

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)



Trade name : PFW® NATURAL ORANGENAL
Revision date : 18.08.2015
Print date : 13-10-2015

Version (Revision) : 4.0.0 (3.0.0)

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

1.1 Product identifier

PFW® NATURAL ORANGENAL (W01706)

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

Relevant identified uses

Fragrance mixture which may be used in fragrance compounds according to the current legislation and IFRA rules.
Reserved for industrial and professional use.

Uses advised against

Not intended for oral consumption.

1.3 Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/only representative/downstream user/distributor)

PFW Aroma Chemicals B.V.

Street : Veemweg 29-31

Postal code/city : NL - 3371 MT Barneveld

Telephone : +31 342 40 77 00

Telefax : +31 342 40 77 20

Information contact : pfw@pfw.nl

1.4 Emergency telephone number

+31 342 40 77 93

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Aquatic Acute 1 ; H400 - Hazardous to the aquatic environment : Category 1 ; Very toxic to aquatic life.

Aquatic Chronic 1 ; H410 - Hazardous to the aquatic environment : Category 1 ; Very toxic to aquatic life with long lasting effects.

Asp. Tox. 1 ; H304 - Aspiration hazard : Category 1 ; May be fatal if swallowed and enters airways.

Skin Irrit. 2 ; H315 - Skin corrosion/irritation : Category 2 ; Causes skin irritation.

Flam. Liq. 3 ; H226 - Flammable liquids : Category 3 ; Flammable liquid and vapour.

Skin Sens. 1 ; H317 - Skin sensitisation : Category 1 ; May cause an allergic skin reaction.

Hazard classes and hazard categories

Flam. Liq. 3 · Skin Irrit. 2 · Asp. Tox. 1 · Skin Sens. 1 · Aquatic Acute 1 · Aquatic Chronic 1

Flam. Liq. 3 · Skin Irrit. 2 · Asp. Tox. 1 · Skin Sens. 1 · Aquatic Acute 1 · Aquatic Chronic 1

2.2 Label elements

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

Hazard pictograms



Flame (GHS02) · Health hazard (GHS08) · Environment (GHS09) · Exclamation mark (GHS07)

Signal word

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Danger

Hazard statements

H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/....
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P302+P352 IF ON SKIN: Wash with plenty of water.
P403+P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/container to a chemical waste treatment facility or recycling plant.

2.3 Other hazards

None

SECTION 3: Composition / information on ingredients

3.2 Mixtures

Hazardous ingredients

DIPENTENE ; EC No. : 205-341-0; CAS No. : 138-86-3

Weight fraction : 50 - 100 %
Classification 1272/2008 [CLP] : Flam. Liq. 3 ; H226 Skin Irrit. 2 ; H315 Skin Sens. 1 ; H317 Aquatic Acute 1 ; H400 Aquatic Chronic 1 ; H410

CITRAL ; EC No. : 226-394-6; CAS No. : 5392-40-5

Weight fraction : 1 - 2,5 %
Classification 1272/2008 [CLP] : Skin Irrit. 2 ; H315 Skin Sens. 1 ; H317

p-Mentha-1,8-dien-7-al ; EC No. : 218-302-8; CAS No. : 2111-75-3

Weight fraction : 0,1 - 1 %
Classification 1272/2008 [CLP] : Skin Irrit. 2 ; H315 Skin Sens. 1 ; H317 Eye Irrit. 2 ; H319

Additional information

Full text of R-, H- and EUH-phrases: see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

Medical treatment necessary. Remove victim out of the danger area. Put victim at rest, cover with a blanket and keep warm. Do not leave affected person unattended. If unconscious place in recovery position and seek medical advice.

Following inhalation

Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

In case of skin contact

Change contaminated, saturated clothing. Water In case of skin reactions, consult a physician. After contact with skin, wash immediately with plenty of water and soap. In case of skin irritation, consult a physician. Do not wash with:

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Solvents/Thinner

After eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

After ingestion

Rinse mouth thoroughly with water. Give nothing to eat or drink. Do NOT induce vomiting. Call a physician in any case! Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Allergic reactions. Respiratory complaints Irritating to skin.

4.3 Indication of any immediate medical attention and special treatment needed

Observe risk of aspiration if vomiting occurs.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

alcohol resistant foam Extinguishing powder

Unsuitable extinguishing media

Strong water jet Water mist

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

In case of fire may be liberated: Carbon dioxide (CO₂) Carbon monoxide (CO).

