

# SAFETY DATA SHEET

**Fragrance 30011895**

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

### 1.1 Product identifier

**Product code** : Fragrance 30011895  
**Product name** : MEDITERRAIN COAST AFL

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

Fragrance. Restricted to professional users. Industrial use only.

### 1.3 Details of the supplier of the safety data sheet

**Supplier's details** : drom fragrances GmbH & Co. KG  
 Oberdiller Straße 18  
 tel. +49 89 74425-0  
 fax. +49 89 7934966  
 D-82065 Baierbrunn

**e-mail address of person responsible for this SDS** : safety@drom.com

### 1.4 Emergency telephone number

#### National advisory body/Poison Center

**Telephone number** : www.rshm.gov.tr

#### Supplier

**Emergency telephone number (with hours of operation)** : +49 89 74425 288  
 9h - 17h (Mo - Fr)

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Skin Irrit. 2, H315  
 Eye Irrit. 2, H319  
 Skin Sens. 1, H317  
 Aquatic Chronic 2, H411

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

**Hazard pictograms** :



**Signal word** : Warning

**Hazard statements** : H319 - Causes serious eye irritation.  
 H315 - Causes skin irritation.  
 H317 - May cause an allergic skin reaction.  
 H411 - Toxic to aquatic life with long lasting effects.

#### Precautionary statements

**Prevention** : P280 - Wear protective gloves. Wear eye or face protection.  
 P273 - Avoid release to the environment.

## Fragrance 30011895

## SECTION 2: Hazards identification

|                                    |                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Response</b>                    | : P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.                                                                                                                                                                                |
| <b>Storage</b>                     | : Not applicable.                                                                                                                                                                                                                                                                                                                      |
| <b>Disposal</b>                    | : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.                                                                                                                                                                                                             |
| <b>Hazardous ingredients</b>       | : linalyl acetate<br>α-hexylcinnamaldehyde<br>dipentene<br>citral<br>citronellol<br>1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one<br>2,4-dimethylcyclohex-3-en-1-carbaldehyde<br>pin-2(10)-ene<br>4-tert-butylcyclohexyl acetate<br>pin-2(3)-ene<br>1-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl)-2-buten-1-one |
| <b>Supplemental label elements</b> | : Not applicable.                                                                                                                                                                                                                                                                                                                      |

## 2.3 Other hazards

|                                                            |               |
|------------------------------------------------------------|---------------|
| <b>Other hazards which do not result in classification</b> | : None known. |
|------------------------------------------------------------|---------------|

## SECTION 3: Composition/information on ingredients

**3.1 Substances** : Not applicable.

**3.2 Mixtures** : Mixture

| Product/ingredient name                                        | Identifiers                                                                                         | %     | Regulation (EC) No. 1272/2008 [CLP]                                                                                                       | Type |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------|------|
| linalyl acetate                                                | REACH #:<br>01-2119454789-19<br>EC: 204-116-4<br>CAS: 115-95-7                                      | 13.15 | Skin Irrit. 2, H315<br>Eye Irrit. 2, H319                                                                                                 | [1]  |
| 1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethylindeno[5,6-c]pyran | REACH #:<br>01-2119488227-29<br>EC: 214-946-9<br>CAS: 1222-05-5<br>Index: 603-212-00-7              | 10.00 | Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410                                                                                          | [1]  |
| α-hexylcinnamaldehyde                                          | REACH #:<br>01-2119533092-50<br>EC: 202-983-3<br>EC: 639-566-4<br>CAS: 101-86-0<br>CAS: 165184-98-5 | 8.00  | Skin Sens. 1B, H317<br>Aquatic Acute 1, H400<br>Aquatic Chronic 2, H411                                                                   | [1]  |
| linalool                                                       | REACH #:<br>01-2119474016-42<br>EC: 201-134-4<br>CAS: 78-70-6                                       | 7.49  | Skin Irrit. 2, H315<br>Eye Irrit. 2, H319                                                                                                 | [1]  |
| dipentene                                                      | EC: 205-341-0<br>CAS: 138-86-3<br>Index: 601-029-00-7                                               | 6.22  | Flam. Liq. 3, H226<br>Skin Irrit. 2, H315<br>Skin Sens. 1B, H317<br>Asp. Tox. 1, H304<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410 | [1]  |
| citral                                                         | REACH #:                                                                                            | 3.54  | Skin Irrit. 2, H315                                                                                                                       | [1]  |

## Fragrance 30011895

## SECTION 3: Composition/information on ingredients

|                                                                         |                                                                                                            |      |                                                                                                                                           |     |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------|-----|
|                                                                         | 01-2119462829-23<br>EC: 226-394-6<br>CAS: 5392-40-5<br>Index: 605-019-00-3                                 |      | Eye Irrit. 2, H319<br>Skin Sens. 1B, H317                                                                                                 |     |
| citronellol                                                             | REACH #:<br>01-2119453995-23<br>EC: 203-375-0<br>CAS: 106-22-9                                             | 2.21 | Skin Irrit. 2, H315<br><br>Eye Irrit. 2, H319<br>Skin Sens. 1B, H317                                                                      | [1] |
| 2,6-dimethyloct-7-en-2-ol                                               | REACH #:<br>01-2119457274-37<br>EC: 242-362-4<br>CAS: 18479-58-8                                           | 2.00 | Skin Irrit. 2, H315<br><br>Eye Irrit. 2, H319                                                                                             | [1] |
| 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one | REACH #:<br>01-2119489989-04<br><br>EC: 915-730-3<br>CAS: 54464-57-2<br>CAS: 68155-66-8<br>CAS: 68155-67-9 | 2.00 | Skin Irrit. 2, H315<br><br>Skin Sens. 1B, H317<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410                                        | [1] |
| (E)-4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3-buten-2-one                 | REACH #:<br>01-2119449921-34<br><br>EC: 201-224-3<br>CAS: 79-77-6                                          | 1.40 | Aquatic Chronic 2, H411                                                                                                                   | [1] |
| pin-2(10)-ene                                                           | EC: 204-872-5<br>EC: 242-060-2<br>CAS: 127-91-3<br>CAS: 18172-67-3                                         | 0.54 | Flam. Liq. 3, H226<br>Skin Irrit. 2, H315<br>Skin Sens. 1B, H317<br>Asp. Tox. 1, H304<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410 | [1] |
| pin-2(3)-ene                                                            | EC: 201-291-9<br>CAS: 80-56-8                                                                              | 0.17 | Flam. Liq. 3, H226<br>Skin Irrit. 2, H315<br>Skin Sens. 1B, H317<br>Asp. Tox. 1, H304<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410 | [1] |
| 1-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl)-2-buten-1-one                | EC: 245-833-2<br><br>CAS: 23696-85-7                                                                       | 0.10 | Skin Sens. 1A, H317<br><br>Aquatic Chronic 2, H411<br><b>See Section 16 for the full text of the H statements declared above.</b>         | [1] |

