SAFETY DATA SHEET

(REACH regulation (EC) n° 1907/2006 - n° 2020/878)

SECTION 1 : IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name : TETRAROME© CITRON 987317

Product code : W20042.

UFI : QA20-T0T3-P00K-01A9

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

Use of the substance/mixture: Raw material used in flavoring and/or perfumery preparations

1.3. Details of the supplier of the safety data sheet

Registered company name : Firmenich Belgium S.A..

Address : Avenue Jean Etienne Lenoir 9..Louvain-La-Neuve B-1348.BELGIUM.

Telephone : +32 10 45 34 45. Fax : .

GRS_EU_FLAVOR_EXPERTS@firmenich.com

Distributor : BLH s.a.s.

Address : ZAC du Pilon - 06460 SAINT VALLIER DE THIEY

Tèl : 04 92 60 35 60 - Fax : 04 92 60 35 69

Website : www.blhsas.com

1.4. Emergency telephone number : +33 (0)1 45 42 59 59.

Association/Organisation : INRS / ORFILA http://www.centres-antipoison.net.

SECTION 2 : HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

In compliance with EC regulation No. 1272/2008 and its amendments.

Flammable liquid, Category 3 (Flam. Liq. 3, H226).

Skin irritation, Category 2 (Skin Irrit. 2, H315).

Skin sensitisation, Category 1 (Skin Sens. 1, H317).

Reproductive toxicity, Category 2 (Repr. 2, H361).

Aspiration hazard, Category 1 (Asp. Tox. 1, H304).

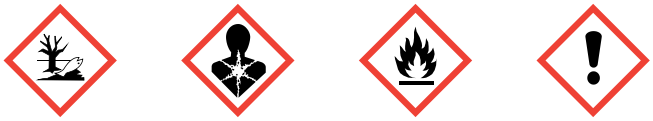
Hazardous to the aquatic environment - Acute hazard, Category 1 (Aquatic Acute 1, H400).

Hazardous to the aquatic environment - Chronic hazard, Category 2 (Aquatic Chronic 2, H411).

2.2. Label elements

In compliance with EC regulation No. 1272/2008 and its amendments.

Hazard pictograms :



GHS09 GHS08 GHS02 GHS07

Signal Word :

DANGER

Product identifiers :

EC 227-813-5	D-LIMONENE
EC 242-060-2	BICYCLO[3.1.1]HEPTANE, 6,6-DIMETHYL-2-METHYLENE-, (1S)-
EC 202-794-6	GAMMA TERPINENE
EC 226-394-6	CITRAL
EC 232-077-3	BICYCLO[3.1.1]HEPT-2-ENE, 2,6,6-TRIMETHYL-, (1S)-
EC 203-341-5	2,6-OCTADIEN-1-OL, 3,7-DIMETHYL-, ACETATE, (E)-
EC 201-134-4	LINALOOL
EC 209-578-0	TERPINOLENE
EC 202-759-5	CARVONE (ISO)
EC 203-375-0	CITRONELLOL

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.
H361	Suspected of damaging fertility or the unborn child .
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statements - Prevention :	
P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Precautionary statements - Response :	
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
Precautionary statements - Storage :	
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

|> 2.3. Other hazards

The mixture does not contain substances classified as 'Substances of Very High Concern' (SVHC) >= 0.1% published by the European CHemicals Agency (ECHA) under article 57 of REACH: http://echa.europa.eu/fr/candidate-list-table

The mixture fulfils neither the PBT nor the vPvB criteria for mixtures in accordance with annexe XIII of the REACH regulations EC 1907/2006.

The mixture does not contain substances> = 0.1% with endocrine disrupting properties in accordance with the criteria of the Delegated Regulation (EU) 2017/2100 of the Commission or Regulation (EU) 2018/605 of the Commission.

|>SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

|> Composition :

