

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



WIPO | PCT



(10) International Publication Number

WO 2015/169648 A1

(43) International Publication Date

12 November 2015 (12.11.2015)

(51) International Patent Classification:

*A61K 8/34* (2006.01) *C11B 9/00* (2006.01)  
*A61Q 13/00* (2006.01)

BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(21) International Application Number:

PCT/EP2015/059222

(22) International Filing Date:

28 April 2015 (28.04.2015)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

14167524.9 8 May 2014 (08.05.2014) EP

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))



WO 2015/169648 A1

(54) Title: FLORAL, GREEN ODORANT

(57) Abstract: The present invention concerns a composition of matter comprising at least 85% w/w of (Z)-5,9-dimethyldeca-3,8-dien-5-ol and at most 15% w/w of (E)-5,9-dimethyldeca-3,8-dien-5-ol, as well as the use as perfuming ingredient of said composition of matter.

## **FLORAL, GREEN ODORANT**

### **Technical field**

The present invention relates to the field of perfumery. More particularly, it 5 concerns a composition of matter comprising at least 85% w/w of (Z)-5,9-dimethyldeca-3,8-dien-5-ol and at most 15% w/w of (E)-5,9-dimethyldeca-3,8-dien-5-ol. Said composition of matter is a useful perfumery ingredient, and therefore the present invention comprises the invention's compound as part of a perfuming composition or of a perfuming consumer product.

10

### **Prior art**

To the best of our knowledge, the invention's composition of matter is novel.

However, in the document US 2838576 is reported a general formula, encompassing the present composition of matter, which describes compounds useful as 15 perfumery ingredient to confer "bergamot-lavander" odor notes. In said document, there is no mention of specific requirements regarding the double bond configuration, and it is described only an undefined composition of matter of 2,4,8-trimethylnona-2,7-dien-4-ol isomers but which has significantly different odor properties compared to the present composition of matter.

20

### **Description of the invention**

We have now surprisingly discovered that a composition of matter comprising:

- at least 85% w/w of (Z)-5,9-dimethyldeca-3,8-dien-5-ol; and
- at most 15% w/w of (E)-5,9-dimethyldeca-3,8-dien-5-ol;

25

the percentage being relative to the total weight of the composition of matter;

can be used as perfuming ingredient, for instance to impart odor notes of the floral, green type.

30

Each compound of the present composition of matter can be in the form of any one of its enantiomers or a mixture thereof. According to a particular embodiment, the composition of matter is in a racemic form.

According to a particular embodiment of the invention, the present composition of matter comprises:

- at least 90% w/w of (Z)-5,9-dimethyldeca-3,8-dien-5-ol; and
- at most 10% w/w of (E)-5,9-dimethyldeca-3,8-dien-5-ol;

the percentage being relative to the total weight of the composition of matter.

According to a particular embodiment of the invention, the present composition of matter consists of essentially (Z)-5,9-dimethyldeca-3,8-dien-5-ol, i.e. the cis isomer accounts for at least 95% w/w, or even at least 98% or 99% w/w. This compound 5 possesses a nice floral and green notes duality. The floral notes are in the direction of white flower, but with a significant and appreciated violet twist, while the green note is a sparkling and fresh one with a cis-3-hexenol, sage and violet leaves aspect. The odor of this compound does not present any, or significant, citrus-bergamot notes. This compound is particularly appreciated by the person skilled in the art for its floral and green duality 10 and its ability to impart/maintain a significant lift and volume to a perfuming composition.

The odor character of the invention's composition of matter is very surprising in view of the prior art. Indeed, when the odor of the invention's composition of matter is compared with that of the prior art composition of matter, or with that of 2,4,8-15 trimethylnona-2,7-dien-4-ol, then the differences are striking, and can be described as in Table 1 herein below.

The present composition of matter is considered by the skilled person in the art as filling a hole in the perfumer palette by providing a sparkling floral/green duality.

