



SAFETY DATA SHEET

Armor All® Air Freshener 3ct Cards Lemon Berry

According to Regulation (EC) No 1907/2006, Annex II, as amended.

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

1.1. Product identifier

Product name Armor All® Air Freshener 3ct Cards Lemon Berry
Product number 18522

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

Identified uses Hanging air freshener.
Uses advised against No specific uses advised against are identified.

1.3. Details of the supplier of the safety data sheet

Supplier Armored Auto UK Ltd
 Unit 16, Rassau Industrial Estate
 Ebbw Vale
 Gwent NP23 5SD
 UK
 Tel: +44 1495 350234
 Fax: + 44 1495 350431
 euregulatory@eu.spectrumbrands.com

1.4. Emergency telephone number

Emergency telephone +44 1495 350234
 Monday - Thursday: 0830 - 1700
 Friday: 0830 - 1530

SECTION 2: Hazards identification

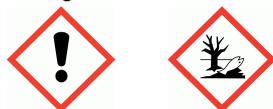
2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Not Classified
Health hazards Skin Sens. 1 - H317
Environmental hazards Aquatic Chronic 2 - H411

2.2. Label elements

Pictogram



Signal word Warning

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

Exemptions from CLP Article 17 [Article 29(2)] - 1.5.2.1. Labelling of packages where the contents do not exceed 125 ml] The following are not required for labelling: H411 Toxic to aquatic life with long lasting effects.

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Precautionary statements P101 If medical advice is needed, have product container or label at hand.
 P102 Keep out of reach of children.
 P302+P352 IF ON SKIN: Wash with plenty of water.
 P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P501 Dispose of contents/ container in accordance with national regulations.

Contains ethyl 2,3-epoxy-3-phenylbutyrate, citral, linalool, d-Limonene

Supplementary precautionary statements P272 Contaminated work clothing should not be allowed out of the workplace.
 P362+P364 Take off contaminated clothing and wash it before reuse.

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

| | | |
|---|----------------------|--|
| Benzyl benzoate | | 10 - <25% |
| CAS number: 120-51-4 | EC number: 204-402-9 | REACH registration number: 01-2119976371-33-XXXX |
| M factor (Acute) = 1 | | |
| Classification | | |
| Acute Tox. 4 - H302 | | |
| Aquatic Acute 1 - H400 | | |
| Aquatic Chronic 2 - H411 | | |
| ethyl 2,3-epoxy-3-phenylbutyrate | | 10 - <25% |
| CAS number: 77-83-8 | EC number: 201-061-8 | |
| Classification | | |
| Skin Sens. 1 - H317 | | |
| Aquatic Chronic 2 - H411 | | |
| citral | | 2.5 - <5% |
| CAS number: 5392-40-5 | EC number: 226-394-6 | |
| Classification | | |
| Skin Irrit. 2 - H315 | | |
| Eye Irrit. 2 - H319 | | |
| Skin Sens. 1 - H317 | | |
| undecan-4-olide | | 1 - <2.5% |
| CAS number: 104-67-6 | EC number: 203-225-4 | REACH registration number: 01-2119959333-34-XXXX |
| Classification | | |
| Aquatic Chronic 3 - H412 | | |

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| | |
|--------------------------|------------------------|
| linalool | 0.5 - <1% |
| CAS number: 78-70-6 | EC number: 201-134-4 |
| Classification | |
| Skin Irrit. 2 - H315 | |
| Eye Irrit. 2 - H319 | |
| Skin Sens. 1B - H317 | |
| d-Limonene | 0.25 - <0.5% |
| CAS number: 5989-27-5 | EC number: 227-813-5 |
| M factor (Acute) = 1 | M factor (Chronic) = 1 |
| Classification | |
| Flam. Liq. 3 - H226 | |
| Skin Irrit. 2 - H315 | |
| Skin Sens. 1 - H317 | |
| Asp. Tox. 1 - H304 | |
| Aquatic Acute 1 - H400 | |
| Aquatic Chronic 1 - H410 | |
| pin-2(10)-ene | 0.25 - <0.5% |
| CAS number: 127-91-3 | EC number: 204-872-5 |
| Classification | |
| Flam. Liq. 3 - H226 | |
| Skin Irrit. 2 - H315 | |
| Skin Sens. 1 - H317 | |
| Asp. Tox. 1 - H304 | |