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

[5] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

**Hydrocarbon. (Content)** : 8.01%

## Fragrance 30011895

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

#### 4.2 Most important symptoms and effects, both acute and delayed

##### Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.
- Over-exposure signs/symptoms** : Not available.

#### 4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

#### 5.2 Special hazards arising from the substance or mixture

## Fragrance 30011895

### SECTION 5: Firefighting measures

- Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide

#### 5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

#### 6.2 Environmental precautions

- : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

#### 6.3 Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

#### 6.4 Reference to other sections

- : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## Fragrance 30011895

### SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

#### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

#### 7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

#### Seveso Directive - Reporting thresholds (in tonnes)

##### Danger criteria

| Category                                             | Notification and MAPP threshold | Safety report threshold |
|------------------------------------------------------|---------------------------------|-------------------------|
| E2: Hazardous to the aquatic environment - Chronic 2 | 200                             | 500                     |
| C9ii: Toxic for the environment                      | 200                             | 500                     |

#### 7.3 Specific end use(s)

- Recommendations** : Industrial use only.

### SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

#### 8.1 Control parameters

##### Occupational exposure limits

No exposure limit value known.

##### DNELs/DMELs

| Product/ingredient name | Type | Exposure             | Value                  | Population | Effects  |
|-------------------------|------|----------------------|------------------------|------------|----------|
| Ethyl acetate           | DNEL | Long term Inhalation | 2.75 mg/m <sup>3</sup> | Workers    | Systemic |
|                         | DNEL | Long term Dermal     | 2.5 mg/kg bw/day       | Workers    | Systemic |
|                         | DNEL | Short term Dermal    | 8 mg/cm <sup>2</sup>   | Workers    | Local    |
|                         | DNEL | Long term Inhalation | 0.68 mg/m <sup>3</sup> | Consumers  | Systemic |
|                         | DNEL | Long term Oral       | 0.2 mg/kg bw/day       | Consumers  | Systemic |
|                         | DNEL | Long term Dermal     | 1.25 mg/               | Consumers  | Systemic |

## Fragrance 30011895

## SECTION 8: Exposure controls/personal protection

|                                                                |      |                       |                          |           |          |
|----------------------------------------------------------------|------|-----------------------|--------------------------|-----------|----------|
|                                                                |      |                       | kg bw/day                |           |          |
| 1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethylindeno[5,6-c]pyran | DNEL | Short term Dermal     | 8 mg/m <sup>3</sup>      | Consumers | Local    |
|                                                                | DNEL | Long term Dermal      | 8 mg/cm <sup>2</sup>     | Workers   | Local    |
|                                                                | DNEL | Long term Dermal      | 8 mg/cm <sup>2</sup>     | Consumers | Local    |
|                                                                | DNEL | Long term Dermal      | 28.85 mg/kg bw/day       | Workers   | Local    |
|                                                                | DNEL | Long term Inhalation  | 5.29 mg/m <sup>3</sup>   | Workers   | Systemic |
|                                                                | DNEL | Long term Inhalation  | 1.3 mg/m <sup>3</sup>    | Consumers | Systemic |
|                                                                | DNEL | Long term Dermal      | 14.43 mg/kg bw/day       | Workers   | Systemic |
|                                                                | DNEL | Long term Oral        | 0.75 mg/kg bw/day        | Consumers | Systemic |
|                                                                | DNEL | Short term Dermal     | 0.525 mg/cm <sup>2</sup> | Workers   | Local    |
|                                                                | DNEL | Short term Inhalation | 6.28 mg/m <sup>3</sup>   | Workers   | Local    |
| α-hexylcinnamaldehyde                                          | DNEL | Long term Dermal      | 18.2 mg/kg bw/day        | Workers   | Systemic |
|                                                                | DNEL | Long term Inhalation  | 0.078 mg/m <sup>3</sup>  | Workers   | Systemic |
|                                                                | DNEL | Long term Dermal      | 0.525 mg/cm <sup>2</sup> | Workers   | Local    |
|                                                                | DNEL | Long term Inhalation  | 0.019 mg/m <sup>3</sup>  | Consumers | Systemic |
|                                                                | DNEL | Short term Inhalation | 4.7 mg/m <sup>3</sup>    | Consumers | Local    |
|                                                                | DNEL | Long term Dermal      | 9 mg/kg bw/day           | Consumers | Systemic |
|                                                                | DNEL | Long term Dermal      | 0.079 mg/cm <sup>2</sup> | Consumers | Local    |
|                                                                | DNEL | Short term Dermal     | 0.079 mg/kg bw/day       | Consumers | Local    |
|                                                                | DNEL | Long term Oral        | 0.056 mg/kg bw/day       | Consumers | Systemic |
|                                                                | DNEL | Long term Dermal      | 2.5 mg/kg bw/day         | Workers   | Systemic |
| linalool                                                       | DNEL | Long term Inhalation  | 2.8 mg/m <sup>3</sup>    | Workers   | Systemic |
|                                                                | DNEL | Long term Dermal      | 15 mg/cm <sup>2</sup>    | Workers   | Local    |
|                                                                | DNEL | Short term Dermal     | 15 mg/cm <sup>2</sup>    | Workers   | Local    |