20 Table 1 : Various isomers and their odor properties

Compound/composition structure and name	Odor notes
(Z)-5,9-dimethyldeca-3,8-dien-5-ol	Floral and green notes with an aromatic twist. No bergamot notes, and no lavender notes.
(E)-5,9-dimethyldeca-3,8-dien-5-ol	Gazoline, Chemical, terpenic. No green notes, and no aromatic aspects.
Prior art compound: 2,4,8-trimethylnona-2,7-dien-4-ol	Bergamot, lavender, linalyl acetate/linalool, slight jasmonic aspects. No green notes, and no aromatic aspects.
Prior art compound: (E)-4,8-dimethylnona-2,7-dien-4-ol	Bergamot, lavender, linalyl acetate/linalool, slight jasmonic aspects. No green notes, and no aromatic aspects.

The (E) isomer of 5,9-dimethyldeca-3,8-dien-5-ol possesses a non-interesting organoleptic profile very different compared to the (Z) isomer. Thus the sage character of

5,9-dimethyldeca-3,8-dien-5-ol is only perceivable when the (E) is in small amount, otherwise the chemical character of the (E) dominates the olfactive profile. Even more surprisingly, neither the (Z) isomer nor the (E) isomer impart the “bergamot-lavander” odor notes reported in US 2838576. Said differences lend the invention’s composition of 5 matter and the prior art composition of matter to be each suitable for different uses, i.e. to impart different organoleptic impressions.

As mentioned above, the invention concerns the use of the invention’s composition of matter as perfuming ingredient. In other words, it concerns a method to confer, enhance, improve or modify the odor properties of a perfuming composition or of 10 a perfumed article, which method comprises adding to said composition or article an effective amount of the invention’s composition of matter.

According to a particular embodiment of the invention, said use or method is to impart odor notes of floral, green type.

By “use of the invention’s composition of matter” it has to be understood here 15 also the use of any perfuming composition containing the invention’s composition of matter and which can be advantageously employed in perfumery industry.

Said perfuming compositions, which in fact can be advantageously employed as perfuming ingredients, are also an object of the present invention.

Therefore, another object of the present invention is a perfuming composition 20 comprising:

- i) as perfuming ingredient, the invention’s composition of matter as defined above;
- ii) at least one ingredient selected from the group consisting of a perfumery carrier and a perfumery base; and
- iii) optionally at least one perfumery adjuvant.

25 By “perfumery carrier” we mean here a material which is practically neutral from a perfumery point of view, i.e. that does not significantly alter the organoleptic properties of perfuming ingredients. Said carrier may be a liquid or a solid.

As liquid carrier one may cite, as non-limiting examples, an emulsifying system, i.e. a solvent and a surfactant system, or a solvent commonly used in perfumery. A 30 detailed description of the nature and type of solvents commonly used in perfumery cannot be exhaustive. However, one can cite as non-limiting examples solvents such as dipropylene glycol, diethyl phthalate, isopropyl myristate, benzyl benzoate, 2-(2-ethoxyethoxy)-1-ethanol or ethyl citrate, which are the most commonly used. For the

compositions which comprise both a perfumery carrier and a perfumery base, other suitable perfumery carriers than those previously specified, can be also ethanol, water/ethanol mixtures, limonene or other terpenes, isoparaffins such as those known under the trademark Isopar<sup>®</sup> (origin: Exxon Chemical) or glycol ethers and glycol ether esters such as those known under the trademark Dowanol<sup>®</sup> (origin: Dow Chemical Company).

As solid carriers one may cite, as non-limiting examples, absorbing gums or polymers, or yet encapsulating materials. Examples of such materials may comprise wall-forming and plasticizing materials, such as mono, di- or trisaccharides, natural or 10 modified starches, hydrocolloids, cellulose derivatives, polyvinyl acetates, polyvinylalcohols, proteins or pectins, or yet the materials cited in reference texts such as H. Scherz, Hydrokolloide: Stabilisatoren, Dickungs- und Geliermittel in Lebensmitteln, Band 2 der Schriftenreihe Lebensmittelchemie, Lebensmittelqualität, Behr's Verlag GmbH & Co., Hamburg, 1996. The encapsulation is a well-known process to a person 15 skilled in the art, and may be performed, for instance, using techniques such as spray-drying, agglomeration or yet extrusion; or consists of a coating encapsulation, including coacervation and complex coacervation technique.