The full text for all hazard statements is displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|----------------------------|--|
| General information | Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. |
| Inhalation | If throat irritation or coughing persists, proceed as follows. Remove person to fresh air and keep comfortable for breathing. Get medical attention if symptoms are severe or persist. |
| Ingestion | Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if symptoms are severe or persist. |
| Skin contact | Brush off loose particles from skin. Wash with plenty of water. Get medical attention if symptoms are severe or persist after washing. |
| Eye contact | Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if symptoms are severe or persist after washing. |

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

| | |
|----------------------------|---|
| General information | The severity of the symptoms described will vary dependent on the concentration and the length of exposure. |
|----------------------------|---|

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| | |
|---------------------|--|
| Inhalation | Prolonged or repeated exposure to vapours in high concentrations may cause the following adverse effects: Drowsiness. Dizziness. |
| Ingestion | Due to the physical nature of this product, it is unlikely that ingestion will occur. May cause sensitisation or allergic reactions in sensitive individuals. Gastrointestinal symptoms, including upset stomach. |
| Skin contact | Due to the physical nature of this product, exposure by this route is unlikely. May cause skin sensitisation or allergic reactions in sensitive individuals. Prolonged skin contact may cause redness and irritation. Prolonged contact may cause dryness of the skin. |
| Eye contact | Due to the physical nature of this product, exposure by this route is unlikely. May cause irritation. |

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

| | |
|-----------------------------|--|
| Notes for the doctor | Treat symptomatically. Keep affected person under observation. |
|-----------------------------|--|

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards Containers can burst violently or explode when heated, due to excessive pressure build-up.

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Oxides of carbon. Toxic gases or vapours.

5.3. Advice for firefighters

Protective actions during firefighting Use water to keep fire exposed containers cool and disperse vapours.

Special protective equipment for firefighters Use protective equipment appropriate for surrounding materials. Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. Eliminate all ignition sources if safe to do so. Avoid contact with skin and eyes.

6.2. Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. No smoking, sparks, flames or other sources of ignition near spillage. Eliminate all ignition sources if safe to do so. Do not touch or walk into spilled material. Absorb in vermiculite, dry sand or earth and place into containers. Use only non-sparking tools. Containers with collected spillage must be properly labelled with correct contents and hazard symbol.

6.4. Reference to other sections

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Reference to other sections See Section 11 for additional information on health hazards. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Ground/bond container and receiving equipment. Take precautionary measures against static discharges. Keep away from heat, sparks and open flame. Provide adequate ventilation.

Advice on general occupational hygiene Avoid contact with eyes and prolonged skin contact. Good personal hygiene procedures should be implemented. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in a cool and well-ventilated place. Keep away from heat, sparks and open flame. Take precautionary measures against static discharges.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Benzyl benzoate (CAS: 120-51-4)

| | |
|-------------|--|
| DNEL | Workers - Inhalation; Long term systemic effects: 5.1 mg/m ³ Workers - Inhalation; Short term systemic effects: 102 mg/m ³ Workers - Dermal; Long term systemic effects: 2.6 mg/kg/day General population - Inhalation; Long term systemic effects: 1.25 mg/m ³ General population - Inhalation; Long term systemic effects: 25 mg/m ³ General population - Dermal; Long term systemic effects: 1.3 mg/kg/day General population - Oral; Long term systemic effects: 0.4 mg/kg/day General population - Oral; Short term systemic effects: 78 mg/kg/day |
| PNEC | Fresh water; 0.017 mg/l Marine water; 0.002 mg/l STP; 100 mg/l Sediment (Freshwater); 10.66 mg/kg Sediment (Marinewater); 1.07 mg/kg Soil; 2.12 mg/kg |