Identification	Classification (EC) 1272/2008	Note	%
CAS: 5989-27-5 EC: 227-813-5 D-LIMONENE	GHS02, GHS07, GHS08, GHS09 Dgr Flam. Liq. 3, H226 Asp. Tox. 1, H304 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Aquatic Chronic 3, H412 Aquatic Acute 1, H400 M Acute = 1	[1]	60-70
CAS: 18172-67-3 EC: 242-060-2 BICYCLO[3.1.1]HEPTANE, 6,6-DIMETHYL-2-METHYLENE-, (1S)-	GHS02, GHS07, GHS08, GHS09 Dgr Flam. Liq. 3, H226 Asp. Tox. 1, H304 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Aquatic Acute 1, H400 M Acute = 1 Aquatic Chronic 1, H410 M Chronic = 1		10-15
CAS: 99-85-4 EC: 202-794-6 GAMMA TERPINENE	GHS09, GHS08, GHS02 Dgr Flam. Liq. 3, H226 Asp. Tox. 1, H304 Repr. 2, H361 Aquatic Chronic 2, H411	[2]	7.5-10
CAS: 5392-40-5 EC: 226-394-6 CITRAL	GHS07 Wng Skin Irrit. 2, H315 Skin Sens. 1, H317 Eye Irrit. 2, H319	[1]	7.5-10

CAS: 7785-26-4 EC: 232-077-3 BICYCLO[3.1.1]HEPT-2-ENE, 2,6,6-TRIMETHYL-, (1S)-	GHS07, GHS09, GHS08, GHS02 Dgr Flam. Liq. 3, H226 Acute Tox. 4, H302 Asp. Tox. 1, H304 Skin Irrit. 2, H315 Skin Sens. 1B, H317 Aquatic Acute 1, H400 M Acute = 1 Aquatic Chronic 1, H410 M Chronic = 1		2.5-5
CAS: 105-87-3 EC: 203-341-5 2,6-OCTADIEN-1-OL, 3,7-DIMETHYL-, ACETATE, (E)-	GHS07 Wng Skin Irrit. 2, H315 Skin Sens. 1B, H317 Aquatic Chronic 3, H412		1-2.5
CAS: 78-70-6 EC: 201-134-4 LINALOOL	GHS07 Wng Skin Irrit. 2, H315 Skin Sens. 1B, H317 Eye Irrit. 2, H319		0.5-1
CAS: 586-62-9 EC: 209-578-0 TERPINOLENE	GHS09, GHS07, GHS08 Dgr Asp. Tox. 1, H304 Skin Sens. 1B, H317 Aquatic Acute 1, H400 M Acute = 1 Aquatic Chronic 1, H410 M Chronic = 1		0.1-0.5
CAS: 99-49-0 EC: 202-759-5 CARVONE (ISO)	GHS07 Wng Skin Sens. 1B, H317		0.1-0.5
CAS: 106-22-9 EC: 203-375-0 CITRONELLOL	GHS07 Wng Skin Irrit. 2, H315 Skin Sens. 1, H317 Eye Irrit. 2, H319		0.1-0.5

Information on ingredients :

(Full text of H-phrases: see section 16)

[1] Substance for which maximum workplace exposure limits are available.

[2] Carcinogenic, mutagenic or reprotoxic (CMR) substance.

>SECTION 4 : FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor.

NEVER induce swallowing by an unconscious person.

4.1. description of first aid measures

In the event of splashes or contact with skin :

Remove contaminated clothing and wash the skin thoroughly with soap and water or a recognised cleaner.

Watch out for any remaining product between skin and clothing, watches, shoes, etc.

In the event of an allergic reaction, seek medical attention.

If the contaminated aera is widespread and/or there is damage to the skin, a doctor must be consulted or the patient transferred to hospital.

In the event of swallowing :

Do not give the patient anything orally.

In the event of swallowing, if the quantity is small (no more than one mouthful), rinse the mouth with water and consult a doctor.

Seek medical attention immediately, showing the label.

If swallowed accidentally, do not allow to drink, do not induce vomiting and transfer to hospital immediately by ambulance. Show the label to the doctor.

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

No data available.

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

No data available.

SECTION 5 : FIREFIGHTING MEASURES

Flammable.

Chemical powders, carbon dioxide and other extinguishing gas are suitable for small fires.

5.1. Extinguishing media

Keep packages near the fire cool, to prevent pressurised containers from bursting.

Suitable methods of extinction

Prevent the effluent of fire-fighting measures from entering drains or waterways.

5.2. Special hazards arising from the substance or mixture

A fire will often produce a thick black smoke. Exposure to decomposition products may be hazardous to health.

Do not breathe in smoke.

In the event of a fire, the following may be formed :

- carbon monoxide (CO)
- carbon dioxide (CO2)

5.3. Advice for firefighters

Fire-fighting personnel are to be equipped with autonomous insulating breathing apparatus.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Consult the safety measures listed under headings 7 and 8.