By "perfumery base" we mean here a composition comprising at least one perfuming co-ingredient.

20 Said perfuming co-ingredient is not invention's composition of matter. Moreover, by "perfuming co-ingredient" it is meant here a compound, which is used in a perfuming preparation or a composition to impart a hedonic effect. In other words such a co-ingredient, to be considered as being a perfuming one, must be recognized by a person skilled in the art as being able to impart or modify in a positive or pleasant way the odor 25 of a composition, and not just as having an odor.

The nature and type of the perfuming co-ingredients present in the base do not warrant a more detailed description here, which in any case would not be exhaustive, the skilled person being able to select them on the basis of his general knowledge and according to intended use or application and the desired organoleptic effect. In general 30 terms, these perfuming co-ingredients belong to chemical classes as varied as alcohols, lactones, aldehydes, ketones, esters, ethers, acetates, nitriles, terpenoids, nitrogenous or sulphurous heterocyclic compounds and essential oils, and said perfuming co-ingredients can be of natural or synthetic origin. Many of these co-ingredients are in any case listed in

reference texts such as the book by S. Arctander, Perfume and Flavor Chemicals, 1969, Montclair, New Jersey, USA, or its more recent versions, or in other works of a similar nature, as well as in the abundant patent literature in the field of perfumery. It is also understood that said co-ingredients may also be compounds known to release in a controlled manner various types of perfuming compounds.

By "perfumery adjuvant" we mean here an ingredient capable of imparting additional added benefit such as a color, a particular light resistance, chemical stability, etc. A detailed description of the nature and type of adjuvant commonly used in perfuming bases cannot be exhaustive, but it has to be mentioned that said ingredients are well known to a person skilled in the art.

An invention's composition consisting of the invention's composition of matter and at least one perfumery carrier represents a particular embodiment of the invention as well as a perfuming composition comprising the invention's composition of matter, at least one perfumery carrier, at least one perfumery base, and optionally at least one perfumery adjuvant.

For the sake of clarity, it is also understood that any mixture resulting directly from a chemical synthesis, e.g. a reaction medium without an adequate purification, in which the invention's composition of matter would be involved as a starting, intermediate or end-product could not be considered as a perfuming composition according to the invention as far as said mixture does not provide the inventive composition of matter in a suitable form for perfumery. Thus, unpurified reaction mixtures are generally excluded from the present invention unless otherwise specified.

Furthermore, the invention's composition of matter can also be advantageously used in all the fields of modern perfumery, i.e. fine or functional perfumery, to positively 25 impart or modify the odor of a consumer product into which said invention's composition of matter is added. Consequently, another object of the present invention is represented by a perfuming consumer product comprising, as perfuming ingredient, an invention's composition of matter, as defined above.

The invention's composition of matter can be added as such or as part of an 30 invention's perfuming composition.

For the sake of clarity, it has to be mentioned that, by "perfuming consumer product" it is meant a consumer product which is expected to deliver at least a pleasant perfuming effect to the surface to which it is applied (e.g. skin, hair, textile, or home

surface). In other words, a perfuming consumer product according to the invention is a perfumed consumer product which comprises the functional formulation, as well as optionally additional benefit agents, corresponding to the desired consumer product, e.g. a detergent or an air freshener, and an olfactive effective amount of at least one invention's 5 composition of matter.

The nature and type of the constituents of the perfumery consumer product do not warrant a more detailed description here, which in any case would not be exhaustive, the skilled person being able to select them on the basis of his general knowledge and according to the nature and the desired effect of said product.

10 Non-limiting examples of suitable perfumery consumer product can be a perfume, such as a fine perfume, a cologne or an after-shave lotion; a fabric care product, such as a liquid or solid detergent, a fabric softener, a fabric refresher, an ironing water, a paper, or a bleach; a body-care product, such as a hair care product (e.g. a shampoo, a coloring preparation or a hair spray), a cosmetic preparation (e.g. a vanishing cream or a deodorant 15 or antiperspirant), or a skin-care product (e.g. a perfumed soap, shower or bath mousse, oil or gel, or a hygiene product); an air care product, such as an air freshener or a "ready to use" powdered air freshener; or a home care product, such as a wipe, a dish detergent or hard-surface detergent.