undecan-4-olide (CAS: 104-67-6)

| | |
|-------------|---|
| DNEL | Workers - Inhalation; Long term systemic effects: 19 mg/m ³ Workers - Dermal; Long term systemic effects: 5.38 mg/kg/day General population - Inhalation; Long term systemic effects: 4.68 mg/m ³ General population - Dermal; Long term systemic effects: 2.7 mg/kg/day General population - Oral; Long term systemic effects: 2.7 mg/kg/day |
|-------------|---|

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| | |
|-------------|-------------------------------------|
| PNEC | Fresh water; 0.01752 mg/l |
| | Marine water; 0.00175 mg/l |
| | STP; 80 mg/l |
| | Sediment (Freshwater); 1.882 mg/kg |
| | Sediment (Marinewater); 0.188 mg/kg |
| | Soil; 0.366 mg/kg |
| | Oral; 66.7 mg/kg |

linalool (CAS: 78-70-6)

| | |
|---|---|
| DNEL | Workers - Inhalation; Long term systemic effects: 2.8 mg/m ³ |
| | Workers - Inhalation; Short term systemic effects: 16.5 mg/m ³ |
| | Workers - Dermal; Long term systemic effects: 2.5 mg/kg/day |
| | Workers - Dermal; Short term systemic effects: 5 mg/kg/day |
| | Workers - Dermal; Long term local effects: 3 mg/cm ² |
| | Workers - Dermal; Short term local effects: 3 mg/cm ² |
| | General population - Inhalation; Long term systemic effects: 0.7 mg/m ³ |
| | General population - Inhalation; Short term systemic effects: 4.1 mg/m ³ |
| | General population - Dermal; Long term systemic effects: 1.25 mg/kg/day |
| | General population - Dermal; Short term systemic effects: 23.5 mg/kg/day |
| | General population - Dermal; Long term local effects: 1.5 mg/cm ² |
| | General population - Dermal; Short term local effects: 1.5 mg/cm ² |
| | General population - Oral; Long term systemic effects: 0.2 mg/kg/day |
| General population - Oral; Short term systemic effects: 1.2 mg/kg/day | |

| | |
|-------------|-------------------------------------|
| PNEC | Fresh water; 0.2 mg/l |
| | Marine water; 0.02 mg/l |
| | STP; 10 mg/l |
| | Sediment (Freshwater); 2.22 mg/kg |
| | Sediment (Marinewater); 0.222 mg/kg |
| | Soil; 0.327 mg/kg |
| | Oral; 7.8 mg/kg |

cis-2-tert-butylcyclohexyl acetate (CAS: 20298-69-5)

| | |
|-------------|---|
| PNEC | Fresh water; 0.011 mg/l |
| | Fresh water, Intermittent release; 0.017 mg/l |
| | Marine water; 0.001 mg/l |
| | STP; 10 mg/l |
| | Sediment (Freshwater); 1.5 mg/kg |
| | Sediment (Marinewater); 0.15 mg/kg |
| | Soil; 0.293 mg/kg |

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. All handling should only take place in well-ventilated areas. Avoid inhalation of vapours and spray/mists. Use explosion-proof electrical, ventilating and lighting equipment.