## Fragrance 30011895

## SECTION 8: Exposure controls/personal protection

|             |      |                       |                         |           |          |
|-------------|------|-----------------------|-------------------------|-----------|----------|
| citral      | DNEL | Long term Dermal      | 1.25 mg/kg bw/day       | Consumers | Systemic |
|             | DNEL | Long term Inhalation  | 0.7 mg/m <sup>3</sup>   | Consumers | Systemic |
|             | DNEL | Long term Oral        | 0.2 mg/kg bw/day        | Consumers | Systemic |
|             | DNEL | Short term Dermal     | 15 mg/cm <sup>2</sup>   | Consumers | Local    |
|             | DNEL | Short term Dermal     | 2.5 mg/cm <sup>2</sup>  | Consumers | Systemic |
|             | DNEL | Short term Inhalation | 4.1 mg/m <sup>3</sup>   | Consumers | Systemic |
|             | DNEL | Short term Oral       | 1.2 mg/kg bw/day        | Consumers | Systemic |
|             | DNEL | Long term Dermal      | 15 mg/cm <sup>2</sup>   | Consumers | Local    |
|             | DNEL | Short term Dermal     | 5 mg/kg bw/day          | Workers   | Systemic |
|             | DNEL | Short term Inhalation | 16.5 mg/m <sup>3</sup>  | Workers   | Systemic |
|             | DNEL | Long term Inhalation  | 9 mg/m <sup>3</sup>     | Workers   | Systemic |
|             | DNEL | Long term Dermal      | 1.7 mg/kg               | Workers   | Systemic |
|             | DNEL | Long term Dermal      | 0.14 mg/cm <sup>2</sup> | Workers   | Local    |
|             | DNEL | Long term Inhalation  | 2.7 mg/m <sup>3</sup>   | Consumers | Systemic |
|             | DNEL | Long term Dermal      | 1 mg/kg                 | Consumers | Systemic |
|             | DNEL | Long term Oral        | 0.6 mg/kg               | Consumers | Systemic |
|             | DNEL | Long term Dermal      | 0.14 mg/cm <sup>2</sup> | Consumers | Local    |
| citronellol | DNEL | Long term Inhalation  | 161.6 mg/m <sup>3</sup> | Workers   | Systemic |
|             | DNEL | Long term Dermal      | 327.4 mg/kg             | Workers   | Systemic |
|             | DNEL | Short term Dermal     | 2.95 mg/cm <sup>2</sup> | Workers   | Local    |
|             | DNEL | Long term Inhalation  | 47.8 mg/m <sup>3</sup>  | Consumers | Systemic |
|             | DNEL | Long term Dermal      | 196.4 mg/kg             | Consumers | Systemic |
|             | DNEL | Long term Oral        | 13.8 mg/kg              | Consumers | Systemic |
|             | DNEL | Short term Dermal     | 2.95 mg/cm <sup>2</sup> | Consumers | Local    |
|             | DNEL | Long term             | 10 mg/m <sup>3</sup>    | Workers   | Local    |

## Fragrance 30011895

## SECTION 8: Exposure controls/personal protection

|                                                                         |      |                                    |                           |           |          |
|-------------------------------------------------------------------------|------|------------------------------------|---------------------------|-----------|----------|
| 2,6-dimethyloct-7-en-2-ol                                               | DNEL | Inhalation<br>Long term Inhalation | 10 mg/m <sup>3</sup>      | Consumers | Local    |
|                                                                         | DNEL | Long term Inhalation               | 73.5 mg/m <sup>3</sup>    | Workers   | Systemic |
|                                                                         | DNEL | Long term Dermal                   | 20.8 mg/kg bw/day         | Workers   | Systemic |
|                                                                         | DNEL | Long term Inhalation               | 21.7 mg/m <sup>3</sup>    | Consumers | Systemic |
|                                                                         | DNEL | Long term Dermal                   | 12.5 mg/kg bw/day         | Consumers | Systemic |
|                                                                         | DNEL | Long term Oral                     | 12.5 mg/kg bw/day         | Consumers | Systemic |
| 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one | DNEL | Long term Dermal                   | 0.1011 mg/cm <sup>2</sup> | Workers   | Local    |
|                                                                         | DNEL | Long term Inhalation               | 1.76 mg/m <sup>3</sup>    | Workers   | Systemic |
|                                                                         | DNEL | Long term Dermal                   | 1.73 mg/kg bw/day         | Workers   | Systemic |
| (E)-4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3-buten-2-one                 | DNEL | Long term Inhalation               | 3.1 mg/m <sup>3</sup>     | Consumers | Systemic |
|                                                                         | DNEL | Long term Inhalation               | 12.7 mg/m <sup>3</sup>    | Workers   | Systemic |
|                                                                         | DNEL | Long term Dermal                   | 3.6 mg/kg                 | Consumers | Systemic |
|                                                                         | DNEL | Long term Dermal                   | 6 mg/kg                   | Workers   | Systemic |
|                                                                         | DNEL | Long term Oral                     | 1.8 mg/kg                 | Consumers | Systemic |

## PNECs

| Product/ingredient name                                        | Compartment Detail     | Value        | Method Detail |
|----------------------------------------------------------------|------------------------|--------------|---------------|
| linalyl acetate                                                | Fresh water            | 0.011 mg/l   | -             |
|                                                                | Marine water           | 0.0011 mg/l  | -             |
|                                                                | Marine water sediment  | 0.0609 mg/kg | -             |
|                                                                | Soil                   | 0.115 mg/kg  | -             |
|                                                                | Sewage Treatment Plant | 10 mg/l      | -             |
|                                                                | Intermittent release   | 0.11 mg/l    | -             |
|                                                                | Fresh water sediment   | 0.609 mg/kg  | -             |
| 1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethylindeno[5,6-c]pyran | Fresh water            | 0.0044 mg/l  | -             |
|                                                                | Marine water           | 0.00044 mg/l | -             |
|                                                                | Fresh water sediment   | 2 mg/kg      | -             |