20 Some of the above-mentioned consumer products may represent an aggressive medium for the invention's composition of matter, so that it may be necessary to protect the latter from premature decomposition, for example by encapsulation or by chemically bounding it to another chemical which is suitable to release the invention's ingredient upon a suitable external stimulus, such as an enzyme, light, heat or a change of pH.

25 The proportions in which the composition of matter according to the invention can be incorporated into the various aforementioned articles or compositions vary within a wide range of values. These values are dependent on the nature of the article to be perfumed and on the desired organoleptic effect as well as the nature of the co-ingredients in a given base when the composition of matter according to the invention are mixed with perfuming co-ingredients, solvents or additives commonly used in the art.

30 For example, in the case of perfuming compositions, typical concentrations are in the order of 0.5 % to 40 % by weight, or even more, of the invention's composition of matter based on the weight of the composition into which they are incorporated. Concentrations lower than these, such as in the order of 0.01% to 4.0% by weight, can be

used when said the invention's composition of matter is incorporated into perfumed articles, percentage being relative to the weight of the article.

The invention's composition of matter, and the (Z)-5,9-dimethyldeca-3,8-dien-5-ol essentially pure, can be prepared according to several methods. As reported in the 5 experimental part, one possibility is the addition of but-1-yn-1-yl Grignard such as but-1-yn-1-yl magnesium chloride to 6-methyl-5-hepten-2-one. The triple bond of 5,9-dimethyldec-8-en-3-yn-5-ol obtained is then reduced under appropriate conditions in order to provide selectively (Z)-5,9-dimethyldeca-3,8-dien-5-ol (e.g. Lindlar catalyst). The same intermediate could also be synthesized by the addition of but-1-yne to 6-10 methyl-5-hepten-2-one under basic conditions as described in DE2228333. Another approach starting from the same starting material as above passes through the acetylene addition providing the 3,7-dimethyloct-6-en-1-yn-3-ol then the ethylation of the triple bond and finally, as previously described, the stereoselective hydrogenation of the triple bond (e.g. Lindlar catalyst) leading to (Z)-5,9-dimethyldeca-3,8-dien-5-ol.

15

### **Examples**

The invention will now be described in further detail by way of the following examples, wherein the abbreviations have the usual meaning in the art, the temperatures are indicated in degrees centigrade (°C) ; the NMR spectral data were recorded in  $\text{CDCl}_3$  20 (if not stated otherwise) with a 360 or 400 MHz machine for  $^1\text{H}$  and  $^{13}\text{C}$ , the chemical shifts  $\delta$  are indicated in ppm with respect to TMS as standard, the coupling constants  $J$  are expressed in Hz.

#### Example 1

25

##### Synthesis of the invention's composition of matter

*Preparation of a composition of matter comprising at least 98% of (Z)-5,9-dimethyldeca-3,8-dien-5-ol*

30

a) 5,9-dimethyldec-8-en-3-yn-5-ol

50 ml of methyltetrahydrofuran were saturated with butyne. 100 ml of 3M Methylmagnesiumchloride were then added dropwise at 23°C, over 50 minutes and the resulting suspension stirred a further 20 minutes. 36.6 g of methylheptenone were added 35 over 2 hours, while maintaining an atmosphere of butyne over the reaction mixture. The

reaction mixture was stirred for a further 2 hours and a dilute aqueous solution of citric acid was added rapidly dropwise with cooling. The resulting aqueous phase was removed and the organic phase washed to neutrality with dilute aqueous sodium citrate. Concentration and vacuum distillation afforded 18.4 g of 99% pure propargylic alcohol  
5 (Boiling point: 103°C at 8 mbar).

