Lime Leaves (IFF)

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 1/17/2024 Version: 1.0

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

1.1. Product identifier

Product form : Mixture
Product name : Lime Leaves (IFF)
Product code : 23165
Product group : Trade product

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

1.2.1. Relevant identified uses

Intended for general public
Main use category : Professional use,Consumer use
Use of the substance/mixture : Fragrance raw material

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

De Hekserij
Spoorstraat 57
8271 RG IJsselmuiden
Nederland
www.hekserij.nl

1.4. Emergency telephone number

No additional information available

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 1	H318
Skin sensitisation, category 1B	H317
Hazardous to the aquatic environment – Chronic Hazard, Category 2	H411

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Toxic to aquatic life with long lasting effects.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

GHS05 GHS07 GHS09

Signal word (CLP) : Danger
Contains : Coranol
Hazard statements (CLP) : H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H318 - Causes serious eye damage.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) : P261 - Avoid breathing fume.
P273 - Avoid release to the environment.
P280 - Wear eye protection, protective gloves.
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P391 - Collect spillage.
P501 - Dispose of contents and container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Coranol	CAS-No.: 83926-73-2 EC-No.: 420-630-3 EC Index-No.: 603-174-00-1	10 – 25	Eye Dam. 1, H318 Aquatic Chronic 2, H411
Citronellal	CAS-No.: 106-23-0 EC-No.: 203-376-6	1 – 10	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1B, H317
Diethyl malonate	CAS-No.: 105-53-3 EC-No.: 203-305-9	1 – 10	Eye Irrit. 2, H319
Violiff	CAS-No.: 87731-18-8 EC-No.: 401-620-8 EC Index-No.: 006-071-00-4	1 – 10	Skin Sens. 1, H317
isopulegol	CAS-No.: 89-79-2 EC-No.: 201-940-6	1 – 10	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319
Methyl Pamplemousse (Giv)	CAS-No.: 67674-46-8 EC-No.: 266-885-2 REACH-no: 01-2120741268-52	1 – 10	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Aquatic Chronic 3, H412
Citronellyl acetate	CAS-No.: 150-84-5 EC-No.: 205-775-0	1 – 10	Skin Irrit. 2, H315 Aquatic Chronic 2, H411
3,4,4a,5,8,8a(or 3,4,4a,7,8,8a)-hexahydro-3,3,6,7-tetramethyl-1H-2-benzopyran	CAS-No.: 72429-08-4 EC-No.: 276-659-5	1 – 10	Skin Irrit. 2, H315 Eye Irrit. 2, H319
Dodecanal	CAS-No.: 112-54-9 EC-No.: 203-983-6 REACH-no: 01-211996944133	1 – 10	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1B, H317

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Opalene	EC-No.: 941-474-7	1 – 10	Skin Irrit. 2, H315 Skin Sens. 1B, H317 Aquatic Acute 1, H400 Aquatic Chronic 3, H412
Prismantol	CAS-No.: 122760-84-3 EC-No.: 406-330-5 EC Index-No.: 603-123-00-3	1 – 10	Skin Irrit. 2, H315 Skin Sens. 1, H317 Aquatic Chronic 2, H411
Undecavertol (Giv)	CAS-No.: 81782-77-6 EC-No.: 279-815-0 REACH-no: 01-2119983528-21	1 – 10	Aquatic Acute 1, H400 Aquatic Chronic 2, H411
Dipentene	CAS-No.: 138-86-3 EC-No.: 205-341-0 EC Index-No.: 601-029-00-7	1 – 10	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Skin Sens. 1, H317 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Eukalyptol (1.8-Cineol)	CAS-No.: 470-82-6 EC-No.: 207-431-5	1 – 10	Flam. Liq. 3, H226 Skin Sens. 1B, H317
Carvone	CAS-No.: 99-49-0 EC-No.: 202-759-5 EC Index-No.: 606-148-00-8	1 – 10	Skin Sens. 1, H317
Methyl isoeugenol	CAS-No.: 93-16-3 EC-No.: 202-224-6 REACH-no: 01-2120223689-47	0.1 – 1	Skin Sens. 1B, H317
Methyl cinnamic aldehyde	CAS-No.: 101-39-3 EC-No.: 202-938-8	0.1 – 1	Skin Sens. 1B, H317
Vertoliff	CAS-No.: 27939-60-2 EC-No.: 248-742-6	0.1 – 1	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1B, H317 Aquatic Chronic 2, H411
Dihydroeugenol	CAS-No.: 2785-87-7 EC-No.: 220-499-0	0.1 – 1	Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1B, H317 STOT SE 3, H335
Geranyl acetate	CAS-No.: 105-87-3 EC-No.: 203-341-5 REACH-no: 01-2119973480-35	0.1 – 1	Skin Irrit. 2, H315 Skin Sens. 1B, H317 Aquatic Chronic 3, H412
Eugenol	CAS-No.: 97-53-0 EC-No.: 202-589-1	0.1 – 1	Eye Irrit. 2, H319 Skin Sens. 1B, H317

