

GC/MS BATCH NUMBER: L20102

ESSENTIAL OIL: LAVANDIN
BOTANICAL NAME: LAVANDULA X INTERMEDIA
ORIGIN: FRANCE

KEY CONSTITUENTS PRESENT IN THIS BATCH OF LAVANDIN OIL	%
LINALOOL	34.1
LINALYL ACETATE	28.7
CAMPHOR	7.3
1,8-CINEOLE	4.8
TERPINEN-4-OL	3.6
BORNEOL	3.1
LAVANDULYL ACETATE	2.3
β -CARYOPHYLLENE	1.6
trans- β -FARNESENE	1.2
cis- β -OCIMENE	0.9
LAVANDULOL	0.7
LIMONENE	0.7
MYRCENE	0.5
HEXYL BUTYRATE	0.4
trans- β -OCIMENE	0.3

Comments from Robert Tisserand: The odor profile is excellent, and all 14 key constituents conform to the ISO standard for Lavandin Grosso.

Date : June 14, 2016

SAMPLE IDENTIFICATION

Internal code : 16F08-PTH2-1-SM

Customer identification : Lavandin - France - L20102604

Type : Essential oil

Source : *Lavandula x intermedia*

Customer : Plant Therapy

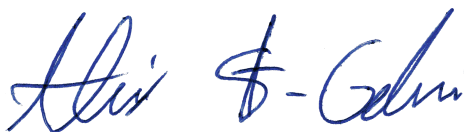
ANALYSIS

Method : PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).

Analyst : Alexis St-Gelais, M. Sc., chimiste

Analysis date : 2016-06-08

Checked and approved by :



Alexis St-Gelais, M. Sc., chimiste 2013-174

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IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
Methyl hexyl ether	1.88	820	0.03	0.03	852	0.62	Aliphatic ether
<i>cis</i> -Hex-3-en-1-ol	2.39	860	0.08	0.07	1325	4.76	Aliphatic alcohol
Tricyclene	3.15	917	0.01	0.01	927	0.81	Monoterpene
α -Thujene	3.23	922	0.08	0.09	955	0.92	Monoterpene
α -Pinene	3.33	928	0.38	0.35	947	0.89	Monoterpene
Camphene	3.62	945	0.26	0.24	1002	1.12	Monoterpene
Thuja-2,4(10)-diene	3.71	951	0.01	0.11	1057	1.55*	Monoterpene
Sabinene	4.04	971	0.11	[0.11]	1057	1.55*	Monoterpene
β -Pinene	4.10	975	0.33	0.32	1040	1.41	Monoterpene
Myrcene	4.38*	991	0.80	0.54	1116	2.05	Monoterpene
Octan-3-one	4.38*	991	[0.80]	0.28	1203	3.07*	Aliphatic ketone
Octen-3-ol	4.38*	991	[0.80]	0.10	1411	6.00*	Aliphatic alcohol
α -Phellandrene	4.65*	1007	0.10	0.03	1109	1.97	Monoterpene
Δ 3-Carene	4.65*	1007	[0.10]	0.06	1090	1.81	Monoterpene
Octanal	4.77	1014	0.04	0.01	1233	3.47	Aliphatic aldehyde
α -Terpinene	4.83	1017	0.05	0.05	1122	2.12	Monoterpene
Hexyl acetate	4.91	1022	0.13	0.37	1224	3.35*	Aliphatic ester
<i>para</i> -Cymene	5.02	1028	0.09	0.11	1209	3.14	Monoterpene
Limonene	5.06	1030	0.71	0.61	1140	2.34	Monoterpene
1,8-Cineole	5.13	1034	4.83	4.76	1147	2.41	Monoterp. ether
<i>cis</i> - β -Ocimene	5.24	1040	0.90	1.03	1187	2.88*	Monoterpene
<i>trans</i> - β -Ocimene	5.42	1050	0.27	[0.28]	1203	3.07*	Monoterpene
γ -Terpinene	5.60	1060	0.15	[1.03]	1187	2.88*	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	5.87	1075	0.11	0.11	1380	5.56	Monoterp. alcohol
<i>cis</i> -Sabinene hydrate	5.90	1077	0.08	0.27	1408	5.96*	Monoterp. alcohol
Terpinolene	6.07	1086	0.36	[0.37]	1224	3.35*	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	6.18	1092	0.09	[0.10]	1411	6.00*	Monoterp. alcohol
<i>para</i> -Cymenene	6.26	1096	0.01	0.01	1366	5.36	Monoterpene
Linalool	6.63	1112	34.14	34.38	1504	7.77	Monoterp. alcohol
Octen-3-yl acetate	6.65	1113	0.10	0.24	1333	4.87	Aliphatic ester
Octan-3-yl acetate	6.68	1114	0.26	0.31	1302	4.42	Aliphatic ester
<i>trans</i> -Pinocarveol	7.41	1141	0.02	0.04	1579	9.91	Monoterp. alcohol
Camphor	7.60	1148	7.33	7.12	1425	6.28	Monoterp. ketone
Lavandulol	8.11	1168	0.68	0.71	1616	11.05	Monoterp. alcohol
Borneol	8.35	1177	3.09	4.18	1621	11.27*	Monoterp. alcohol
Terpinen-4-ol	8.55	1184	3.62	3.72	1532	8.51*	Monoterp. alcohol
Cryptone	8.78	1193	0.01	0.02	1568	9.59	Monoterp. ketone
Hexyl butyrate	8.98	1200	0.44	0.39	1372	5.45	Aliphatic ester
α -Terpineol	9.12	1204	0.94	1.33	1626	11.51*	Monoterp. alcohol
Nerol	10.24	1229	0.13	0.15	1730	16.31	Monoterp. alcohol
Hexyl isovalerate	10.88	1244	0.16	0.23	1402	5.87	Aliphatic ester