<sup>13</sup>C NMR: 12.3 (t), 14.0 (q), 17.7 (q), 23.8 (t), 25.7 (q), 30.2 (q), 43.7 (t), 68.4 (s), 83.2 (s), 85.3 (s), 124.1 (d), 132.2 (s)  
10 <sup>1</sup>H NMR: 1.14 (t, J = 7.5 Hz, 3 H); 1.45 (s, 3 H); 1.65 (brs, 3 H); 1.68 – 1.63 (m, 2 H); 1.70 (brs, 3 H); 2.08 (s, 1 H); 2.21 (q, J = 7.5 Hz, 2 H); 2.32 - 2.12 (m, 2 H); 5.17 (mc, 1 H)

b) (Z)-5,9-dimethyldeca-3,8-dien-5-ol

18.8 g of 5,9-dimethyldec-8-en-3-yn-5-ol were treated with 71 mg of Lindlar catalyst under 1 atmosphere of hydrogen for 15 hours 30 minutes at 25°C. The reaction mixture  
15 was then diluted with ether and filtered. The crude product was concentrated and purified by chromatography on silica gel (elution with heptane / MTBE mixture). Concentration of the desired fractions and distillation gave 5.5 g of 99% pure (E/Z ratio of 0.3 / 99.7) (Z)-5,9-dimethyldeca-3,8-dien-5-ol (bp 41°C at 0.3 mbar).

13C NMR: 14.6 (q), 17.7 (q), 21.5 (t), 23.0 (t), 25.7 (q), 29.4 (q), 43.5 (t), 74.3 (s), 124.5 (d), 131.8 (s), 133.2 (d), 135.1 (d)  
20 <sup>1</sup>H NMR: 0.98 (t, J = 7.5, 3 H); 1.33 (s, 3 H); 1.59 (s, 1 H); 1.60 (mc, 2 H); 1.62 (brs, 3 H); 1.69 (brs, 3 H); 2.14- 2.00 (m, 2 H); 2.32 (mc, 2 H); 5.14 (tqq, J = 7.2/1.4/1.4 Hz, 1 H); 5.38-5.32 (m, 2 H)

25

Example 2

Preparation of a perfuming composition

A perfuming composition for shampoos, of the chamomile type, was prepared by  
30 admixing the following ingredients:

<u>Parts by weight</u>	<u>Ingredient</u>
600	Benzyl acetate
50	Cyclanol acetate

100	Styrrallyl acetate
50	Aladinate <sup>® 1)</sup>
500	Hexylcinnamic aldehyde
150	10%* Aldolone <sup>® 1)</sup>
5	50 10%* Methyl anthranilate
	40 Methyl benzoate
	50 Ethyl (Z)-2,4-dimethyl-2-pentenoate
100	Camphor
60	Carvone Laevo
10	50 Citronellyl Nitrile
	20 Allyl cyclohexylpropionate
	50 Dihydroestragol
1000	Dihydromyrcenol
100	Eucalyptus essential oil
15	100 Eugenol
	250 Exaltolide <sup>® 2)</sup>
	80 10%* Gamma Undecalactone
100	Geraniol
250	Granny Smith <sup> a)</sup>
20	500 Hedione <sup>® 4)</sup>
	50 Allyl heptanoate
	50 Hivernal <sup>® 5)</sup>
	50 Iralia <sup>® 6)</sup> Total
	500 2-Phenoxyethyl isobutyrate
25	250 Lilial <sup>® 7)</sup>
	300 Lorysia <sup>® 8)</sup>
	20 Methylparacresol
	150 10%* Muscenone <sup> TM 9)</sup> Delta
	20 10%* Methyl octinecarbonate
30	600 Phenethylol
	50 1%* Pyrazobutyle
	250 Sclareolate <sup>® 10)</sup>
	200 Terpineol

100	2-Ethyl-4,4-dimethylcyclohexanone
40	(2,2-Dimethoxyethyl)benzene
<u>120</u>	2,4-Dimethyl-3-cyclohexene-1-carbaldehyde
7000	