5.3 Advice for firefighters

Do not inhale explosion and combustion gases. Use water spray jet to protect personnel and to cool endangered containers. Do not allow run-off from fire-fighting to enter drains or water courses. Very toxic to aquatic life. May cause long lasting harmful effects to aquatic life.

Special protective equipment for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Special danger of slipping by leaking/spilling product. Keep away from sources of ignition. - No smoking. Do not breathe gas/fumes/vapour/spray. Provide adequate ventilation. Remove persons to safety. See protective measures under point 7 and 8.

6.2 Environmental precautions

Ensure all waste water is collected and treated via a waste water treatment plant. In case of entry into waterways, soil or drains, inform the responsible authorities. Very toxic to aquatic life. May cause long lasting harmful effects to aquatic life.

6.3 Methods and material for containment and cleaning up

Suitable material for taking up: Sand Kieselguhr Universal binder Sawdust Collect in closed and suitable containers for disposal.

6.4 Reference to other sections

See protective measures under point 7 and 8.

SECTION 7: Handling and storage

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7.1 Precautions for safe handling

Provide adequate ventilation as well as local exhaustion at critical locations. When using do not eat, drink, smoke, sniff. Wash hands before breaks and after work. All work processes must always be designed so that the following is as low as possible: eye contact, skin contact, inhalation of vapours or spray/mists. In case of entry into waterways, soil or drains, inform the responsible authorities. Wear personal protection equipment (refer to section 8). Use explosion-proof machinery, apparatus, ventilation facilities, tools etc. Use only antistatically equipped (spark-free) tools. Take precautionary measures against static discharges. Keep away from sources of ignition. - No smoking. Vapours can form explosive mixtures with air.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions

Ensure adequate ventilation of the storage area. Keep/Store only in original container. Use isolated drainage to prevent discharge to soil. Restrict access to stockrooms. Take precautionary measures against static discharges. Keep away from sources of ignition. - No smoking. Keep the packing dry and well sealed to prevent contamination and absorption of humidity. Never use pressure to empty container.

Hints on joint storage

Keep away from oxidising agent, acid and alkali.

Storage class : 3

Storage class (TRGS 510) : 3

7.3 Specific end use(s)

None

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

To date, no national critical limit values exist.

DNEL/DMEL and PNEC values

DNEL/DMEL

Limit value type :	DNEL Consumer (systemic) (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route :	Inhalation
Exposure frequency :	Long Term (repeated), systemic
Remark :	no hazard identified
Literature information :	ECHA
Limit value type :	DNEL Consumer (systemic) (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route :	Dermal
Exposure frequency :	Long Term (repeated), systemic
Remark :	no hazard identified
Literature information :	ECHA
Limit value type :	DNEL Consumer (systemic) (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route :	Inhalation
Exposure frequency :	Short term (acute), systemic
Remark :	no hazard identified
Literature information :	ECHA
Limit value type :	DNEL Consumer (systemic) (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route :	Dermal
Exposure frequency :	Short term (acute), systemic
Remark :	no hazard identified
Literature information :	ECHA
Limit value type :	DNEL worker (systemic) (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route :	Inhalation
Exposure frequency :	Long Term (repeated), systemic

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Remark : no hazard identified
Literature information : ECHA
Limit value type : DNEL worker (systemic) (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Dermal
Exposure frequency : Long Term (repeated), systemic
Remark : no hazard identified
Literature information : ECHA
Limit value type : DNEL worker (systemic) (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Inhalation
Exposure frequency : Short term (acute), systemic
Remark : no hazard identified
Literature information : ECHA
Limit value type : DNEL worker (systemic) (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Dermal
Exposure frequency : Short term (acute), systemic
Remark : no hazard identified
Literature information : ECHA