## Fragrance 30011895

## SECTION 8: Exposure controls/personal protection

|                       |                        |                 |   |
|-----------------------|------------------------|-----------------|---|
| α-hexylcinnamaldehyde | Marine water sediment  | 0.394 mg/kg     | - |
|                       | Soil                   | 0.31 mg/kg      | - |
|                       | Sewage Treatment Plant | 1 mg/l          | - |
|                       | Fresh water            | 3 mg/l          | - |
|                       | Marine water           | 0.003 mg/l      | - |
|                       | Sewage Treatment Plant | 10 mg/l         | - |
|                       | Fresh water sediment   | 4.7 mg/l        | - |
|                       | Marine water sediment  | 4.77 mg/l       | - |
|                       | Soil                   | 9.51 mg/l       | - |
|                       | Secondary Poisoning    | 6.6 mg/l        | - |
| linalool              | Fresh water            | 0.2 mg/l        | - |
|                       | Marine water           | 0.02 mg/l       | - |
|                       | Intermittent release   | 2 mg/l          | - |
|                       | Fresh water sediment   | 2.22 mg/kg dwt  | - |
|                       | Marine water sediment  | 0.222 mg/kg dwt | - |
|                       | Soil                   | 0.327 mg/kg dwt | - |
|                       | Sewage Treatment Plant | >10 mg/l        | - |
|                       | Fresh water            | 0.00678 mg/l    | - |
|                       | Marine water           | 0.000678 mg/l   | - |
|                       | Fresh water sediment   | 0.125 mg/kg     | - |
| citral                | Marine water sediment  | 0.0125 mg/kg    | - |
|                       | Soil                   | 0.0209 mg/kg    | - |
|                       | Sewage Treatment Plant | 1.6 mg/l        | - |
|                       | Intermittent release   | 0.0678 mg/l     | - |
|                       | Fresh water            | 0.0024 mg/l     | - |
|                       | Marine water           | 0.00024 mg/l    | - |
|                       | Sewage Treatment Plant | 580 mg/l        | - |
|                       | Fresh water sediment   | 0.0256 mg/kg    | - |
|                       | Marine water sediment  | 0.00256 mg/l    | - |
|                       | Soil                   | 0.00371 mg/kg   | - |
| citronellol           | Intermittent release   | 0.024 mg/l      | - |

## Fragrance 30011895

**SECTION 8: Exposure controls/personal protection**

|                                                                         |                        |              |   |
|-------------------------------------------------------------------------|------------------------|--------------|---|
| 2,6-dimethyloct-7-en-2-ol                                               | Fresh water            | 0.278 mg/l   | - |
|                                                                         | Marine water           | 0.278 mg/l   | - |
|                                                                         | Soil                   | 0.103 mg/kg  | - |
|                                                                         | Fresh water sediment   | 0.594 mg/kg  | - |
|                                                                         | Marine water sediment  | 0.0594 mg/kg | - |
| 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one | Fresh water            | 0.0028 mg/l  | - |
|                                                                         | Marine water           | 0.00028 mg/l | - |
|                                                                         | Fresh water sediment   | 3.73 mg/kg   | - |
|                                                                         | Marine water sediment  | 0.75 mg/kg   | - |
|                                                                         | Soil                   | 0.705 mg/kg  | - |
| (E)-4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3-buten-2-one                 | Fresh water            | 0.00403 mg/l | - |
|                                                                         | Marine water           | 0.0004 mg/l  | - |
|                                                                         | Intermittent release   | 0.0403 mg/l  | - |
|                                                                         | Sewage Treatment Plant | 1 mg/l       | - |
|                                                                         | Fresh water sediment   | 0.151 mg/kg  | - |
|                                                                         | Marine water sediment  | 0.0151 mg/kg | - |
|                                                                         | Soil                   | 0.0508 mg/kg | - |

**8.2 Exposure controls****Appropriate engineering controls**

: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

**Individual protection measures****Hygiene measures**

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection**

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

**Skin protection****Hand protection**

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

## Fragrance 30011895

### SECTION 8: Exposure controls/personal protection

- |                                        |                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Body protection</b>                 | : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.                                                                                                                          |
| <b>Other skin protection</b>           | : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.                                                                                                    |
| <b>Respiratory protection</b>          | : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.      |
| <b>Environmental exposure controls</b> | : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. |

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

##### Appearance

- |                                                     |                                              |              |
|-----------------------------------------------------|----------------------------------------------|--------------|
| <b>Physical state</b>                               | : Liquid.                                    |              |
| <b>Color</b>                                        | : Characteristic.                            |              |
| <b>Odor</b>                                         | : Characteristic.                            |              |
| <b>Odor threshold</b>                               | : Not available.                             |              |
| <b>pH</b>                                           | : Not available.                             |              |
| <b>Melting point/freezing point</b>                 | : Not available.                             |              |
| <b>Initial boiling point and boiling range</b>      | : Not available.                             |              |
| <b>Flash point</b>                                  | : Closed cup: 78°C                           |              |
| <b>Evaporation rate</b>                             | : Not available.                             |              |
| <b>Upper/lower flammability or explosive limits</b> | : Not available.                             |              |
| <b>Vapor pressure</b>                               | : 0.35 hPa                                   |              |
| <b>Vapor density</b>                                | : Not available.                             |              |
| <b>Density</b>                                      | : 0.939 to 0.949 g/cm <sup>3</sup> [20°C]    |              |
| <b>Solubility in water</b>                          | : Non water-soluble liquid                   |              |
| <b>Partition coefficient: n-octanol/ water</b>      | : Not available.                             |              |
| <b>Auto-ignition temperature</b>                    | : Not available.                             |              |
| <b>Decomposition temperature</b>                    | : Not available.                             |              |
| <b>Viscosity</b>                                    | : Kinematic (40°C): <0.07 cm <sup>2</sup> /s | (Estimated.) |
| <b>Explosive properties</b>                         | : Not available.                             |              |
| <b>Oxidizing properties</b>                         | : Not available.                             |              |

#### 9.2 Other information

No additional information.