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If you feel unwell, seek medical advice.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation : Although no appropriate human or animal health effects data are known to exist, this material is expected to be an inhalation hazard.

Symptoms/effects after skin contact : Irritation. May cause an allergic skin reaction.

Symptoms/effects after eye contact : Serious damage to eyes.

Symptoms/effects after ingestion : None under normal conditions.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No fire hazard.

Explosion hazard : No direct explosion hazard.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions : Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.

Methods for cleaning up : Take up liquid spill into absorbent material.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	:	Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling	:	Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment. Avoid breathing dust/fume/gas/mist/vapours/spray.
Hygiene measures	:	Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	:	Keep in a cool, well-ventilated place away from heat.
Storage conditions	:	Keep cool. Protect from sunlight.
Packaging materials	:	Store always product in container of same material as original container.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment:
Wear recommended personal protective equipment.

Personal protective equipment symbol(s):

8.2.2.1. Eye and face protection

Eye protection:
Safety glasses

8.2.2.2. Skin protection

Skin and body protection:
Wear suitable protective clothing

Hand protection:
Protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:
In case of insufficient ventilation, wear suitable respiratory equipment

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Colour	:	Not available
Odour	:	Not available
Odour threshold	:	Not available
Melting point	:	Not applicable
Freezing point	:	Not available
Boiling point	:	Not available
Flammability	:	Non flammable.
Lower explosion limit	:	Not available
Upper explosion limit	:	Not available
Flash point	:	84 °C
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
pH	:	Not available
Viscosity, kinematic	:	Not available
Solubility	:	Not available
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Vapour pressure	:	0.1 mm Hg Temp.: 25 °C
Vapour pressure at 50°C	:	Not available
Density	:	0.92 – 0.93 g/ml Temp.: 20 °C
Relative density	:	0.92 – 0.93 Temp.: 20 °C
Relative vapour density at 20°C	:	Not available
Particle characteristics	:	Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Coranol (83926-73-2)	
LD50 oral rat	≤
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal))

Citronellal (106-23-0)	
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat
LD50 dermal rabbit	2500 – 5000 mg/kg bodyweight Animal: rabbit

Diethyl malonate (105-53-3)	
LD50 oral rat	15794 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: other:
LD50 dermal rabbit	> 16960 mg/kg bodyweight Animal: rabbit, Animal sex: male, Guideline: other:

Violiff (87731-18-8)	
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal))

isopulegol (89-79-2)	
LD50 oral rat	≈ 936 mg/kg bodyweight Animal: rat

Methyl Pamplemousse (Giv) (67674-46-8)	
LD50 oral	4180 mg/kg bodyweight Animal: , Guideline: other:

Citronellyl acetate (150-84-5)	
LD50 oral rat	6800 mg/kg bodyweight Animal: rat
LD50 dermal rabbit	> 2000 mg/kg bodyweight Animal: rabbit

Dodecanal (112-54-9)	
LD50 oral rat	23100 mg/kg bodyweight Animal: rat
LD50 dermal rabbit	> 2000 mg/kg bodyweight Animal: rabbit

Prismantol (122760-84-3)	
LD50 oral	4400 mg/kg bodyweight Animal: other:, Guideline: other:, 95% CL: 3000 - 6800

Methyl isoeugenol (93-16-3)	
LD50 oral rat	2500 mg/kg
LD50 dermal rabbit	> 5000 mg/kg

