

Date : April 1, 2016

SAMPLE IDENTIFICATION

Internal code : 16C15-OCF5-1-HM

Customer identification : Nature's Gift - Neroli Morocco - Lot #MO-0017208 - No seal

Type : Essential oil

Source : *Citrus aurantium var. amara*

Customer : 5 Oils 10 Companies Fundraiser

ANALYSIS

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

Identifications double-checked by GC-MS

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

Analysis date : 2016-03-19

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.	
Hexanol	2.53	882	0.01	0.02	1309	4.53	Aliphatic alcohol
Tricyclene	2.99	915	0.01	0.01	930	0.83	Monoterpene
α -Thujene	3.07	920	0.05	0.06	959	0.94	Monoterpene
α -Pinene	3.17	926	1.00	0.98	950	0.90	Monoterpene
Camphene	3.45*	943	0.08	0.07	1005	1.14	Monoterpene
α -Fenchene	3.45*	943	[0.08]	0.01	996	1.09	Monoterpene
Sabinene	3.87	969	0.93	0.94	1061	1.58	Monoterpene
β -Pinene	3.96	974	13.81	13.76	1047	1.47	Monoterpene
Myrcene	4.21*	990	1.66	1.61	1119	2.09	Monoterpene
Octen-3-ol	4.21*	990	[1.66]	0.05	1421	6.20*	Aliphatic alcohol
6-Methyl-5-hepten-2-one	4.30	996	0.02	0.02	1284	4.18	Aliphatic ketone
α -Phellandrene	4.47*	1005	0.02	0.01	1111	2.00	Monoterpene
Δ 3-Carene	4.47*	1005	[0.02]	0.01	1093	1.84	Monoterpene
Octan-3-ol	4.50	1007	0.02	0.02	1352	5.15	Aliphatic alcohol
α -Terpinene	4.65	1016	0.09	0.08	1125	2.15	Monoterpene
para-Cymene	4.83	1026	0.16	0.20	1214	3.20	Monoterpene
Limonene	4.91*	1030	13.65	13.36	1147	2.41	Monoterpene
1,8-Cineole	4.91*	1030	[13.65]	0.22	1149	2.45	Monoterp. ether
<i>cis</i> - β -Ocimene	5.06	1039	0.59	0.78	1191	2.92*	Monoterpene
<i>trans</i> - β -Ocimene	5.26	1050	4.91	4.83	1210	3.14	Monoterpene
γ -Terpinene	5.42	1059	0.17	[0.78]	1191	2.92*	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	5.69	1074	0.15	0.13	1389	5.68	Monoterp. alcohol
Terpinolene	5.88	1085	0.34	0.35	1227	3.39	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	6.00	1091	0.07	0.08	1416	6.09	Monoterp. alcohol
para-Cymenene	6.08	1096	0.02	0.01	1375	5.48	Monoterpene
Linalool	6.42	1111	38.61	39.15	1515	7.99	Monoterp. alcohol
<i>cis</i> -Limonene oxide	6.85	1128	0.01	0.01	1379	5.55	Monoterp. ether
<i>trans</i> -Limonene oxide	7.07	1137	0.01	0.01	1403	5.89	Monoterp. ether
Epoxyterpinolene	7.11	1138	0.03				Monoterp. ether
Phenylacetone nitrile	7.34	1147	0.15	0.05	1817	21.50	Simple phenolic
Terpinen-4-ol	8.16	1180	0.40	0.43	1538	8.67	Monoterp. alcohol
α -Terpineol	8.76	1203	3.96	3.95	1635	11.91	Monoterp. alcohol
Nerol	9.77	1227	0.93	0.92	1740	16.93	Monoterp. alcohol
Citronellol	10.25	1238	0.01	0.03	1729	16.26	Monoterp. alcohol
Linalyl acetate	10.69*	1248	2.54	2.53	1516	8.03	Monoterp. ester
Neral	10.69*	1248	[2.54]	0.03	1608	10.83	Monoterp. aldehyde
Geraniol	10.97	1255	2.50	2.46	1794	20.08	Monoterp. alcohol
Geranial	11.87	1276	0.04	0.03	1656	12.82	Monoterp. aldehyde
Bornyl acetate	12.05	1280	0.02	0.06	1517	8.06	Monoterp. ester
Indole	12.88	1300	0.11	0.04	2317	43.43	Indole
δ -Elemene	14.28	1324	0.04	[0.05]	1421	6.20*	Sesquiterpene

α -Terpinyl acetate	15.36	1341	0.11	0.19	1623	11.35	Monoterp. ester
Methyl anthranilate	15.48	1343	0.14	0.12	2115	38.17	Phenolic ester
Neryl acetate	16.70	1362	1.40	1.39	1666	13.27	Monoterp. ester
Geranyl acetate	18.14	1386	2.72	2.72	1698	14.76	Monoterp. ester
β -Caryophyllene	19.18	1402	0.70	0.70	1527	8.34	Sesquiterpene
α -Humulene	21.80	1434	0.07	0.07	1584	10.07	Sesquiterpene
<i>trans</i> - β -Farnesene	23.02	1449	0.12				Sesquiterpene
Germacrene D	23.91	1460	0.08	0.07	1621	11.27	Sesquiterpene
Bicyclogermacrene	25.11	1475	0.13	0.11	1643	12.29	Sesquiterpene
(<i>E</i>)-Nerolidol	32.44*	1569	3.79	3.70	1998	33.42	Sesquiterp. alcohol
Spathulenol	32.44*	1569	[3.79]	0.06	2023	34.89	Sesquiterp. alcohol
Caryophyllene oxide	32.44*	1569	[3.79]	0.04	1850	23.72	Sesquiterp. ether
(2 <i>E</i> ,6 <i>E</i>)-Farnesol	39.83	1719	2.26	2.31	2298	42.98	Sesquiterp. alcohol
(2 <i>E</i> ,6 <i>E</i>)-Farnesyl acetate	43.46	1837	0.11	0.08	2197	40.49	Sesquiterp. ester
Total identified			98.75%	98.87%			

*: 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 : Yellow liquid

Refractive index : 1.4700 \pm 0.0003 (20 °C)

CONCLUSION

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