### SECTION 10: Stability and reactivity

- |                                                |                                                                                              |
|------------------------------------------------|----------------------------------------------------------------------------------------------|
| <b>10.1 Reactivity</b>                         | : No specific test data related to reactivity available for this product or its ingredients. |
| <b>10.2 Chemical stability</b>                 | : The product is stable.                                                                     |
| <b>10.3 Possibility of hazardous reactions</b> | : Under normal conditions of storage and use, hazardous reactions will not occur.            |

## Fragrance 30011895

**SECTION 10: Stability and reactivity**

**10.4 Conditions to avoid** : No specific data.

**10.5 Incompatible materials** : No specific data.

**10.6 Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**SECTION 11: Toxicological information****11.1 Information on toxicological effects**Acute toxicity

| Product/ingredient name                                                 | Result                          | Species | Dose                    | Exposure |
|-------------------------------------------------------------------------|---------------------------------|---------|-------------------------|----------|
| linalyl acetate                                                         | LD50 Dermal                     | Rabbit  | >5000 mg/kg             | -        |
|                                                                         | LD50 Oral                       | Rat     | 13934 mg/kg             | -        |
| 1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethylindeno[5,6-c]pyran          | LD50 Dermal                     | Rat     | >5 g/kg                 | -        |
|                                                                         | LD50 Dermal                     | Rat     | >6500 mg/kg             | -        |
|                                                                         | LD50 Oral                       | Rat     | >4640 mg/kg             | -        |
| α-hexylcinnamaldehyde                                                   | LC50 Inhalation Dusts and mists | Rat     | >2100 mg/m <sup>3</sup> | 8 hours  |
|                                                                         | LD50 Oral                       | Rat     | 3100 mg/kg              | -        |
| linalool                                                                | LD50 Dermal                     | Rabbit  | 5610 mg/kg              | -        |
|                                                                         | LD50 Dermal                     | Rat     | 5610 mg/kg              | -        |
|                                                                         | LD50 Oral                       | Rat     | 2790 mg/kg              | -        |
| dipentene                                                               | LD50 Oral                       | Rat     | 5300 mg/kg              | -        |
| citral                                                                  | LD50 Dermal                     | Rabbit  | 2250 mg/kg              | -        |
|                                                                         | LD50 Oral                       | Rat     | 3.45 g/kg               | -        |
| citronellol                                                             | LD50 Dermal                     | Rabbit  | 2650 mg/kg              | -        |
|                                                                         | LD50 Oral                       | Rat     | 3450 mg/kg              | -        |
| 2,6-dimethyloct-7-en-2-ol                                               | LD50 Dermal                     | Rabbit  | >5 g/kg                 | -        |
|                                                                         | LD50 Oral                       | Rat     | 3600 mg/kg              | -        |
| 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one | LD50 Dermal                     | Rat     | >5000 mg/kg             | -        |
|                                                                         | LD50 Oral                       | Rat     | >5000 mg/kg             | -        |
| (E)-4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3-buten-2-one                 | LD50 Dermal                     | Rat     | >2000 mg/kg             | -        |
|                                                                         | LD50 Oral                       | Rat     | >4000 mg/kg             | -        |
| pin-2(10)-ene                                                           | LD50 Dermal                     | Rabbit  | >5000 mg/kg             | -        |

## Fragrance 30011895

## SECTION 11: Toxicological information

|                                                                              |             |        |             |   |
|------------------------------------------------------------------------------|-------------|--------|-------------|---|
| pin-2(3)-ene<br><br>1-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl)-2-buten-1-one | LD50 Oral   | Rat    | 4700 mg/kg  | - |
|                                                                              | LD50 Dermal | Rabbit | >5000 mg/kg | - |
|                                                                              | LD50 Oral   | Rat    | 3700 mg/kg  | - |
|                                                                              | LD50 Oral   | Rat    | >2000 mg/kg | - |

Irritation/Corrosion

| Product/ingredient name | Result                   | Species    | Score | Exposure                | Observation |
|-------------------------|--------------------------|------------|-------|-------------------------|-------------|
| linalyl acetate         | Skin - Moderate irritant | Guinea pig | -     | 24 hours 100 milligrams | -           |
|                         | Skin - Severe irritant   | Rabbit     | -     | 24 hours 100 milligrams | -           |
| linalool                | Eyes - Moderate irritant | Rabbit     | -     | 1 hours 0.1 Milliliters | -           |
|                         | Eyes - Moderate irritant | Rabbit     | -     | 100 microliters         | -           |
|                         | Skin - Moderate irritant | Guinea pig | -     | 24 hours 100 milligrams | -           |
|                         | Skin - Mild irritant     | Human      | -     | 72 hours 32 Percent     | -           |
|                         | Skin - Mild irritant     | Man        | -     | 48 hours 16 milligrams  | -           |
|                         | Skin - Mild irritant     | Rabbit     | -     | 24 hours 500 milligrams | -           |
|                         | Skin - Severe irritant   | Rabbit     | -     | 24 hours 100 milligrams | -           |
|                         | Skin - Moderate irritant | Guinea pig | -     | 48 hours 1 Percent      | -           |
| citral                  | Skin - Severe irritant   | Guinea pig | -     | 24 hours 100 milligrams | -           |
|                         | Skin - Mild irritant     | Human      | -     | 24 hours 40 milligrams  | -           |
|                         | Skin - Severe irritant   | Man        | -     | 48 hours 16 milligrams  | -           |
|                         | Skin - Severe irritant   | Pig        | -     | 48 hours 50 milligrams  | -           |
|                         | Skin - Moderate irritant | Rabbit     | -     | 24 hours 500 milligrams | -           |
|                         | Skin - Severe irritant   | Rabbit     | -     | 24 hours 100 milligrams | -           |
| citronellol             | Eyes - Moderate irritant | Rabbit     | -     | 0.42 Percent            | -           |
|                         | Skin - Severe irritant   | Guinea pig | -     | 24 hours 100 milligrams | -           |