PNEC
Limit value type : PNEC air (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Air
Exposure time : Long-term (continuous)
Remark : no hazard identified
Literature information : European Chemicals Agency
Limit value type : PNEC aquatic, freshwater (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Water (Including sewage plant)
Exposure time : Long-term (continuous)
Limit value : 68 µg/l
Literature information : European Chemicals Agency
Limit value type : PNEC aquatic, marine water (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Water (Including sewage plant)
Exposure time : Long-term (continuous)
Limit value : 6,8 µg/l
Literature information : European Chemicals Agency
Limit value type : PNEC sediment, freshwater (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Water (Including sewage plant)
Exposure time : Long-term (continuous)
Limit value : 1,85 mg/kg sediment dw
Literature information : European Chemicals Agency
Limit value type : PNEC sediment, marine water (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Water (Including sewage plant)
Exposure time : Long-term (continuous)
Limit value : 0,185 mg/kg sediment dw
Literature information : European Chemicals Agency
Limit value type : PNEC soil, freshwater (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Soil
Exposure time : Long-term (continuous)
Limit value : 0,329 mg/kg soil dw
Literature information : European Chemicals Agency
Limit value type : PNEC Secondary Poisoning (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure time : Long-term (continuous)
Remark : no hazard identified
Literature information : European Chemicals Agency

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Limit value type : PNEC sewage treatment plant (STP) (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Water (Including sewage plant)
Exposure time : Long-term (continuous)
Limit value : 2,6 mg/l
Literature information : European Chemicals Agency

8.2 Exposure controls

When using do not eat, drink, smoke, sniff. Wash hands before breaks and after work.

Appropriate engineering controls

Provide adequate ventilation as well as local exhaust at critical locations. If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

Personal protection equipment

Eye/face protection

Eye glasses with side protection

Skin protection

Hand protection

Gloves. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. Breakthrough times and swelling properties of the material must be taken into consideration.

Suitable material : NBR (Nitrile rubber)

Breakthrough time (maximum wearing time) : >480 min.

Thickness of the glove material : 0.84 mm.

Body protection

Overall

Respiratory protection

Respiratory protection necessary at: exceeding exposure limit values insufficient ventilation insufficient exhaust Handling larger quantities. Container device with compressed air (DIN EN 137) / Filtering device (full mask or mouthpiece) with filter: Filter types:A, B, E, K. Class 1: Maximum permitted contaminant concentration in inhaled air = 1000 mL/m³ (0.1 % by vol.); class 2: maximum permitted contaminant concentration in inhaled air = 5000 mL/m³ (0.5 % by vol.); class 3: maximum permitted contaminant concentration in inhaled air = 10000 mL/m³ (1.0 % by vol.)

Environmental exposure controls

Send to a hazardous waste incinerator facility under observation of official regulations.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Odour threshold in air : No data available

Safety relevant basis data

Physical state :		liquid	
Colour :		colourless to pale yellow	
Odour :		citric	
Decomposition temperature :	(1013 hPa)	No data available	
Freezing point :	<	-20 °C	
Flash point (Closed Cup) :		50 - 58 °C	DIN EN 51578
Auto-ignition temperature :		No data available	
Evaporation rate :		slowly evaporating	
Lower explosion limit :		No data available	
Upper explosion limit :		No data available	
Explosive properties :		none	

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Vapour pressure :	(20 °C)	No data available
Surface tension (20°C)	(20 °C)	not applicable
Density :	(20 °C)	0,85 - 0,86 g/cm ³
Water solubility :		insoluble (0.1mg/l)
pH value :		not applicable
Log Pow :		No data available
Viscosity :	(20 °C)	No data available
Vapour density (air = 1) :	(1013 hPa / 20 °C)	No data available
Oxidising properties :		No data available

9.2 Other information

Justification for data waiving. . pH value The product is not soluble in water. Surface tension: : The product is not soluble in water.

SECTION 10: Stability and reactivity

10.1 Reactivity

No information available.

10.2 Chemical stability

Contains as stabilizer(s): 500 ppm BHT (Air Oxidation Prevention)

10.3 Possibility of hazardous reactions

Gases/vapours, flammable

10.4 Conditions to avoid

Take precautionary measures against static discharges. Keep away from sources of ignition. - No smoking.

10.5 Incompatible materials

Exothermic reaction with: oxidising agent strong acid strong alkali

10.6 Hazardous decomposition products

Decomposition with: Carbon dioxide. Carbon monoxide (CO).

SECTION 11: Toxicological information

The product is a mixture for which no toxicological data exist. Risk assessment is based on the hazards of the individual substances.

11.1 Information on toxicological effects

Harmful: may cause lung damage if swallowed. For viscosity data, see section 9. Irritating to skin. sensitising. May cause an allergic skin reaction.