Vertoliff (27939-60-2)	
LD50 oral rat	3900 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), 95% CL: 2900 - 5100
LD50 oral	3900 mg/kg bodyweight Animal: , 95% CL: 2900 - 5100
LD50 dermal rabbit	> 5000 mg/kg bodyweight Animal: rabbit, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)

Dihydroeugenol (2785-87-7)	
LD50 oral rat	2600 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 401 (Acute Oral Toxicity), 95% CL: 1900 - 3600
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)

Geranyl acetate (105-87-3)	
LD50 oral rat	6330 mg/kg bodyweight Animal: rat, 95% CL: 5450 - 7340
LD50 dermal rabbit	> 2000 mg/kg

Eugenol (97-53-0)	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method)
LD50 oral	1500 – 1500 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 423 (Acute Oral toxicity - Acute Toxic Class Method)

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitisation : May cause an allergic skin reaction.

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Citronellal (106-23-0)	
NOAEL (chronic, oral, animal/male, 2 years)	60 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)

Dihydroeugenol (2785-87-7)	
NOAEL (chronic, oral, animal/male, 2 years)	300 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 451 (Carcinogenicity Studies)
NOAEL (chronic, oral, animal/female, 2 years)	150 mg/kg bodyweight Animal: mouse, Animal sex: female, Guideline: OECD Guideline 451 (Carcinogenicity Studies)

Reproductive toxicity : Not classified

Methyl Pamplemousse (Giv) (67674-46-8)	
NOAEL (animal/female, F0/P)	615 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
NOAEL (animal/male, F1)	≥

Vertoliff (27939-60-2)	
NOAEL (animal/male, F0/P)	150 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 421 (Reproduction / Developmental Toxicity Screening Test)

STOT-single exposure : Not classified

Dihydroeugenol (2785-87-7)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : Not classified

Coranol (83926-73-2)	
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents)

Citronellal (106-23-0)	
LOAEC (inhalation, rat, gas, 90 days)	68 ppm Animal: rat, Animal sex: female
NOAEL (oral, rat, 90 days)	100 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)
NOAEC (inhalation, rat, gas, 90 days)	34 ppm Animal: rat, Animal sex: female
NOAEL (subchronic, oral, animal/male, 90 days)	60 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)

Violiff (87731-18-8)	
NOAEL (oral, rat, 90 days)	≥ 500 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents)

Methyl Pamplemousse (Giv) (67674-46-8)	
NOAEL (oral, rat, 90 days)	386 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

Eukalyptol (1.8-Cineol) (470-82-6)	
NOAEL (oral, rat, 90 days)	600 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: other:, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents), Guideline: EPA OPPTS 870.3150 (90-Day Oral Toxicity in Non-rodents)

Dihydroeugenol (2785-87-7)	
NOAEL (subchronic, oral, animal/male, 90 days)	300 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)
NOAEL (subchronic, oral, animal/female, 90 days)	600 mg/kg bodyweight Animal: mouse, Animal sex: female, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)

Geranyl acetate (105-87-3)	
NOAEL (oral, rat, 90 days)	2000 mg/kg bodyweight Animal: rat, Guideline: other:

Eugenol (97-53-0)	
NOAEL (subchronic, oral, animal/male, 90 days)	≥ 900 mg/kg bodyweight Animal: mouse, Animal sex: male, Guideline: other:
NOAEL (subchronic, oral, animal/female, 90 days)	450 mg/kg bodyweight Animal: mouse, Animal sex: female, Guideline: other:

Aspiration hazard : Not classified

Undecavertol (Giv) (81782-77-6)	
Viscosity, kinematic	18 mm²/s at 20 °C

Eugenol (97-53-0)	
Viscosity, kinematic	7.863 mm²/s at 25°C

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short–term (acute) : Not classified.
Hazardous to the aquatic environment, long–term (chronic) : Toxic to aquatic life with long lasting effects.