## Fragrance 30011895

## SECTION 11: Toxicological information

|                           |                          |        |   |                         |   |
|---------------------------|--------------------------|--------|---|-------------------------|---|
| 2,6-dimethyloct-7-en-2-ol | Skin - Moderate irritant | Man    | - | 48 hours 16 milligrams  | - |
|                           | Skin - Moderate irritant | Rabbit | - | 4 hours 0.42 Percent    | - |
|                           | Skin - Severe irritant   | Rabbit | - | 24 hours 100 milligrams | - |
|                           | Skin - Severe irritant   | Rabbit | - | 4 hours 0.5 Milliliters | - |
|                           | Eyes - Mild irritant     | Rabbit | - | 7.5 Percent             | - |
|                           | Skin - Mild irritant     | Rabbit | - | 4 hours 0.5 Milliliters | - |
| pin-2(3)-ene              | Skin - Mild irritant     | Rabbit | - | 24 hours 500 milligrams | - |
|                           | Skin - Severe irritant   | Man    | - | 100 Percent             | - |
|                           | Skin - Moderate irritant | Rabbit | - | 24 hours 500 milligrams | - |

Sensitization

| Product/ingredient name                                                                                 | Route of exposure | Species    | Result          |
|---------------------------------------------------------------------------------------------------------|-------------------|------------|-----------------|
|  hexylcinnamaldehyde | skin              | Mouse      | Sensitizing     |
| citronellol                                                                                             | skin              | Mouse      | Sensitizing     |
| 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one                                 | skin              | Mouse      | Sensitizing     |
| (E)-4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3-buten-2-one                                                 | skin              | Human      | Not sensitizing |
| 1-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl)-2-buten-1-one                                                | skin              | Guinea pig | Not sensitizing |

Mutagenicity

| Product/ingredient name                                                                                 | Test                                             | Experiment                                       | Result   |
|---------------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------------------------------------------|----------|
|  hexylcinnamaldehyde | OECD 471 Bacterial Reverse Mutation Test         | Experiment: In vitro<br>Subject: Bacteria        | Negative |
|                                                                                                         | OECD 474 Mammalian Erythrocyte Micronucleus Test | Experiment: In vivo<br>Subject: Mammalian-Animal | Negative |
| 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one                                 | -                                                | Experiment: In vitro<br>Subject: Mammalian-Human | Negative |
|                                                                                                         | -                                                | Experiment: In vivo<br>Subject: Mammalian-Animal | Negative |
| (E)-4-(2,6,6-trimethyl-                                                                                 | -                                                | Experiment: In vitro                             | Negative |

## Fragrance 30011895

**SECTION 11: Toxicological information**

|                                  |  |                   |  |
|----------------------------------|--|-------------------|--|
| 1-cyclohexen-1-yl)-3-buten-2-one |  | Subject: Bacteria |  |
|----------------------------------|--|-------------------|--|

Aspiration hazard

| Product/ingredient name | Result                         |
|-------------------------|--------------------------------|
| pin-2(10)-ene           | ASPIRATION HAZARD - Category 1 |
| pin-2(3)-ene            | ASPIRATION HAZARD - Category 1 |

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposureShort term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

| Product/ingredient name | Result                 | Species | Dose      | Exposure |
|-------------------------|------------------------|---------|-----------|----------|
| hexylcinnamaldehyde     | Sub-acute NOAEL Oral   | Rat     | 150 mg/kg | -        |
|                         | Sub-acute LOAEL Dermal | Rat     | 125 mg/kg | -        |

- General** : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.
- Interactive effects** : Not available.
- Toxicokinetics
- Absorption** : Not available.
- Distribution** : Not available.

## Fragrance 30011895

## SECTION 11: Toxicological information

|                   |                  |
|-------------------|------------------|
| Metabolism        | : Not available. |
| Elimination       | : Not available. |
| Other information | : Not available. |

## SECTION 12: Ecological information

## 12.1 Toxicity

| Product/ingredient name                                        | Result                              | Species                                                                | Exposure   |
|----------------------------------------------------------------|-------------------------------------|------------------------------------------------------------------------|------------|
| linalyl acetate                                                | Acute EC50 15 mg/l                  | Daphnia                                                                | 48 hours   |
|                                                                | Acute LC50 11 mg/l                  | Fish                                                                   | 96 hours   |
|                                                                | Acute EC50 0.9 mg/l                 | Daphnia                                                                | 48 hours   |
| 1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethylindeno[5,6-c]pyran | Acute LC50 0.452 mg/l               | Fish                                                                   | 21 days    |
|                                                                | Chronic NOEC 0.111 mg/l             | Daphnia                                                                | 21 days    |
|                                                                | Chronic NOEC 0.068 mg/l             | Fish                                                                   | 36 days    |
| $\alpha$ -hexylcinnamaldehyde                                  | Acute EC50 0.247 mg/l               | Daphnia                                                                | 48 hours   |
|                                                                | Acute LC50 1.7 mg/l                 | Fish                                                                   | 96 hours   |
|                                                                | Chronic EC10 0.107 mg/l Fresh water | Daphnia                                                                | 21 days    |
| linalool                                                       | Acute EC50 141.4 mg/l               | Aquatic plants                                                         | 96 hours   |
|                                                                | Acute EC50 59 mg/l                  | Daphnia                                                                | 48 hours   |
|                                                                | Acute EC50 >100 mg/l                | Micro-organism                                                         | 3 hours    |
| dipentene                                                      | Acute LC50 27.8 mg/l                | Fish                                                                   | 96 hours   |
|                                                                | Acute EC50 28.2 mg/l Fresh water    | Daphnia - Daphnia magna                                                | 48 hours   |
|                                                                | Acute EC50 20.2 mg/l Fresh water    | Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) | 96 hours   |
|                                                                | Acute IC50 13.798 mg/l Fresh water  | Algae - Pseudokirchneriella subcapitata                                | 96 hours   |
|                                                                | Acute LC50 31 mg/l Fresh water      | Daphnia - Daphnia magna                                                | 48 hours   |
|                                                                | Acute LC50 38.5 mg/l Fresh water    | Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) | 96 hours   |
| citral                                                         | Acute EC50 103.8 mg/l               | Aquatic plants                                                         | 72 hours   |
|                                                                | Acute EC50 7 mg/l                   | Daphnia                                                                | 48 hours   |
|                                                                | Acute LC50 6.8 mg/l                 | Fish                                                                   | 96 hours   |
| citronellol                                                    | Acute EC10 580 mg/l                 | Micro-organism                                                         | 30 minutes |
|                                                                | Acute EC50 2.4 mg/l                 | Aquatic plants                                                         | 72 hours   |
|                                                                | Acute EC50 17.48 mg/l               | Daphnia                                                                | 48 hours   |
|                                                                | Acute LC50 14.66 mg/l               | Fish                                                                   | 96 hours   |