For non first aid worker

Avoid any contact with the skin and eyes.

For first aid worker

First aid workers will be equipped with suitable personal protective equipment (See section 8).

6.2. Environmental precautions

Contain and control the leaks or spills with non-combustible absorbent materials such as sand, earth, vermiculite, diatomaceous earth in drums for waste disposal.

Prevent any material from entering drains or waterways.

If the product contaminates waterways, rivers or drains, alert the relevant authorities in accordance with statutory procedures

Use drums to dispose of collected waste in compliance with current regulations (see section 13).

6.3. Methods and material for containment and cleaning up

Clean preferably with a detergent, do not use solvents.

6.4. Reference to other sections

No data available.

>SECTION 7 : HANDLING AND STORAGE

Requirements relating to storage premises apply to all facilities where the mixture is handled.

Individuals with a history of skin sensitisation should not, under any circumstance, handle this mixture.

Avoid exposure to pregnant women and warn women of child-bearing age of the possible risks

7.1. Precautions for safe handling

Always wash hands after handling.

Remove and wash contaminated clothing before re-using.

Remove contaminated clothing and protective equipment before entering eating areas.

Fire prevention :

Handle in well-ventilated areas.

Prevent the formation of flammable or explosive concentrations in air and avoid vapor concentrations higher than the occupational exposure limits.

Never inhale this mixture.

Prevent the accumulation of electrostatic charges with connections to earth.

The mixture can become electrostatically charged: always ground when decanting. Wear antistatic shoes and clothing and make floors of non-conductive

Use the mixture in premises free of naked flames or other sources of ignition and ensure that electrical equipment is suitably protected.

Keep packages tightly closed and away from sources of heat, sparks and naked flames.

Do not use tools which may produce sparks. Do not smoke.

Prevent access by unauthorised personnel.

|> Recommended equipment and procedures :

For personal protection, see section 8.

Observe precautions stated on label and also industrial safety regulations.

Avoid exposure - obtain special instructions before use.

Prohibited equipment and procedures :

No smoking, eating or drinking in areas where the mixture is used.

Never open the packages under pressure.

7.2. Conditions for safe storage, including any incompatibilities

No data available.

Storage

Keep the container tightly closed in a dry, well-ventilated place.

Keep away from food and drink, including those for animals.

Keep away from all sources of ignition - do not smoke.

Keep well away from all sources of ignition, heat and direct sunlight.

Avoid accumulation of electrostatic charges.

Packaging

Always keep in packaging made of an identical material to the original.

7.3. Specific end use(s)

No data available.

|>SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Occupational exposure limits :

- Germany - AGW (BAuA - TRGS 900, 02/2022) :

CAS	VME :	VME :	Excess	Notes
5989-27-5		5 ppm 28 mg/m³		4(II)

- Spain (Instituto Nacional de Seguridad e Higiene en el Trabajo (INSHT), 2019) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
5989-27-5	30 ppm 168 mg/m³			Sen. via dermica	
5392-40-5	5 ppm			via dermica.Sen.Fl v 315-317	

8.2. Exposure controls

Personal protection measures, such as personal protective equipment

Pictogram(s) indicating the obligation of wearing personal protective equipment (PPE) :

Use personal protective equipment that is clean and has been properly maintained.

Store personal protective equipment in a clean place, away from the work area.

Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

|> - Eye / face protection

Avoid contact with eyes.

Use eye protectors designed to protect against liquid splashes

Before handling, wear safety goggles in accordance with standard EN166.

|> - Hand protection

Use suitable protective gloves that are resistant to chemical agents in accordance with standard EN ISO 374-1.

Gloves must be selected according to the application and duration of use at the workstation.

Protective gloves need to be selected according to their suitability for the workstation in question : other chemical products that may be handled, necessary physical protections (cutting, pricking, heat protection), level of dexterity required.

- Body protection

Avoid skin contact.

Wear suitable protective clothing.

Suitable type of protective clothing :

In the event of substantial spatter, wear liquid-tight protective clothing against chemical risks (type 3) in accordance with EN14605/A1 to prevent skin contact.

In the event of a risk of splashing, wear protective clothing against chemical risks (type 6) in accordance with EN13034/A1 to prevent skin contact.

Work clothing worn by personnel shall be laundered regularly.