5

\* in dipropylene glycol

- 1) 3-methyl-2-hexenyl acetate; origin: Firmenich SA, Geneva, Switzerland
- 2) 7-propyl-2H,4H-1,5-benzodioxepin-3-one; origin: Firmenich SA, Geneva, Switzerland
- 10 3) pentadecanolide; origin: Firmenich SA, Geneva, Switzerland
- 4) methyl dihydrojasmonate; origin: Firmenich SA, Geneva, Switzerland
- 5) 3-(3,3/1,1-dimethyl-5-indanyl)propanal; origin: Firmenich SA, Geneva, Switzerland
- 6) mixture of methylionones isomers; origin: Firmenich SA, Geneva, Switzerland
- 7) 3-(4-tert-butylphenyl)-2-methylpropanal; origin: Givaudan SA, Vernier, Switzerland
- 15 8) 4-(1,1-dimethylethyl)-1-cyclohexyl acetate; origin: Firmenich SA, Geneva, Switzerland
- 9) 3-methyl-5-cyclopentadecen-1-one; origin: Firmenich SA, Geneva, Switzerland
- 10) propyl (S)-2-(1,1-dimethylpropoxy)propanoate; origin: Firmenich SA, Geneva, Switzerland
- 20 a) Compounded specialty; origin: Firmenich SA, Geneva, Switzerland

The addition of 3000 parts by weight of the invention's composition of matter described in example 1 to the above-described perfuming composition imparted a fresh floral, green aspect which reinforced the chamomile note of the original composition.

When instead of invention's composition was added the same amount of the prior art (E)-4,8-dimethyl-2,7-nonadien-4-ol, the new fragrance was clearly lavender/bergamot much less chamomile.

When instead of invention's composition was added the same amount of the prior art 2,4,8-trimethylnona-2,7-dien-4-ol, the new fragrance was clearly citrusy/bergamot and less sparkling.

When instead of the invention's composition was added the same amount of linalool, the new fragrance was a bit more floral (but less than with the invention composition), but also less chamomile and lavender.

Example 3Preparation of a perfuming composition

5

A perfuming composition, of the citrus grapefruit type, was prepared by admixing the following ingredients:

	<u>Parts by weight</u>	<u>Ingredient</u>
10	50	Isobornyl acetate
	50	Geranyl acetate
	10	Fenchyllic alcohol
	40	C 10 aldehyde
	60	C 8 aldehyde
	30	C 9 aldehyde
15	20	MNA aldehyde
	100	Lemon essential oil
	100	Citronellol
	200	Citronellyl Nitrile
	30	Citronella oil
	10	Damascenone
20	60	Delphone <sup>TM 1)</sup>
	60	Delta Damascone
	40	Doremox <sup>® 2)</sup>
	220	Eucalyptol
	30	Eugenol
	1250	Geraniol
25	350	Hedione <sup>® 3)</sup>
	30	Hivernal <sup>® 4)</sup>
	500	Iso E <sup>® 5)</sup> Super
	30	Methylheptenone
	20	Methylnaphthylcetone
	40	(1'R)-2-[2-(4'-methyl-3'-cyclohexen-1'-yl)propyl]cyclopentanone
30	40	10%* Neobutene <sup>® 6)</sup> Alpha
	40	Paracymene

1200	Phenethylol
250	Salicynile <sup>® 7)</sup>
250	Sclareolate <sup>® 8)</sup>
40	10%* (4Z)-4-dodecenal
5	200 Orange essential oil
	300 Terpineol
	100 Terpinolene
	700 Ionone Beta
	<u>50</u> 2,4-Dimethyl-3-cyclohexene-1-carbaldehyde
10	6500

\* in dipropylene glycol

- 1) 2-pentyl-cyclopentanone; origin: Firmenich SA, Geneva, Switzerland
- 2) tetrahydro-4-methyl-2-phenyl-2H-pyran; origin: Firmenich SA, Geneva, Switzerland
- 3) methyl cis-dihydrojasmonate; origin: Firmenich SA, Geneva, Switzerland
- 4) 3-(3,3/1,1-dimethyl-5-indanyl)propanal; origin: Firmenich SA, Geneva, Switzerland
- 5) 1-(octahydro-2,3,8,8-tetramethyl-2-naphthalenyl)-1-ethanone; origin: Givaudan SA, Vernier, Switzerland
- 6) 1-(5,5-dimethyl-1-cyclohexen-1-yl)-4-penten-1-one; origin: Firmenich SA, Geneva, Switzerland
- 7) (2Z)-2-phenyl-2-hexenenitrile; origin: Firmenich SA, Geneva, Switzerland
- 8) propyl (S)-2-(1,1-dimethylpropoxy)propanoate; origin: Firmenich SA, Geneva, Switzerland

25 The addition of 3500 parts of the invention's composition of matter described in example 1 to the above-described perfuming composition imparted a clear green tea connotation.