Coranol (83926-73-2)	
LC50 - Fish [1]	13 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [1]	3.8 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	25 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

Citronellal (106-23-0)	
LC50 - Fish [1]	≈ 22 mg/l Test organisms (species): Leuciscus idus
EC50 - Crustacea [1]	8.7 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	13.33 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
EC50 72h - Algae [2]	6.74 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

Diethyl malonate (105-53-3)	
EC50 - Crustacea [1]	202.3 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	508.2 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
EC50 72h - Algae [2]	> 800 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

Violiff (87731-18-8)	
LC50 - Fish [1]	22 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [1]	21 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	8.18 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)

isopulegol (89-79-2)	
EC50 - Crustacea [1]	53.2 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	50.6 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)

Methyl Pamplemousse (Giv) (67674-46-8)	
EC50 - Crustacea [1]	50.7 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	13 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)

Methyl Pamplemousse (Giv) (67674-46-8)	
EC50 72h - Algae [2]	5.2 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)

Citronellyl acetate (150-84-5)	
LC50 - Fish [1]	6.1 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	3.48 mg/l Test organisms (species): Daphnia magna
EC50 - Crustacea [2]	4.97 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 7.2 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)

Dodecanal (112-54-9)	
LC50 - Fish [1]	≈ 2.6 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [1]	> 0.27 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 0.048 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 72h - Algae [2]	> 0.35 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)

Prismantol (122760-84-3)	
LC50 - Fish [1]	16 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Other aquatic organisms [1]	45 mg/l Test organisms (species): other aquatic crustacea:
EC50 72h - Algae [1]	5.9 mg/l Test organisms (species): other:
EC50 72h - Algae [2]	12 mg/l Test organisms (species): other:

Undecavertol (Giv) (81782-77-6)	
EC50 72h - Algae [1]	3.6 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)
EC50 96h - Algae [1]	3.8 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)

Eukalyptol (1.8-Cineol) (470-82-6)	
LC50 - Fish [1]	57 mg/l Test organisms (species): Oncorhynchus mykiss (previous name: Salmo gairdneri)
EC50 - Crustacea [1]	> 100 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 74 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 96h - Algae [1]	> 74 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)

Methyl isoeugenol (93-16-3)	
EC50 - Crustacea [1]	> 10 – ≤ 100 mg/l Species: Daphnia magna, Duration of exposure: 48 h, OECD Guideline 202

Vertoliff (27939-60-2)	
LC50 - Fish [1]	15 mg/l Test organisms (species): Oryzias latipes
EC50 - Crustacea [1]	7.74 mg/l Test organisms (species): Daphnia magna

Vertoliff (27939-60-2)	
EC50 72h - Algae [1]	22.8 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)

Dihydroeugenol (2785-87-7)	
LC50 - Fish [1]	4.4 mg/l Test organisms (species): other:
EC50 - Other aquatic organisms [1]	3.5 mg/l Test organisms (species): other:
EC50 72h - Algae [1]	7.4 mg/l Test organisms (species): other:
EC50 96h - Algae [1]	13 mg/l Test organisms (species): other:

Geranyl acetate (105-87-3)	
LC50 - Fish [1]	68.12 mg/l Test organisms (species): Leuciscus idus
EC50 - Crustacea [1]	14.1 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	3.72 mg/l Test organisms (species): Desmodesmus subspicatus (previous name: Scenedesmus subspicatus)
ErC50 algae	3.72 mg/l Species: Desmodesmus subspicatus 72 h

Eugenol (97-53-0)	
LC50 - Fish [1]	13 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio)
EC50 - Crustacea [1]	1.05 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	24 mg/l

12.2. Persistence and degradability

Lime Leaves (IFF)	
Persistence and degradability	Not rapidly degradable

Coranol (83926-73-2)	
Persistence and degradability	Not rapidly degradable

Citronellal (106-23-0)	
Persistence and degradability	Not rapidly degradable

Diethyl malonate (105-53-3)	
Persistence and degradability	Not rapidly degradable

Violiff (87731-18-8)	
Persistence and degradability	Not rapidly degradable

isopulegol (89-79-2)	
Persistence and degradability	Not rapidly degradable

Methyl Pamplemousse (Giv) (67674-46-8)	
Persistence and degradability	Not rapidly degradable

Citronellyl acetate (150-84-5)	
Persistence and degradability	Not rapidly degradable

3,4,4a,5,8,8a(or 3,4,4a,7,8,8a)-hexahydro-3,3,6,7-tetramethyl-1H-2-benzopyran (72429-08-4)	
Persistence and degradability	Not rapidly degradable

Dodecanal (112-54-9)	
Persistence and degradability	Not rapidly degradable

Opalene	
Persistence and degradability	Not rapidly degradable

Prismantol (122760-84-3)	
Persistence and degradability	Not rapidly degradable

Undecavertol (Giv) (81782-77-6)	
Persistence and degradability	Not rapidly degradable