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| | |
|--|---|
| Eye/face protection | Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Wear tight-fitting, chemical splash goggles or face shield. |
| Hand protection | Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Frequent changes are recommended. |
| Other skin and body protection | Wear appropriate clothing to prevent repeated or prolonged skin contact. |
| Hygiene measures | Do not smoke in work area. Wash promptly with soap and water if skin becomes contaminated. Wash at the end of each work shift and before eating, smoking and using the toilet. |
| Respiratory protection | Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. |
| Environmental exposure controls | Keep container tightly sealed when not in use. |

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

| | |
|---|------------------|
| Appearance | Solid. |
| Colour | Various colours. |
| Odour | Characteristic. |
| Odour threshold | Not determined. |
| pH | Not determined. |
| Melting point | Not determined. |
| Initial boiling point and range | Not determined. |
| Flash point | Not determined. |
| Evaporation rate | Not determined. |
| Evaporation factor | Not determined. |
| Flammability (solid, gas) | Not determined. |
| Upper/lower flammability or explosive limits | Not determined. |
| Vapour pressure | Not determined. |
| Vapour density | Not determined. |
| Relative density | Not determined. |
| Bulk density | Not determined. |
| Partition coefficient | Not determined. |
| Auto-ignition temperature | Not determined. |
| Decomposition Temperature | Not determined. |

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| | |
|-----------------------------|---|
| Viscosity | Not determined. |
| Explosive properties | Not considered to be explosive. |
| Oxidising properties | The mixture itself has not been tested but none of the ingredient substances meet the criteria for classification as oxidising. |

9.2. Other information

| | |
|--------------------------|--------------------------|
| Other information | No information required. |
|--------------------------|--------------------------|

SECTION 10: Stability and reactivity

10.1. Reactivity

| | |
|-------------------|---|
| Reactivity | There are no known reactivity hazards associated with this product. |
|-------------------|---|

10.2. Chemical stability

| | |
|------------------|---|
| Stability | Stable at normal ambient temperatures and when used as recommended. |
|------------------|---|

10.3. Possibility of hazardous reactions

| | |
|---|----------------------|
| Possibility of hazardous reactions | Will not polymerise. |
|---|----------------------|

10.4. Conditions to avoid

| | |
|----------------------------|---|
| Conditions to avoid | Keep away from heat, sparks and open flame. Avoid excessive heat for prolonged periods of time. |
|----------------------------|---|

10.5. Incompatible materials

| | |
|---------------------------|-------------|
| Materials to avoid | None known. |
|---------------------------|-------------|

10.6. Hazardous decomposition products

| | |
|---|---|
| Hazardous decomposition products | Thermal decomposition or combustion products may include the following substances: Carbon dioxide (CO ₂). Carbon monoxide (CO). Toxic gases or vapours. |
|---|---|

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

| | |
|-------------------------------------|--|
| Notes (oral LD₅₀) | Based on available data the classification criteria are not met. |
|-------------------------------------|--|

| | |
|-------------------------|----------|
| ATE oral (mg/kg) | 4,131.06 |
|-------------------------|----------|

Acute toxicity - dermal

| | |
|---------------------------------------|--|
| Notes (dermal LD₅₀) | Based on available data the classification criteria are not met. |
|---------------------------------------|--|

Acute toxicity - inhalation

| | |
|---|--|
| Notes (inhalation LC₅₀) | Based on available data the classification criteria are not met. |
|---|--|

Skin corrosion/irritation

| | |
|----------------------------------|--|
| Skin corrosion/irritation | Based on available data the classification criteria are not met. |
|----------------------------------|--|

Serious eye damage/irritation

| | |
|--------------------------------------|--|
| Serious eye damage/irritation | Based on available data the classification criteria are not met. |
|--------------------------------------|--|

Respiratory sensitisation

| | |
|----------------------------------|--|
| Respiratory sensitisation | Based on available data the classification criteria are not met. |
|----------------------------------|--|

Skin sensitisation

| | |
|---------------------------|--------------------------------------|
| Skin sensitisation | May cause an allergic skin reaction. |
|---------------------------|--------------------------------------|