Acute effects

Acute oral toxicity

Parameter :	LD50 (DIPENTENE ; CAS No. : 138-86-3)
Exposure route :	Oral
Species :	Rat
Effective dose :	5000 mg/kg
Parameter :	LD50 (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route :	Oral
Species :	Rat
Effective dose :	4300 mg/kg bw/day
Method :	OECD 401 Acute Oral Toxicity
Source :	European Chemicals Agency (ECHA)
Parameter :	LD50 (2,6-DI-TERT-BUTYL-P-CRESOL ; CAS No. : 128-37-0)
Exposure route :	Oral

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Species : Rat
Effective dose : 890 mg/kg
Parameter : LD50 (2,6-DI-TERT-BUTYL-P-CRESOL ; CAS No. : 128-37-0)
Exposure route : Oral
Species : Mouse
Effective dose : 1040 mg/kg

Acute dermal toxicity

Parameter : LD50 (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Dermal
Species : Rat
Effective dose : > 2000 mg/kg bw/day
Method : OECD 402
Source : European Chemicals Agency (ECHA)

Irritant and corrosive effects

Primary irritation to the skin

Parameter : Irritation of the skin (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Species : Albino rabbit
Parameter : in-vivo
Result : Irritating
Method : OECD 404 Acute Dermal Irritation/Corrosion
Source : European Chemicals Agency (ECHA)

Irritation to eyes

Parameter : Irritation of the eyes (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Species : Albino rabbit
Parameter : in-vivo
Result : Irritating
Method : OECD 405 Acute eye irritation/corrosion
Source : European Chemicals Agency (ECHA)

Sensitisation

In case of skin contact

Parameter : Skin sensitisation (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Species : Rat
Parameter : in-vivo
Method : LLNA
Source : European Chemicals Agency (ECHA)

Repeated dose toxicity (subacute, subchronic, chronic)

Subacute oral toxicity

Parameter : NOAEL(C) (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Oral
Species : rat
Effective dose : > 314 mg/kg bw/day
Method : OECD 408 Repeated dose 90-day oral toxicity study in rodents.
Source : European Chemicals Agency (ECHA)

Parameter : NOAEL(C) (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route : Oral
Species : rat
Effective dose : > 250 mg/kg bw/day
Exposure time : 35 days
Method : Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test
Source : European Chemicals Agency (ECHA)

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CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Germ cell mutagenicity

In vitro mutagenicity

Parameter :	Gene-mutations microorganisms (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route :	in-vitro
Species :	Salmonella typhimurium
Test result :	Negative (with metabolic activation). Negative (without metabolic activation).
Method :	OECD 471: Ames test
Source :	European Chemicals Agency (ECHA)
Parameter :	Gene-mutations mammalian cells (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Exposure route :	in-vitro
Species :	Mouse lymphoma cells
Test result :	Negative (with metabolic activation). Negative (without metabolic activation).
Method :	OECD 476 in-Vitro Mammalian Cell Gene Mutation Test
Source :	European Chemicals Agency (ECHA)

SECTION 12: Ecological information

The product is a mixture for which no ecotoxicological data exist. Risk assessment is based on the hazards of the individual substances.

12.1 Toxicity

Aquatic toxicity

Acute (short-term) fish toxicity

Parameter :	LC50 (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Species :	Brachydanio rerio (zebra-fish)
Evaluation parameter :	Acute (short-term) fish toxicity
Effective dose :	62 - 80 mg/l
Exposure time :	96 h
Method :	OECD 203 Acute toxicity for fish
Source :	European Chemicals Agency (ECHA)

Acute (short-term) daphnia toxicity

Parameter :	EC50 (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Species :	Daphnia magna (Big water flea)
Evaluation parameter :	Acute (short-term) daphnia toxicity
Effective dose :	73 mg/l
Exposure time :	48 h
Method :	OECD 202 Daphnia sp. Acute immobilisation test
Source :	European Chemicals Agency (ECHA)

Acute (short-term) algae toxicity

Parameter :	ErC50 (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Species :	Pseudokirchneriella subcapitata
Evaluation parameter :	Acute (short-term) algae toxicity
Effective dose :	68 mg/l
Exposure time :	72 h
Method :	OECD 201 Freshwater algae and cyanobacteria, growth inhibition test
Source :	European Chemicals Agency (ECHA)