Linalyl acetate	11.30	1253	28.74	29.52	1512	7.94	Monoterp. ester
Geraniol	11.43	1256	0.33	0.33	1780	19.32	Monoterp. alcohol
Lavandulyl acetate	12.90	1289	2.29	2.33	1551	9.09	Monoterp. ester
α -Cubebene	15.54	1335	0.16	[0.27]	1408	5.96*	Sesquiterpene
Neryl acetate	17.38	1363	0.29	0.36	1659	12.97*	Monoterp. ester
β -Elemene	18.43	1379	0.09	[3.72]	1532	8.51*	Sesquiterpene
Geranyl acetate	18.84	1385	0.38	0.45	1690	14.39	Monoterp. ester
β -Caryophyllene	20.05	1404	1.58	1.51	1525	8.29	Sesquiterpene
α -Santalene	20.43	1408	0.20	0.25	1517	8.07	Sesquiterpene
<i>cis</i> - β -Farnesene	21.61	1423	0.12	0.12	1586	10.14	Sesquiterpene
allo-Aromadendrene	22.73	1436	0.13	0.15	1560	9.36	Sesquiterpene
<i>trans</i> - β -Farnesene	23.95	1451	1.17	[4.18]	1621	11.27*	Sesquiterpene
Germacrene D	24.92*	1463	0.80	[1.33]	1626	11.51*	Sesquiterpene
γ -Muurolene	24.92*	1463	[0.80]	0.17	1599	10.55	Sesquiterpene
γ -Cadinene	27.92	1499	0.22	0.21	1669	13.41	Sesquiterpene
β -Bisabolene	28.15	1502	0.13	[0.36]	1659	12.97*	Sesquiterpene
(<i>E,E</i>)- α -Farnesene	28.56	1507	0.31	0.27	1694	14.54	Sesquiterpene
α -Cadinene	29.46	1520	0.16	0.27	1708	15.18	Sesquiterpene
Caryophyllene oxide	33.16	1570	0.09	0.06	1846	23.44	Sesquiterp. ether
τ -Cadinol	36.95	1637	0.16	0.15	2069	36.58	Sesquiterp. alcohol
α -Bisabolol	38.96	1685	0.34	0.35	2129	38.66	Sesquiterp. alcohol
Total identified			98.62%	98.88%			

*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

Note: no correction factor was applied

OTHER DATA

Physical aspect : Clear liquid

Refractive index : 1.4593 \pm 0.0003 (20 °C)

CONCLUSION

No adulterant, contaminant or diluent were detected using this method.