Armor All® Air Freshener 3ct Cards Lemon Berry**Germ cell mutagenicity****Genotoxicity - in vitro** Based on available data the classification criteria are not met.**Genotoxicity - in vivo** Based on available data the classification criteria are not met.**Carcinogenicity****Carcinogenicity** Based on available data the classification criteria are not met.**Reproductive toxicity****Reproductive toxicity - fertility** Based on available data the classification criteria are not met.**Specific target organ toxicity - single exposure****STOT - single exposure** Based on available data the classification criteria are not met.**Specific target organ toxicity - repeated exposure****STOT - repeated exposure** Based on available data the classification criteria are not met.**Aspiration hazard****Aspiration hazard** Based on available data the classification criteria are not met.**Toxicological information on ingredients.****Benzyl benzoate****Acute toxicity - oral****Acute toxicity oral (LD₅₀ mg/kg)** 1,880.0**Species** Rat**ATE oral (mg/kg)** 1,880.0**Acute toxicity - dermal****Notes (dermal LD₅₀)** LD₅₀ >2000 mg/kg, Dermal, Rabbit REACH dossier information.**Skin corrosion/irritation****Animal data** Dose: 0.5 ml, 4 hours, Rabbit Erythema/eschar score: Very slight erythema - barely perceptible (1). Oedema score: No oedema (0). Not irritating. REACH dossier information.**Serious eye damage/irritation****Serious eye damage/irritation** Dose: 0.1 ml, 7 days, Rabbit Not irritating. REACH dossier information.**Skin sensitisation****Skin sensitisation** Local Lymph Node Assay (LLNA) - Mouse: Not sensitising. REACH dossier information.**Germ cell mutagenicity****Genotoxicity - in vitro** Bacterial reverse mutation test: Negative. REACH dossier information.**Genotoxicity - in vivo** DNA damage and/or repair: Negative. REACH dossier information.**Specific target organ toxicity - repeated exposure****STOT - repeated exposure** NOAEL 781 mg/kg/day, Dermal, Rat REACH dossier information.**ethyl 2,3-epoxy-3-phenylbutyrate****Acute toxicity - dermal**

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| | |
|--|---|
| Notes (dermal LD₅₀) | LD ₅₀ >2000 mg/kg, Dermal, Rat REACH dossier information. |
| <u>Skin corrosion/irritation</u> | |
| Human skin model test | Not irritating. REACH dossier information. |
| <u>Serious eye damage/irritation</u> | |
| Serious eye damage/irritation | Dose: 0.1 ml, 24 hours, Rabbit Not irritating. REACH dossier information. |
| <u>Skin sensitisation</u> | |
| Skin sensitisation | Guinea pig maximization test (GPMT) - Guinea pig: Sensitising. REACH dossier information. |
| <u>Germ cell mutagenicity</u> | |
| Genotoxicity - in vivo | Gene mutation: Negative. REACH dossier information. |
| <u>Reproductive toxicity</u> | |
| Reproductive toxicity - fertility | Screening - NOAEL >1000 mg/kg/day, Dermal, Rat P REACH dossier information. |
| <u>Specific target organ toxicity - repeated exposure</u> | |
| STOT - repeated exposure | NOAEL >1000 mg/kg/day, Dermal, Rat REACH dossier information. |

citral

| | |
|--|--|
| <u>Acute toxicity - oral</u> | |
| Acute toxicity oral (LD₅₀ mg/kg) | 6,800.0 |
| Species | Rat |
| ATE oral (mg/kg) | 6,800.0 |
| <u>Acute toxicity - dermal</u> | |
| Notes (dermal LD₅₀) | LD ₅₀ > 2000 mg/kg, Rat REACH dossier information. |
| <u>Skin corrosion/irritation</u> | |
| Animal data | Skin Irrit. 2 - H315 Causes skin irritation. |
| <u>Serious eye damage/irritation</u> | |
| Serious eye damage/irritation | Eye Irrit. 2 - H319 Causes serious eye irritation. |
| <u>Skin sensitisation</u> | |
| Skin sensitisation | Local Lymph Node Assay (LLNA) - Mouse: Sensitising. REACH dossier information. |
| <u>Germ cell mutagenicity</u> | |
| Genotoxicity - in vitro | Bacterial reverse mutation test: Negative. REACH dossier information. |
| Genotoxicity - in vivo | Chromosome aberration: Negative. REACH dossier information. |
| <u>Carcinogenicity</u> | |
| Carcinogenicity | NOAEL 60 mg/kg/day, Oral, Mouse REACH dossier information. |
| <u>Reproductive toxicity</u> | |

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Reproductive toxicity - fertility Screening - NOAEL 200 mg/kg/day, Oral, Rat P REACH dossier information.

