/kg dw	0,146
spERC 2 IFRA 2.1a.v1	EUSES	Large/medium site	Sewage treatment plant		0,011mg/L	< 0,01
spERC 2 IFRA 2.1a.v1	EUSES	Large/medium site	Soil		0,072mg/kg dw	0,471
spERC IFRA 2.1b.v1	EUSES	Small site	Fresh water		0,001mg/L	0,181
spERC IFRA 2.1b.v1	EUSES	Small site	Fresh water sediment		0,141mg/kg dw	0,181
spERC IFRA 2.1b.v1	EUSES	Small site	Marine water		0,1392µg/L	0,181
spERC IFRA	EUSES	Small site	Marine sediment		0,014mg/kg dw	0,181

Version : 5.2
Revision Date : 04.08.2017

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 18 (25)

2.1b.v1 spERC IFRA 2.1b.v1	EUSES	Small site	Sewage treatment plant		0,014mg/L	< 0,01
spERC IFRA 2.1b.v1	EUSES	Small site	Soil		0,088mg/kg dw	0,578

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;

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.

Version : 5.2
Revision Date : 04.08.2017

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 19 (25)

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 tableting, 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 2.2.a-c: spERC AISE & CE Fine Fragrances (cleaning with solvent) - all scales
CE 2.1.d-j: GES2H default - all scales |

Version : 5.2
Revision Date : 04.08.2017

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 20 (25)

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

Product characteristics

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

Amount used

Daily amount per site : 40 kg (AISE 2.1.a,g)
 : 14 kg (AISE 2.1.b,h)
 : 11 kg (AISE 2.1.c,i)
 : 11 kg (AISE 2.1.j CE/AISE 2.3.a CE 2.1.a)
 : 4 kg (AISE 2.1.k CE/AISE 2.3.b CE 2.1.b)
 : 3,6 kg (AISE 2.1.l CE/AISE 2.3.c CE 2.1.c)
 : 16 kg (CE 2.2.a-c)
 : 1,6 kg (CE 2.1.d-j)

Annual amount per site : 9300 kg (AISE 2.1.a,g)
 : 3600 kg (AISE 2.1.b,h)
 : 2800 kg (AISE 2.1.c,i)
 : 2700 kg (AISE 2.1.j CE/AISE 2.3.a CE 2.1.a)
 : 1000 kg (AISE 2.1.k CE/AISE 2.3.b CE 2.1.b)
 : 900 kg (AISE 2.1.l CE/AISE 2.3.c CE 2.1.c)
 : 3900 kg (CE 2.2.a-c)
 : 400 kg (CE 2.1.d-j)

Environment factors not influenced by risk management

Flow rate : 18.000 m³/d
 Remarks : mg/kg ww, 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 : mg/kg ww, small site

Version : 5.2
 Revision Date : 04.08.2017

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 21 (25)

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

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 : 2.000 m3/d
 effluent
 Effectiveness (of a measure) : 51,3 %
 Sludge Treatment : Can be landfilled, when in compliance with local regulations.
 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), PROC 1 (AISE M-1), PROC 3 (AISE M-3), PROC 5 (AISE M-5), PROC 15 (AISE M-9), PROC 9 (AISE M-7), PROC 8a, PROC 14 (AISE M-8)

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

Version : 5.2
 Revision Date : 04.08.2017

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 22 (25)

Exposure assessment and risk characterisation is not required for workers., No hazards for human health have been identified.

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 site	Fresh water		0,1061µg/L	0,014
AISE 2.1.a.g	EUSES	Large site	Fresh water sediment		0,011mg/kg dw	0,014
AISE 2.1.a.g	EUSES	Large site	Marine water		0,0104µg/L	0,014
AISE 2.1.a.g	EUSES	Large site	Marine sediment		0,001mg/kg dw	0,014
AISE 2.1.a.g	EUSES	Large site	Sewage treatment plant		0,9736µg/L	< 0,01
AISE 2.1.a.g	EUSES	Large site	Soil		0,006mg/kg dw	0,04
AISE 2.1.b,h	EUSES	Medium site	Fresh water		0,3588µg/L	0,047
AISE 2.1.b,h	EUSES	Medium site	Fresh water sediment		0,036mg/kg dw	0,047
AISE 2.1.b,h	EUSES	Medium site	Marine water		0,0357µg/L	0,046
AISE 2.1.b,h	EUSES	Medium site	Marine sediment		0,004mg/kg dw	0,046
AISE 2.1.b,h	EUSES	Medium site	Sewage treatment plant		0,004mg/L	< 0,01
AISE 2.1.b,h	EUSES	Medium site	Soil		0,022mg/kg dw	0,145
AISE 2.1.c,i	EUSES	Small site	Fresh water		0,5533µg/L	0,072
AISE 2.1.c,i	EUSES	Small site	Fresh water sediment		0,056mg/kg dw	0,072
AISE 2.1.c,i	EUSES	Small site	Marine water		0,0552µg/L	0,072
AISE 2.1.c,i	EUSES	Small site	Marine sediment		0,006mg/kg dw	0,072
AISE 2.1.c,i	EUSES	Small site	Sewage treatment plant		0,005mg/L	< 0,01
AISE 2.1.c,i	EUSES	Small site	Soil		0,034mg/kg dw	0,226
AISE 2.1.j	EUSES	Large site	Fresh water		0,2713µg/L	0,035