After contact with the product, all parts of the body that have been soiled must be washed.

|>SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state

Physical state :	Fluid liquid.

|> Colour

Unspecified

|> Odour

Odour threshold :	Not stated.

|> Melting point

Melting point/melting range :	Not specified.

|> Freezing point

Freezing point / Freezing range :	Not stated.

|> Boiling point or initial boiling point and boiling range

Boiling point/boiling range :	Not specified.

|> Flammability

Flammability (solid, gas) :	Not stated.

|> Lower and upper explosion limit

Explosive properties, lower explosivity limit (%) :	Not stated.
Explosive properties, upper explosivity limit (%) :	Not stated.

Flash point

Flash Point :	42.00 °C.

Auto-ignition temperature

Self-ignition temperature :	Not specified.

Decomposition temperature

Decomposition point/decomposition range :	Not specified.

|> pH

pH :	Not relevant.
pH (aqueous solution) :	Not stated.

|> Kinematic viscosity

Viscosity :	Not stated.
Viscosity:	v < 7 mm2/s (40°C)

|> Solubility

Water solubility :	Insoluble.
Fat solubility :	Not stated.

|> Partition coefficient n-octanol/water (log value)

Partition coefficient: n-octanol/water :	Not stated.

Vapour pressure

Vapour pressure (50°C) :	Not relevant.

Density and/or relative density

Density :	CoA

|> Relative vapour density

Vapour density :	Not stated.

9.2. Other information

No data available.

9.2.1. Information with regard to physical hazard classes

No data available.

9.2.2. Other safety characteristics

No data available.

SECTION 10 : STABILITY AND REACTIVITY

10.1. Reactivity

No data available.

10.2. Chemical stability

This mixture is stable under the recommended handling and storage conditions in section 7.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

Any apparatus likely to produce a flame or to have a metallic surface at high temperature (burners, electric arcs, furnaces etc.) must not be allowed on the premises.

Avoid :

- accumulation of electrostatic charges.
- heating
- heat
- flames and hot surfaces

10.5. Incompatible materials

Keep away from :

- oxidising agents

10.6. Hazardous decomposition products

The thermal decomposition may release/form :

- carbon monoxide (CO)
- carbon dioxide (CO2)

|>SECTION 11 : TOXICOLOGICAL INFORMATION

|> 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

May cause irreversible damage to the skin; namely inflammation of the skin or the formation of erythema and eschar or oedema following exposure up to four hours.

May cause an allergic reaction by skin contact.

Suspected human reproductive toxicant.

Aspiration toxicity includes severe acute effects such as chemical pneumonia, varying degrees of pulmonary injury or death following aspiration.

11.1.1. Substances

No toxicological data available for the substances.

11.1.2. Mixture

Acute toxicity :

LD50 > 2000 mg/kg

Aspiration hazard :

May be fatal if swallowed and enters airways.

Aspiration toxicity includes severe acute effects such as chemical pneumonia, varying degrees of pulmonary injury or death following aspiration.

11.2. Information on other hazards

Monograph(s) from the IARC (International Agency for Research on Cancer) :

CAS 5989-27-5 : IARC Group 3 : The agent is not classifiable as to its carcinogenicity to humans.

|>SECTION 12 : ECOLOGICAL INFORMATION

Very toxic to aquatic life with long lasting effects.

The product must not be allowed to run into drains or waterways.

12.1. Toxicity

12.1.2. Mixtures

No aquatic toxicity data available for the mixture.

12.2. Persistence and degradability

|> 12.2.1. Substances

CITRONELLOL (CAS: 106-22-9)

Biodegradability : no degradability data is available, the substance is considered as not degrading quickly.

CARVONE (ISO) (CAS: 99-49-0)
Biodegradability : no degradability data is available, the substance is considered as not degrading quickly.

TERPINOLENE (CAS: 586-62-9)
Biodegradability : no degradability data is available, the substance is considered as not degrading quickly.

LINALOOL (CAS: 78-70-6)
Biodegradability : no degradability data is available, the substance is considered as not degrading quickly.

2,6-OCTADIEN-1-OL, 3,7-DIMETHYL-, ACETATE, (E)- (CAS: 105-87-3)
Biodegradability : no degradability data is available, the substance is considered as not degrading quickly.

BICYCLO[3.1.1]HEPT-2-ENE, 2,6,6-TRIMETHYL-, (1S)- (CAS: 7785-26-4)
Biodegradability : no degradability data is available, the substance is considered as not degrading quickly.