Dipentene (138-86-3)	
Persistence and degradability	Not rapidly degradable

Eukalyptol (1.8-Cineol) (470-82-6)	
Persistence and degradability	Not rapidly degradable

Carvone (99-49-0)	
Persistence and degradability	Not rapidly degradable

Methyl isoeugenol (93-16-3)	
Persistence and degradability	Not rapidly degradable

Methyl cinnamic aldehyde (101-39-3)	
Persistence and degradability	Not rapidly degradable

Vertoliff (27939-60-2)	
Persistence and degradability	Not rapidly degradable

Dihydroeugenol (2785-87-7)	
Persistence and degradability	Not rapidly degradable

Geranyl acetate (105-87-3)	
Persistence and degradability	Not rapidly degradable

Eugenol (97-53-0)	
Persistence and degradability	Not rapidly degradable

12.3. Bioaccumulative potential

Methyl Pamplemousse (Giv) (67674-46-8)	
Partition coefficient n-octanol/water (Log Pow)	3.8

Undecavertol (Giv) (81782-77-6)	
Partition coefficient n-octanol/water (Log Pow)	3.9

Methyl isoeugenol (93-16-3)	
Partition coefficient n-octanol/water (Log Pow)	≥ 2.95

Eugenol (97-53-0)	
Partition coefficient n-octanol/water (Log Pow)	1.83 pH: 55, 30 °C

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

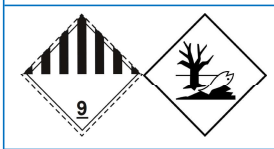
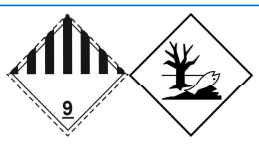
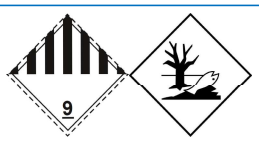
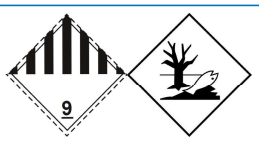
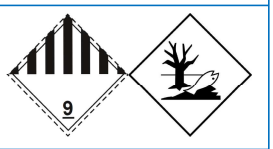
SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation : Disposal must be done according to official regulations.
Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations : Disposal must be done according to official regulations.
Product/Packaging disposal recommendations : Disposal must be done according to official regulations.
Additional information : Do not re-use empty containers.

SECTION 14: Transport information

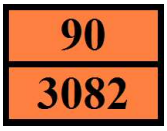
In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 3082	UN 3082	UN 3082	UN 3082	UN 3082
14.2. UN proper shipping name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Lime Leaves (IFF))	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Lime Leaves (IFF))	Environmentally hazardous substance, liquid, n.o.s. (Lime Leaves (IFF))	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Lime Leaves (IFF))	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Lime Leaves (IFF))
Transport document description				
UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Lime Leaves (IFF)), 9, III, (-)	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Lime Leaves (IFF)), 9, III, MARINE POLLUTANT	UN 3082 Environmentally hazardous substance, liquid, n.o.s. (Lime Leaves (IFF)), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Lime Leaves (IFF)), 9, III	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Lime Leaves (IFF)), 9, III
14.3. Transport hazard class(es)				
9	9	9	9	9
				
14.4. Packing group				
III	III	III	III	III

ADR	IMDG	IATA	ADN	RID
14.5. Environmental hazards				
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR)	:	M6
Special provisions (ADR)	:	274, 335, 375, 601
Limited quantities (ADR)	:	5l
Excepted quantities (ADR)	:	E1
Packing instructions (ADR)	:	P001, IBC03, LP01, R001
Special packing provisions (ADR)	:	PP1
Mixed packing provisions (ADR)	:	MP19
Portable tank and bulk container instructions (ADR)	:	T4
Portable tank and bulk container special provisions (ADR)	:	TP1, TP29
Tank code (ADR)	:	LGBV
Vehicle for tank carriage	:	AT
Transport category (ADR)	:	3
Special provisions for carriage - Packages (ADR)	:	V12
Special provisions for carriage - Loading, unloading and handling (ADR)	:	CV13
Hazard identification number (Kemler No.)	:	90
Orange plates	:	
Tunnel restriction code (ADR)	:	-