## Fragrance 30011895

## SECTION 12: Ecological information

|                                                                         |                                  |                            |          |
|-------------------------------------------------------------------------|----------------------------------|----------------------------|----------|
| 2,6-dimethyloct-7-en-2-ol                                               | Acute EC50 3.88 mg/l             | Algae                      | 96 hours |
|                                                                         | Acute LC50 5.7 mg/l              | Daphnia                    | 48 hours |
|                                                                         | Acute LC50 4.81 mg/l             | Fish                       | 96 hours |
| 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one | Acute EC50 2.6 mg/l              | Algae                      | 72 hours |
|                                                                         | Acute EC50 1.38 mg/l             | Daphnia                    | 48 hours |
|                                                                         | Acute LC50 1.3 mg/l              | Fish                       | 96 hours |
|                                                                         | Chronic NOEC 0.028 mg/l          | Daphnia                    | 21 days  |
| (E)-4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3-buten-2-one                 | Chronic NOEC 0.16 mg/l           | Fish                       | 30 days  |
|                                                                         | Acute EC50 4.03 mg/l             | Daphnia                    | 48 hours |
|                                                                         | Acute LC50 21.2 mg/l             | Algae                      | 72 hours |
| pin-2(10)-ene                                                           | Acute LC50 5090 µg/l Fresh water | Fish - Pimephales promelas | 96 hours |
|                                                                         | Acute EC50 0.7 mg/l              | Algae                      | 72 hours |
|                                                                         | Acute EC50 0.86 mg/l             | Daphnia                    | 48 hours |
| 1-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl)-2-buten-1-one                | Acute LC50 0.68 mg/l             | Fish                       | 96 hours |
|                                                                         | Acute LC50 1.49 mg/l             | Daphnia                    | 48 hours |

## 12.2 Persistence and degradability

| Product/ingredient name                                        | Test                                                            | Result                      | Dose | Inoculum |
|----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------|------|----------|
| linalyl acetate                                                | OECD 301F Ready Biodegradability - Manometric Respirometry Test | 75 % - Readily - 28 days    | -    | -        |
| 1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethylindeno[5,6-c]pyran | OECD 301F Ready Biodegradability - Manometric Respirometry Test | 2 % - Not readily - 28 days | -    | -        |
| α-hexylcinnamaldehyde                                          | OECD 301F Ready Biodegradability - Manometric Respirometry Test | 97 % - Readily - 28 days    | -    | -        |
| linalool                                                       | OECD 301C Ready Biodegradability - Modified MITI Test (I)       | 64.2 % - Readily - 28 days  | -    | -        |

## Fragrance 30011895

## SECTION 12: Ecological information

|                                                                                 |                                                                                |                              |   |   |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------|---|---|
| citral                                                                          | OECD 301C<br>Ready<br>Biodegradability -<br>Modified MITI<br>Test (I)          | 92 % - Readily - 28 days     | - | - |
| citronellol                                                                     | OECD 301F<br>Ready<br>Biodegradability -<br>Manometric<br>Respirometry<br>Test | 90 % - Readily - 28 days     | - | - |
| 2,6-dimethyloct-7-en-2-ol                                                       | OECD 301B<br>Ready<br>Biodegradability -<br>CO <sub>2</sub> Evolution<br>Test  | 72 % - Readily - 28 days     | - | - |
| 1-(1,2,3,4,5,6,7,8-octahydro-<br>2,3,8,8-tetramethyl-<br>2-naphthyl)ethan-1-one | OECD 301C<br>Ready<br>Biodegradability -<br>Modified MITI<br>Test (I)          | 11 % - Not readily - 28 days | - | - |
| (E)-4-(2,6,6-trimethyl-<br>1-cyclohexen-1-yl)-3-buten-<br>2-one                 | OECD 301F<br>Ready<br>Biodegradability -<br>Manometric<br>Respirometry<br>Test | 80 % - Readily - 28 days     | - | - |
| pin-2(10)-ene                                                                   | OECD 301D<br>Ready<br>Biodegradability -<br>Closed Bottle<br>Test              | 1 % - Not readily - 28 days  | - | - |
| pin-2(3)-ene                                                                    | OECD 301C<br>Ready<br>Biodegradability -<br>Modified MITI<br>Test (I)          | 37 % - Not readily - 31 days | - | - |
| 1-(2,6,6-trimethyl-1,<br>3-cyclohexadien-1-yl)<br>-2-buten-1-one                | OECD 301C<br>Ready<br>Biodegradability -<br>Modified MITI<br>Test (I)          | 0 % - Not readily - 28 days  | - | - |

| Product/ingredient name                                                | Aquatic half-life | Photolysis | Biodegradability |
|------------------------------------------------------------------------|-------------------|------------|------------------|
| linalyl acetate                                                        | -                 | -          | Readily          |
| 1,3,4,6,7,8-hexahydro-4,6,6,<br>7,8,8-hexamethylindeno[5,<br>6-c]pyran | -                 | -          | Not readily      |
| α-hexylcinnamaldehyde                                                  | -                 | -          | Readily          |
| linalool                                                               | -                 | -          | Readily          |
| citral                                                                 | -                 | -          | Readily          |
| citronellol                                                            | -                 | -          | Readily          |