Version : 5.2
 Revision Date : 04.08.2017

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 23 (25)

CE/AISE 2.3a CE 2.1.a						
AISE 2.1.j CE/AISE 2.3a CE 2.1.a	EUSES	Large site	Fresh water sediment		0,027mg/kg dw	0,035
AISE 2.1.j CE/AISE 2.3a CE 2.1.a	EUSES	Large site	Marine water		0,0269µg/L	0,035
AISE 2.1.j CE/AISE 2.3a CE 2.1.a	EUSES	Large site	Marine sediment		0,003mg/kg dw	0,035
AISE 2.1.j CE/AISE 2.3a CE 2.1.a	EUSES	Large site	Sewage treatment plant		0,003mg/L	< 0,01
AISE 2.1.j CE/AISE 2.3a CE 2.1.a	EUSES	Large site	Soil		0,017mg/kg dw	0,109
AISE 2.1.k CE/AISE 2.3.b CE 2.1.b	EUSES	Medium site	Fresh water		0,2033µg/L	0,026
AISE 2.1.k CE/AISE 2.3.b CE 2.1.b	EUSES	Medium site	Fresh water sediment		0,021mg/kg dw	0,026
AISE 2.1.k CE/AISE 2.3.b CE 2.1.b	EUSES	Medium site	Marine water		0,0202µg/L	0,026
AISE 2.1.k CE/AISE 2.3.b CE 2.1.b	EUSES	Medium site	Marine sediment		0,002mg/kg dw	0,026
AISE 2.1.k CE/AISE 2.3.b CE 2.1.b	EUSES	Medium site	Sewage treatment plant		0,002mg/L	< 0,01
AISE 2.1.k CE/AISE	EUSES	Medium site	Soil		0,012mg/kg dw	0,081

Version : 5.2
Revision Date : 04.08.2017

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 24 (25)

2.3.b CE 2.1.b						
AISE 2.1.1 CE/AISE 2.3.c CE 2.1.c	EUSES	Small site	Fresh water		0,3588µg/L	0,047
AISE 2.1.1 CE/AISE 2.3.c CE 2.1.c	EUSES	Small site	Fresh water sediment		0,036mg/kg dw	0,047
AISE 2.1.1 CE/AISE 2.3.c CE 2.1.c	EUSES	Small site	Marine water		0,0357µg/L	0,046
AISE 2.1.1 CE/AISE 2.3.c CE 2.1.c	EUSES	Small site	Marine sediment		0,004mg/kg dw	0,046
AISE 2.1.1 CE/AISE 2.3.c CE 2.1.c	EUSES	Small site	Sewage treatment plant		0,004mg/L	< 0,01
AISE 2.1.1 CE/AISE 2.3.c CE 2.1.c	EUSES	Small site	Soil		0,022mg/kg dw	0,145
CE 2.2.a-c	EUSES	Large/medium site, Small site	Fresh water		0,0088µg/L	< 0,01
CE 2.2.a-c	EUSES	Large/medium site, Small site	Fresh water sediment		0,8978µg/kg dw	< 0,01
CE 2.2.a-c	EUSES	Large/medium site, Small site	Marine water		0,0007µg/L	< 0,01
CE 2.2.a-c	EUSES	Large/medium site, Small site	Marine sediment		0,0072µg/kg dw	< 0,01
CE 2.2.a-c	EUSES	Large/medium site, Small site	Sewage treatment plant		0mg/L	< 0,01
CE 2.2.a-c	EUSES	Large/medium site, Small site	Soil		0,0004µg/kg dw	< 0,01
CE 2.1.d-j	EUSES	Large/medium site, Small site	Fresh water		0,7866µg/L	0,102
CE 2.1.d-j	EUSES	Large/medium site, Small site	Fresh water sediment		0,08mg/kg dw	0,102
CE 2.1.d-j	EUSES	Large/medium site, Small site	Marine water		0,0785µg/L	0,102
CE 2.1.d-j	EUSES	Large/medium site,	Marine		0,008mg/kg dw	0,102

Version : 5.2
Revision Date : 04.08.2017

Product CP FORMATE APHERMATE

Print Date 13.11.2017

Page 25 (25)

CE 2.1.d-j	EUSES	Small site Large/medium site, Small site	sediment Sewage treatment plant		0,008mg/L	< 0,01
CE 2.1.d-j	EUSES	Large/medium site, Small site	Soil		0,049mg/kg dw	0,322

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;

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.

Version : 5.2
Revision Date : 04.08.2017