Benzyl alcohol

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 1,620.0

Species Rat

ATE oral (mg/kg) 1,620.0

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 11.0

Skin corrosion/irritation

Animal data Dose: 500 µl, 4 hours, Rabbit Erythema/eschar score: No erythema (0). Oedema score: No oedema (0). Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation Dose: 100 µl, 24 hours, Rabbit Irritating to eyes.

linalool

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 2,790.0

Species Rat

Notes (oral LD₅₀) REACH dossier information.

ATE oral (mg/kg) 2,790.0

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 5,610.0

Species Rabbit

Notes (dermal LD₅₀) REACH dossier information.

ATE dermal (mg/kg) 5,610.0

Skin corrosion/irritation

Animal data Dose: 0.5 ml, 4 hours, Rabbit Erythema/eschar score: Well defined erythema (2). Oedema score: Slight oedema - edges of area well defined by definite raising (2). REACH dossier information. Irritating.

Serious eye damage/irritation

Serious eye damage/irritation Dose: 0.1 ml, 1 hour, Rabbit REACH dossier information. Irritating.

Skin sensitisation

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| | |
|--|--|
| Skin sensitisation | Local Lymph Node Assay (LLNA) - Mouse: Sensitising. REACH dossier information. |
| <u>Germ cell mutagenicity</u> | |
| Genotoxicity - in vitro | Gene mutation: Negative. REACH dossier information. |
| Genotoxicity - in vivo | Chromosome aberration: Negative. REACH dossier information. |
| <u>Reproductive toxicity</u> | |
| Reproductive toxicity - fertility | Screening - NOAEL 500 mg/kg/day, Oral, Rat P REACH dossier information. Based on available data the classification criteria are not met. |
| Reproductive toxicity - development | Developmental toxicity: - NOAEL: 1000 mg/kg/day, Oral, Rat REACH dossier information. |

d-Limonene

| | |
|--|---|
| <u>Acute toxicity - oral</u> | |
| Notes (oral LD₅₀) | > 2000 mg/kg Rat REACH dossier information. Read-across data. |
| <u>Skin corrosion/irritation</u> | |
| Animal data | Irritating to skin. REACH dossier information. |
| <u>Serious eye damage/irritation</u> | |
| Serious eye damage/irritation | Dose: 0.1 ml, 7 days, Rabbit REACH dossier information. Not irritating. |
| <u>Skin sensitisation</u> | |
| Skin sensitisation | Local Lymph Node Assay (LLNA) - Mouse: Sensitising. REACH dossier information. |
| <u>Germ cell mutagenicity</u> | |
| Genotoxicity - in vitro | Gene mutation: Negative. REACH dossier information. |
| Genotoxicity - in vivo | DNA damage and/or repair: Negative. REACH dossier information. |
| <u>Carcinogenicity</u> | |
| IARC carcinogenicity | IARC Group 3 Not classifiable as to its carcinogenicity to humans. |
| <u>Specific target organ toxicity - repeated exposure</u> | |
| STOT - repeated exposure | NOAEL 1650 mg/kg/day, Oral, Mouse REACH dossier information. |
| <u>Aspiration hazard</u> | |
| Aspiration hazard | 1.003 cSt @ 25°C/77°F REACH dossier information. Read-across data. Asp. Tox. 1 - H304 |

pin-2(10)-ene

| | |
|---|---|
| <u>Skin corrosion/irritation</u> | |
| Human skin model test | Dose: 10 µl, 15 ± 0.5 minutes, Human Cell Viability (38.5 ± 3.5%) 15 minutes REACH dossier information. Irritating. |
| <u>Serious eye damage/irritation</u> | |
| Serious eye damage/irritation | REACH dossier information. Not irritating. |
| <u>Skin sensitisation</u> | |