GAMMA TERPINENE (CAS: 99-85-4)
Biodegradability : no degradability data is available, the substance is considered as not degrading quickly.

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

No data available.

12.6. Endocrine disrupting properties

No data available.

12.7. Other adverse effects

No data available.

SECTION 13 : DISPOSAL CONSIDERATIONS

Proper waste management of the mixture and/or its container must be determined in accordance with Directive 2008/98/EC.

13.1. Waste treatment methods

Do not pour into drains or waterways.

Waste :

Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plants or animals.

Recycle or dispose of waste in compliance with current legislation, via a certified collector or company.

Do not contaminate the ground or water with waste, do not dispose of waste into the environment.

Soiled packaging :

Empty container completely. Keep label(s) on container.

Give to a certified disposal contractor.

>SECTION 14 : TRANSPORT INFORMATION

Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2023 - IMDG 2020 [40-20] - ICAO/IATA 2023 [64]).

14.1. UN number or ID number

1197

14.2. UN proper shipping name

UN1197=EXTRACTS, LIQUID

14.3. Transport hazard class(es)

- Classification :

3

14.4. Packing group

III

14.5. Environmental hazards

- Environmentally hazardous material :

14.6. Special precautions for user

ADR/RID	Class	Code	Pack gr.	Label	Ident.	LQ	Provis.	EQ	Cat.	Tunnel
	3	F1	III	3	30	5 L	601	E1	3	D/E

|>

IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ	Stowage Handling	Segregation
	3	-	III	5 L	F-E. S-D	223 955	E1	Category A	-

IATA	Class	2°Label	Pack gr.	Passager	Passager	Cargo	Cargo	note	EQ
	3	-	III	355	60 L	366	220 L	A3	E1
	3	-	III	Y344	10 L	-	-	A3	E1

For limited quantities, see part 2.7 of the OACI/IATA and chapter 3.4 of the ADR and IMDG.

For excepted quantities, see part 2.6 of the OACI/IATA and chapter 3.5 of the ADR and IMDG.

Marine pollutant (IMDG 3.1.2.9):(d-limonene)

14.7. Maritime transport in bulk according to IMO instruments

No data available.

|>SECTION 15: Regulatory information

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

|> Classification and labelling information included in section 2:

The following regulations have been used:

- EU Regulation No. 1272/2008 amended by EU Regulation No. 2022/692 (ATP 18)

Container information:

No data available.

|> Restrictions applied under Title VIII of Regulation (EC) No. 1907/2006 (REACH):

The mixture does not contain any substance restricted under Annex XVII of Regulation (EC) No. 1907/2006 (REACH): https://echa.europa.eu/substances-restricted-under-reach.

|> Explosives precursors :

The mixture does not contain any substance subject to Regulation (EU) 2019/1148 on the marketing and use of explosives precursors.

Particular provisions :

No data available.

15.2. Chemical safety assessment

No data available.

|>SECTION 16 : OTHER INFORMATION

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations.

The mixture must not be used for other uses than those specified in section 1 without having first obtained written handling instructions.

It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.

The information in this safety data sheet must be regarded as a description of the safety requirements relating to the mixture and not as a guarantee of the properties thereof.

|> Wording of the phrases mentioned in section 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.
H319	Causes serious eye irritation.
H361	Suspected of damaging fertility or the unborn child .
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.

|> Abbreviations and acronyms :

LD50 : The dose of a test substance resulting in 50% lethality in a given time period.
REACH : Registration, Evaluation, Authorization and Restriction of Chemical Substances.
CMR: Carcinogenic, mutagenic or reprotoxic.
UFI : Unique formulation identifier.
STEL : Short-term exposure limit
TWA : Time Weighted Averages
TLV : Threshold Limit Value (exposure)
AEV : Average Exposure Value.
ADR : European agreement concerning the international carriage of dangerous goods by Road.
IMDG : International Maritime Dangerous Goods.
IATA : International Air Transport Association.
ICAO : International Civil Aviation Organisation
RID : Regulations concerning the International carriage of Dangerous goods by rail.
WGK : Wassergefahrdungsklasse (Water Hazard Class).
GHS02 : Flame
GHS07 : Exclamation mark
GHS08 : Health hazard
GHS09 : Environment
PBT: Persistent, bioaccumulable and toxic.
vPvB : Very persistent, very bioaccumulable.
SVHC : Substances of very high concern.
|> Modification compared to the previous version