Chronic (long-term) algae toxicity

Parameter :	NOEC (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Species :	Pseudokirchneriella subcapitata
Evaluation parameter :	Inhibition of growth rate
Effective dose :	ca. 3,9 mg/l

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Method : OECD 201 Freshwater algae and cyanobacteria, growth inhibition test
Source : European Chemicals Agency (ECHA)

12.2 Persistence and degradability

Biodegradation

Analytical method : Biodegradation (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Parameter : Degree of elimination
Type : Aerobic
Degradation rate : 80 %
Time : 28 days
Evaluation : Readily biodegradable (according to OECD criteria).
Method : OECD 310 Ready Biodegradability - CO₂ in sealed vessels (Headspace Test)
Source : European Chemicals Agency (ECHA)

12.3 Bioaccumulative potential

Parameter : Bioconcentration factor (BCF) (p-menth-1-en-8-ol ; CAS No. : 98-55-5)
Result : ca. 68 l/kg ww
Method : QSAR
Source : PFW Aroma Chemicals BV

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6 Other adverse effects

Very toxic to aquatic life. May cause long lasting harmful effects to aquatic life.

12.7 Additional ecotoxicological information

None

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Send to a hazardous waste incinerator facility under observation of official regulations. Clean IBCs or drums at approved facility only. Contaminated packages must be completely emptied and can be re-used following proper cleaning. Packing which cannot be properly cleaned must be disposed of. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

14.1 UN number

UN 1169

14.2 UN proper shipping name

Land transport (ADR/RID)
EXTRACTS, AROMATIC, LIQUID

Sea transport (IMDG)
EXTRACTS, AROMATIC, LIQUID

Air transport (ICAO-TI / IATA-DGR)
EXTRACTS, AROMATIC, LIQUID

14.3 Transport hazard class(es)

Land transport (ADR/RID)

Class(es) : 3

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Classification code : F1
Hazard identification number (Kemler No.) : 30
Tunnel restriction code : D/E
Special provisions : 640E · LQ 5 I · E 1
Hazard label(s) : 3 / N
Sea transport (IMDG)
Class(es) : 3
EmS-No. : F-E / S-D
Special provisions : LQ 5 I · E 1
Hazard label(s) : 3 / N
Air transport (ICAO-TI / IATA-DGR)
Class(es) : 3
Special provisions : E 1
Hazard label(s) : 3

14.4 Packing group

III

14.5 Environmental hazards

Land transport (ADR/RID) : Yes
Sea transport (IMDG) : Yes (P)
Air transport (ICAO-TI / IATA-DGR) : Yes

14.6 Special precautions for user

None

SECTION 15: Regulatory information

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

National regulations
Water hazard class (WGK)
Class : water pollutant according VwVwS
Other regulations, restrictions and prohibition regulations

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

16.1 Indication of changes

14. UN proper shipping name - Land transport (ADR/RID) · 14. UN proper shipping name - Sea transport (IMDG) · 14. UN proper shipping name - Air transport (ICAO-TI / IATA-DGR) · 14. Transport hazard class(es) - Land transport (ADR/RID) · 14. Transport hazard class(es) - Sea transport (IMDG) · 14. Transport hazard class(es) - Air transport (ICAO-TI / IATA-DGR)

16.2 Abbreviations and acronyms

a.i. = Active ingredient; ACGIH = American Conference of Governmental Industrial Hygienists (US); ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road; AFFF = Aqueous Film Forming Foam; AICS = Australian Inventory of Chemical Substances; AISE = International Association for Soaps, Detergents and Maintenance Products (joint project of AISE and CEFIC); AOAC = AOAC International (formerly Association of Official Analytical Chemists); aq. = Aqueous; Asia-PAC = Asia Pacific; ASTM = American Society of Testing and Materials (US);