Transport by sea

Special provisions (IMDG)	:	274, 335, 969
Limited quantities (IMDG)	:	5 L
Excepted quantities (IMDG)	:	E1
Packing instructions (IMDG)	:	LP01, P001
Special packing provisions (IMDG)	:	PP1
IBC packing instructions (IMDG)	:	IBC03
Tank instructions (IMDG)	:	T4
Tank special provisions (IMDG)	:	TP1, TP29
EmS-No. (Fire)	:	F-A
EmS-No. (Spillage)	:	S-F
Stowage category (IMDG)	:	A

Air transport

PCA Excepted quantities (IATA)	:	E1
PCA Limited quantities (IATA)	:	Y964
PCA limited quantity max net quantity (IATA)	:	30kgG
PCA packing instructions (IATA)	:	964
PCA max net quantity (IATA)	:	450L
CAO packing instructions (IATA)	:	964
CAO max net quantity (IATA)	:	450L
Special provisions (IATA)	:	A97, A158, A197, A215
ERG code (IATA)	:	9L

Inland waterway transport

Classification code (ADN)	:	M6
Special provisions (ADN)	:	274, 335, 375, 601

Limited quantities (ADN)	:	5 L
Excepted quantities (ADN)	:	E1
Carriage permitted (ADN)	:	T
Equipment required (ADN)	:	PP
Number of blue cones/lights (ADN)	:	0

Rail transport

Classification code (RID)	:	M6
Special provisions (RID)	:	274, 335, 375, 601
Limited quantities (RID)	:	5L
Excepted quantities (RID)	:	E1
Packing instructions (RID)	:	P001, IBC03, LP01, R001
Special packing provisions (RID)	:	PP1
Mixed packing provisions (RID)	:	MP19
Portable tank and bulk container instructions (RID)	:	T4
Portable tank and bulk container special provisions (RID)	:	TP1, TP29
Tank codes for RID tanks (RID)	:	LGBV
Transport category (RID)	:	3
Special provisions for carriage – Packages (RID)	:	W12
Special provisions for carriage - Loading, unloading and handling (RID)	:	CW13, CW31
Colis express (express parcels) (RID)	:	CE8
Hazard identification number (RID)	:	90

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)		
Reference code	**Applicable on**	**Entry title or description**
3(a)	Dipentene ; Eukalyptol (1.8-Cineol)	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F
3(b)	Lime Leaves (IFF) ; Coranol ; Citronellal ; Diethyl malonate ; Violiff ; isopulegol ; Methyl Pamplemousse (Giv) ; Citronellyl acetate ; 3,4,4a,5,8,8a(or 3,4,4a,7,8,8a)-hexahydro-3,3,6,7-tetramethyl-1H-2-benzopyran ; Dodecanal ; Opalene ; Dipentene ; Eukalyptol (1.8-Cineol) ; Carvone ; Methyl isoeugenol ; Methyl cinnamic aldehyde ; Vertoliff ; Dihydroeugenol ; Geranyl acetate ; Eugenol	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10

EU restriction list (REACH Annex XVII)		
Reference code	**Applicable on**	**Entry title or description**
3(c)	Lime Leaves (IFF) ; Coranol ; Methyl Pamplemousse (Giv) ; Citronellyl acetate ; Opalene ; Undecavertol (Giv) ; Dipentene ; Vertoliff ; Geranyl acetate	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1
40.	Dipentene ; Eukalyptol (1.8-Cineol)	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

Dual-Use Regulation (428/2009)

Contains no substance subject to the COUNCIL REGULATION (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items.

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Netherlands

SZW-lijst van kankerverwekkende stoffen : Methyl Pamplemousse (Giv) is listed
SZW-lijst van mutagene stoffen : Methyl Pamplemousse (Giv) is listed
SZW-lijst van reprotoxische stoffen – Borstvoeding : None of the components are listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid : None of the components are listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling : None of the components are listed

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road

Abbreviations and acronyms:	
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Full text of H- and EUH-statements:	
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2

Full text of H- and EUH-statements:	
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Asp. Tox. 1	Aspiration hazard, Category 1
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
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.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory 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.
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
Skin Sens. 1B	Skin sensitisation, category 1B
STOT SE 3	Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.