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| | |
|---------------------------------|--|
| Skin sensitisation | Local Lymph Node Assay (LLNA) - Mouse: Sensitising. REACH dossier information. |
| <u>Aspiration hazard</u> | |
| Aspiration hazard | 1.4 mPa s @ 40°C REACH dossier information. Asp. Tox. 1 - H304 May be fatal if swallowed and enters airways. |

SECTION 12: Ecological Information

12.1. Toxicity

Toxicity Aquatic Chronic 2 - H411 Toxic to aquatic life with long lasting effects.

Ecological information on ingredients.

Benzyl benzoate

Acute aquatic toxicity

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Acute toxicity - fish LC₅₀, 96 hours: 2.32 mg/l, Brachydanio rerio (Zebra Fish)
REACH dossier information.

Acute toxicity - aquatic invertebrates NOEC, 48 hours: 1.73 mg/l, Daphnia magna
EC₅₀, 48 hours: 3.09 mg/l, Daphnia magna
REACH dossier information.

Acute toxicity - aquatic plants NOEC, 72 hours: 0.247 mg/l, Pseudokirchneriella subcapitata
EC₅₀, 72 hours: 0.475 mg/l, Pseudokirchneriella subcapitata
REACH dossier information.

Chronic aquatic toxicity

Chronic toxicity - aquatic invertebrates NOEC, 21 days: 0.258 mg/l, Daphnia magna
LOEC, 21 days: 0.455 mg/l, Daphnia magna
REACH dossier information.

ethyl 2,3-epoxy-3-phenylbutyrate

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 4.2 mg/l, Oncorhynchus mykiss (Rainbow trout)
NOEC, 96 hours: 3.2 mg/l, Oncorhynchus mykiss (Rainbow trout)
REACH dossier information.

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 52 mg/l, Daphnia magna
REACH dossier information.

Acute toxicity - aquatic plants EC₅₀, 72 hours: 36 mg/l, Pseudokirchneriella subcapitata
EC₅₀, 96 hours: 42 mg/l, Pseudokirchneriella subcapitata
REACH dossier information.

undecan-4-olide

Acute aquatic toxicity

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 5.853 mg/l, Daphnia magna

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Acute toxicity - aquatic plants EC₅₀, 48 hours: 5.94 mg/l, Pseudokirchneriella subcapitata
 NOEC, 48 hours: 5.23 mg/l, Pseudokirchneriella subcapitata

Chronic aquatic toxicity

Chronic toxicity - aquatic invertebrates NOEC, 21 days: 0.138 mg/l, Daphnia magna
 EC₅₀, 21 days: 3.7 mg/l, Daphnia magna

d-Limonene

Acute aquatic toxicity

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Acute toxicity - fish LC₅₀, 96 hours: 0.720 mg/l, Pimephales promelas (Fat-head Minnow)
 REACH dossier information.

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 0.36 mg/l, Daphnia magna
 REACH dossier information.

Acute toxicity - aquatic plants EC₅₀, 72 hours: 150 mg/l, Desmodesmus subspicatus
 REACH dossier information.
 Read-across data.

Acute toxicity - microorganisms EC₅₀, 3 hours: 209 mg/l, Activated sludge
 REACH dossier information.
 Read-across data.

Chronic aquatic toxicity

M factor (Chronic) 1

12.2. Persistence and degradability

Persistence and degradability No data available.

Ecological information on ingredients.