## Fragrance 30011895

## SECTION 12: Ecological information

|                                                                         |   |   |             |
|-------------------------------------------------------------------------|---|---|-------------|
| 2,6-dimethyloct-7-en-2-ol                                               | - | - | Readily     |
| 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one | - | - | Not readily |
| (E)-4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3-buten-2-one                 | - | - | Readily     |
| pin-2(10)-ene                                                           | - | - | Not readily |
| pin-2(3)-ene                                                            | - | - | Not readily |
| 1-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl)-2-buten-1-one                | - | - | Not readily |

## 12.3 Bioaccumulative potential

| Product/ingredient name                                                 | LogP <sub>ow</sub> | BCF   | Potential |
|-------------------------------------------------------------------------|--------------------|-------|-----------|
| linalyl acetate                                                         | 3.9                | 173.9 | low       |
| 1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethylindeno[5,6-c]pyran          | 5.3                | 2507  | high      |
| α-hexylcinnamaldehyde                                                   | 5.3                | 6000  | high      |
| linalool                                                                | 2.84               | -     | low       |
| dipentene                                                               | 4.57               | -     | high      |
| citral                                                                  | 2.76               | 89.72 | low       |
| citronellol                                                             | 3.41               | 82.59 | low       |
| 2,6-dimethyloct-7-en-2-ol                                               | 3.25               | 64.8  | low       |
| 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one | 5.65               | -     | high      |
| (E)-4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3-buten-2-one                 | 4.1                | 202.4 | low       |
| pin-2(10)-ene                                                           | 4.425              | 1163  | high      |
| pin-2(3)-ene                                                            | 4.83               | 1845  | high      |

## 12.4 Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>) : Not available.

Mobility : Not available.

## 12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

## Fragrance 30011895

### SECTION 12: Ecological information

**12.6 Other adverse effects** : No known significant effects or critical hazards.

### SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

#### 13.1 Waste treatment methods

##### Product

**Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

##### European waste catalogue (EWC)

| Waste code | Waste designation                              |
|------------|------------------------------------------------|
| 16 03 05*  | organic wastes containing dangerous substances |

##### Packaging

**Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

### SECTION 14: Transport information

|                                        | ADR/RID                                                                                                                                         | IMDG                                                                                                                                            | IATA                                                                                                                                            |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>14.1 UN number</b>                  | UN3082                                                                                                                                          | UN3082                                                                                                                                          | UN3082                                                                                                                                          |
| <b>14.2 UN proper shipping name</b>    | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethylindeno[5,6-c]pyran, alpha-hexylcinnamaldehyde) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethylindeno[5,6-c]pyran, alpha-hexylcinnamaldehyde) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,3,4,6,7,8-hexahydro-4,6,6,7,8,8-hexamethylindeno[5,6-c]pyran, alpha-hexylcinnamaldehyde) |
| <b>14.3 Transport hazard class(es)</b> | 9<br>                                                        | 9<br>                                                        | 9<br>                                                      |
| <b>14.4 Packing group</b>              | III                                                                                                                                             | III                                                                                                                                             | III                                                                                                                                             |
| <b>14.5 Environmental hazards</b>      | Yes.                                                                                                                                            | Marine pollutant                                                                                                                                | Yes.                                                                                                                                            |
|                                        |                                                                                                                                                 |                                                                                                                                                 |                                                                                                                                                 |

## Fragrance 30011895

**SECTION 14: Transport information**

|                               |                                                                                                                                                                                                                                |                                                                                                                                                                                               |                                                                                                                                                                                          |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Additional information</b> | This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.<br><br><b>Tunnel code</b><br>(E) | This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. | This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8. |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**14.6 Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** : Not applicable.

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****EU Regulation (EC) No. 1907/2006 (REACH)****Annex XIV - List of substances subject to authorization****Annex XIV**

None of the components are listed.

**Substances of very high concern**

None of the components are listed.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

**Registration status**

**All components are listed** : Australia inventory (AICS)  
China inventory (IECSC)  
New Zealand Inventory of Chemicals (NZIoC)  
Philippines inventory (PICCS)  
Taiwan inventory (CSNN)  
United States inventory (TSCA 8b)  
Europe inventory (EINECS/ELINCS/NLP)  
Canada inventory (DSL)

**15.2 Chemical Safety Assessment** : This product contains substances for which Chemical Safety Assessments are still required.

## Fragrance 30011895

**SECTION 16: Other information**

Indicates information that has changed from previously issued version.

**Abbreviations and acronyms**

- : ATE = Acute Toxicity Estimate  
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
 DMEL = Derived Minimal Effect Level  
 DNEL = Derived No Effect Level  
 EUH statement = CLP-specific Hazard statement  
 PBT = Persistent, Bioaccumulative and Toxic  
 PNEC = Predicted No Effect Concentration  
 RRN = REACH Registration Number  
 vPvB = Very Persistent and Very Bioaccumulative

**Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]**

| Classification                                                                             | Justification                                                                        |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>Skin Sens. 1, H317<br>Aquatic Chronic 2, H411 | Calculation method<br>Calculation method<br>Calculation method<br>Calculation method |

**Full text of abbreviated H statements**

- : H226 Flammable liquid and vapor.  
 H304 May be fatal if swallowed and enters airways.  
 H315 Causes skin irritation.  
 H317 May cause an allergic skin reaction.  
 H319 Causes serious eye irritation.  
 H400 Very toxic to aquatic life.  
 H410 Very toxic to aquatic life with long lasting effects.  
 H411 Toxic to aquatic life with long lasting effects.

**Full text of classifications [CLP/GHS]**

- : Aquatic Acute 1, H400 AQUATIC HAZARD (ACUTE) - Category 1  
 Aquatic Chronic 1, H410 AQUATIC HAZARD (LONG-TERM) - Category 1  
 Aquatic Chronic 2, H411 AQUATIC HAZARD (LONG-TERM) - Category 2  
 Asp. Tox. 1, H304 ASPIRATION HAZARD - Category 1  
 Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2  
 Flam. Liq. 3, H226 FLAMMABLE LIQUIDS - Category 3  
 Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2  
 Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1  
 Skin Sens. 1A, H317 SKIN SENSITIZATION - Category 1A  
 Skin Sens. 1B, H317 SKIN SENSITIZATION - Category 1B

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**Notice to reader**

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Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.