When instead of the invention's composition was added the same amount of linalool, the 30 new fragrance was much more white floral, without the tea aspect.

When instead of invention's composition was added the same amount of the prior art (E)-4,8-dimethyl-2,7-nonadien-4-ol, the new fragrance became lavender and much less grapefruit.

**Claims**

**1.** A composition of matter comprising:

- at least 85% w/w of (Z)-5,9-dimethyldeca-3,8-dien-5-ol; and
- 5 - at most 15% w/w of (E)-5,9-dimethyldeca-3,8-dien-5-ol;

the percentage being relative to the total weight of the composition of matter.

**2.** A composition of matter according to claim 1, characterized in that said composition of matter comprises:

- 10 - at least 90% w/w of (Z)-5,9-dimethyldeca-3,8-dien-5-ol; and
- at most 10% w/w of (Z)-5,9-dimethyldeca-3,8-dien-5-ol;

the percentage being relative to the total weight of the composition of matter.

**3.** A composition of matter according to claim 1, characterized in that said 15 composition consists of at least 95% w/w of (Z)-5,9-dimethyldeca-3,8-dien-5-ol.

**4.** A method to confer, enhance, improve or modify the odor properties of a 20 perfuming composition or of a perfumed article, which method comprises adding to said composition or article an effective amount of a composition of matter as defined in any one of claims 1 to 3.

**5.** Method according to claim 4, characterized in that it is conferred odor notes of the green and floral type.

25 **6.** A perfuming composition comprising

- i) a composition of matter, as defined in any one of claims 1 to 3;
- ii) at least one ingredient selected from the group consisting of a perfumery carrier and a perfumery base; and
- iii) optionally at least one perfumery adjuvant.

30

**7.** A perfuming consumer product comprising a composition of matter, as defined in any one of claims 1 to 3.

**8.** A perfuming consumer product according to claim 7, characterized in that the perfumery consumer product is a perfume, a fabric care product, a body-care product, an air care product or a home care product.

5           **9.** A perfuming consumer product according to claim 7, characterized in that the perfumery consumer product is a fine perfume, a cologne, an after-shave lotion, a liquid or solid detergent, a fabric softener, a fabric refresher, an ironing water, a paper, a bleach, a shampoo, a coloring preparation, a hair spray, a vanishing cream, a deodorant or antiperspirant, a perfumed soap, shower or bath mousse, oil or gel, a hygiene product, an  
10          air freshener, a “ready to use” powdered air freshener, a wipe, a dish detergent or hard-surface detergent.

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP2015/059222

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. A61K8/34 A61Q13/00 C11B9/00  
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
A61K A61Q C11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, CHEM ABS Data, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2 838 576 A (HENRI NORMANT) 10 June 1958 (1958-06-10) the whole document -----	1-9
A	MOLANDER G ET AL: "Reduction of vinyloxiranes with samarium diiodide. An efficient route to functionalized chiral, nonracemic (E)-allylic alcohols", THE JOURNAL OF ORGANIC CHEMISTRY, AMERICAN CHEMICAL SOCIETY, US, vol. 51, no. 26, 1 January 1986 (1986-01-01), pages 5259-5264, XP002698872, ISSN: 0022-3263 right column; page 5263 ----- -/-	1-9

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
1 September 2015	15/09/2015
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Grenouillat, N

**INTERNATIONAL SEARCH REPORT**

International application No
PCT/EP2015/059222

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2010/052636 A1 (FIRMENICH & CIE [CH]; MORETTI ROBERT [CH]) 14 May 2010 (2010-05-14) the whole document -----	1-9

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No

PCT/EP2015/059222

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 2838576	A	10-06-1958	NONE	
WO 2010052636	A1	14-05-2010	CN 102202740 A EP 2352560 A1 JP 5611218 B2 JP 2012508291 A US 2011229426 A1 WO 2010052636 A1	28-09-2011 10-08-2011 22-10-2014 05-04-2012 22-09-2011 14-05-2010