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atm = Atmosphere(s); B.V. = Beperkt Venootschap (LTD = Limited); BCF = Bioconcentration Factor; bp = Boiling point at stated pressure; bw = Body weight; ca = (Circa) about; CAS No = Chemical Abstracts Service Number (see ACS - American Chemical Society); CEFIC = European Chemical Industry Council (established 1972); CEPA = Canadian Environmental Protection Act (CAN); CEPA = Canadian Environmental Protection Act (Canada); CIPAC = Collaborative International Pesticides Analytical Council; CLP = REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.; CoE = Council of Europe (EU); Conc = Concentration; cP = CentiPoise; CSNN = Chemical Substance Nomination & Notification (Taiwan); cSt = Centistokes; d = Day(s); DIN = Deutsches Institut für Normung e.V.; DNEL = Derived No-Effect Level; DSL = Domestic Substances List; DT50 = Time for 50% loss; half-life; EbC50 = Median effective concentration (biomass, e.g. of algae); EC = European Community; European Commission; EC50 = Median effective concentration; ECL = Existing Chemicals List (Korea); EINECS = European Inventory of Existing Commercial Chemical Substances (EU, outdated, now replaced by EC Number); ELINCS = European List of Notified (New) Chemicals; ENCS = Existing and New Chemical Substances Inventory (Japan); ErC50 = Median effective concentration (growth rate, e.g. of algae); EU = European Union; EWC = European Waste Catalogue; FAO = Food and Agriculture Organization (United Nations); FEMA = Flavor & Extract Manufacturers Association (USA); FLAVIS = Flavour Information System (EU); GIFAP = Groupement International des Associations Nationales de Fabricants de Produits Agrochimiques (now CroLife International); GRAS = Generally Recognized As Safe (USA); h = Hour(s); hPa = HectoPascal (unit of pressure); IARC = International Agency for Research on Cancer; IATA = International Air Transport Association; IC50 = Concentration that produces 50% inhibition; IECSC = Inventory of Existing Chemical Substances (China); IMDG Code = International Maritime Dangerous Goods Code; IMO = International Maritime Organization; ISO = International Organization for Standardization; IUCLID = International Uniform Chemical Information Database; IUPAC = International Union of Pure and Applied Chemistry; IVIS = In-Vitro Irritancy Score; JECFA = Joint Expert Committee on Food Additives (United Nations); kg = Kilogram; Kow = Distribution coefficient between n-octanol and water; kPa = KiloPascal (unit of pressure); LC50 = Concentration required to kill 50% of test organisms; LD50 = Dose required to kill 50% of test organisms; LEL = Lower Explosive Limit/Lower Explosion Limit; LOAEL = Lowest observed adverse effect level; LVE = Low Volume Exemption; mg = Milligram; min = Minute(s); ml = Milliliter; mmHg = Pressure equivalent to 1 mm of mercury (133.3 Pa); mp = Melting point; MRL = Maximum Residue Limit; MSDS = Material Safety Data Sheet; n.o.s. = Not Otherwise Specified; NDSL = Non-Domestic Substances List; NIOSH = National Institute for Occupational Safety and Health (US); NOAEL = No Observed Adverse Effect Level; NOEC = No observed effect concentration; NOEL = No Observable Effect Level; NOx = Oxides of Nitrogen; NZIoC = New Zealand Inventory of Chemicals; OECD = Organization for Economic Cooperation and Development; OEL = Occupational Exposure Limits; Pa = Pascal (unit of pressure); PBT = Persistent, Bioaccumulative or Toxic; pH = -log₁₀ hydrogen ion concentration; PICCS = Philippine Inventory of Chemicals and Chemical Substances; pKa = -log₁₀ acid dissociation constant; PNEC = Predicted No Effect Concentration; POPs = Persistent Organic Pollutants; ppb = Parts per billion; PPE = Personal Protection Equipment; ppm = Parts per million; ppt = Parts per trillion; PVC = Polyvinyl Chloride; QSAR = Quantitative Structure-Activity Relationship; REACH = Registration, Evaluation and Authorization of Chemicals (EU, see NCP); SI = International System of Units; STEL = Short-Term Exposure Limit; tech. = Technical grade; TSCA = Toxic Substances Control Act (US); TSCA = Toxic Substances Control Act (USA); TWA = Time-Weighted Average; UN = United Nations; vPvB = Very Persistent and Very Bioaccumulative; VwVwS = Verwaltungsvorschrift wassergefährdender Stoffe; WHO = World Health Organization = OMS; y = Year(s);

16.3 Key literature references and sources for data

None

16.5 Relevant R-, H- and EUH-phrases (Number and full text)

H226	Flammable liquid and vapour.
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.
H410	Very toxic to aquatic life with long lasting effects.
10	Flammable.
38	Irritating to skin.
43	May cause sensitisation by skin contact.
50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

16.6 Training advice

None

Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)



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16.7 Additional information

None

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.