Benzyl benzoate

Biodegradation Water - Degradation 94%: 28 days
 The substance is readily biodegradable.
 REACH dossier information.

ethyl 2,3-epoxy-3-phenylbutyrate

Biodegradation Water - Degradation 53%: 28 days
 Not readily biodegradable.
 REACH dossier information.

undecan-4-olide

Biodegradation Water - Degradation 82%: 28 days
 Read-across data.
 The substance is readily biodegradable.

d-Limonene

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| | |
|----------------------------|--|
| Phototransformation | Water - Half-life : 0.365 hours REACH dossier information. QSAR |
| Biodegradation | Water - Degradation (80%): 28 days REACH dossier information. Read-across data. The substance is readily biodegradable. |

12.3. Bioaccumulative potential

| | |
|----------------------------------|---------------------------------------|
| Bioaccumulative potential | No data available on bioaccumulation. |
| Partition coefficient | Not determined. |

Ecological information on ingredients.

Benzyl benzoate

| | |
|----------------------------------|---|
| Bioaccumulative potential | BCF: 193.4 L/kg, Calculation method. REACH dossier information. |
| Partition coefficient | log Pow: ~ 3.97 REACH dossier information. |

ethyl 2,3-epoxy-3-phenylbutyrate

| | |
|------------------------------|---|
| Partition coefficient | log Pow: 2.4 - 2.8 REACH dossier information. |
|------------------------------|---|

undecan-4-olide

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|------------------------------|--------------|
| Partition coefficient | log Pow: 3.6 |
|------------------------------|--------------|

d-Limonene

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|----------------------------------|--|
| Bioaccumulative potential | BCF: 1022, REACH dossier information. QSAR |
| Partition coefficient | log Pow: 4.38 REACH dossier information. |

12.4. Mobility in soil

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|-----------------|---|
| Mobility | The product is partly soluble in water and may spread in the aquatic environment. |
|-----------------|---|

Ecological information on ingredients.

Benzyl benzoate

| | |
|--|--|
| Adsorption/desorption coefficient | Water - Log Koc: 3.8 @ 40°C REACH dossier information. |
|--|--|

ethyl 2,3-epoxy-3-phenylbutyrate

| | |
|--|--|
| Adsorption/desorption coefficient | Log Koc: 2.34 - 2.74 REACH dossier information. |
| Surface tension | ≥58.7 - ≤58.9 mN/m @ 19.6°C REACH dossier information. |

undecan-4-olide

| | |
|-----------------|----------------------------|
| Mobility | Slightly soluble in water. |
|-----------------|----------------------------|

d-Limonene

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Adsorption/desorption coefficient Water - Koc : 1984 REACH dossier information. QSAR

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

Ecological information on ingredients.

Benzyl benzoate

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

ethyl 2,3-epoxy-3-phenylbutyrate

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

undecan-4-olide

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

d-Limonene

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects Not determined.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Dispose of waste product or used containers in accordance with local regulations

SECTION 14: Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID). Refer to the Dangerous Goods List for information on any Special Provisions 335 / A158.

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

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Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.

**Annex II of MARPOL 73/78
and the IBC Code**

SECTION 15: Regulatory information

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

| | |
|-----------------------------|--|
| National regulations | EH40/2005 Workplace exposure limits. |
| EU legislation | Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015. |

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

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| Abbreviations and acronyms used in the safety data sheet | ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail. IMDG: International Maritime Dangerous Goods. IATA: International Air Transport Association. ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways. ATE: Acute Toxicity Estimate. DNEL: Derived No Effect Level. LC ₅₀ : Lethal Concentration to 50 % of a test population. LD ₅₀ : Lethal Dose to 50% of a test population (Median Lethal Dose). PBT: Persistent, Bioaccumulative and Toxic substance. vPvB: Very Persistent and Very Bioaccumulative. BCF: Bioconcentration Factor. |
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| Classification procedures according to Regulation (EC) 1272/2008 | Skin Sens. 1 - H317, Aquatic Chronic 2 - H411: Calculation method. |
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| Revision comments | This is first issue. |
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| Revision date | 19/09/2017 |
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| SDS number | 1093 |
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Hazard statements in full

H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
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.
H412 Harmful to aquatic life with long lasting effects.

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