

Date : March 31, 2016

SAMPLE IDENTIFICATION

Internal code : 16C15-OCF2-1-HM

Customer identification : Nature's Gift - Bergamot Italy - Lot #IT-B120027 - Untampered seal

Type : Essential oil

Source : *Citrus aurantium ssp. bergamia*

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).

Analyst : Sylvain Mercier, 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.	
α -Thujene	3.07	920	0.28	0.28	959	0.94	Monoterpene
α -Pinene	3.17	926	1.08	1.05	950	0.90	Monoterpene
Camphene	3.44	943	0.03	0.03	1005	1.13	Monoterpene
Sabinene	3.87	969	0.99	1.02	1061	1.58	Monoterpene
β -Pinene	3.94	973	5.70	5.78	1045	1.45	Monoterpene
Myrcene	4.21	990	0.92	0.89	1119	2.08	Monoterpene
α -Phellandrene	4.46	1005	0.02	0.03	1111	2.00	Monoterpene
Octanal	4.59	1012	0.04	0.03	1237	3.53	Aliphatic aldehyde
α -Terpinene	4.65	1016	0.14	0.14	1125	2.15	Monoterpene
Limonene	4.94*	1032	37.54	36.98	1150	2.45	Monoterpene
1,8-Cineole	4.94*	1032	[37.54]	0.18	1152	2.47	Monoterp. ether
para-Cymene	4.94*	1032	[37.54]	0.48	1213	3.19	Monoterpene
<i>cis</i> - β -Ocimene	5.06	1039	0.02	6.77	1195	2.97*	Monoterpene
<i>trans</i> - β -Ocimene	5.24	1049	0.21	0.20	1207	3.11	Monoterpene
γ -Terpinene	5.44	1060	6.68	[6.77]	1195	2.97*	Monoterpene
<i>cis</i> -Sabinene hydrate	5.71	1075	0.05	0.05	1417	6.11	Monoterp. alcohol
Terpinolene	5.88	1084	0.31	0.31	1227	3.39	Monoterpene
Linalool	6.33	1107	10.31	41.39	1511	7.91†	Monoterp. alcohol
Nonanal	6.43	1111	0.02	0.02	1343	5.01	Aliphatic aldehyde
Terpinen-4-ol	8.15	1179	0.03	0.03	1537	8.66	Monoterp. alcohol
α -Terpineol	8.70	1201	0.12	0.14	1633	11.83	Monoterp. alcohol
Decanal	9.13	1212	0.06	0.04	1442	6.60	Aliphatic aldehyde
Octyl acetate	9.30	1216	0.11	0.11	1428	6.34	Aliphatic ester
Nerol	9.79	1227	0.06	0.06	1739	16.89	Monoterp. alcohol
Neral	10.36	1240	0.17	0.16	1607	10.81	Monoterp. aldehyde
Linalyl acetate	10.84	1252	30.11	[41.39]	1517	8.07†	Monoterp. ester
Geranial	11.72	1273	0.26	0.20	1656	12.81	Monoterp. aldehyde
α -Terpinyl acetate	15.45	1343	0.16	0.18	1623	11.34	Monoterp. ester
Neryl acetate	16.64	1362	0.37	0.39	1665	13.22	Monoterp. ester
Geranyl acetate	18.05	1384	0.30	0.26	1696	14.65	Monoterp. ester
β -Caryophyllene	19.14	1402	0.30	0.33	1526	8.32	Sesquiterpene
<i>trans</i> - α -Bergamotene	20.70	1421	0.28	0.30	1530	8.43	Sesquiterpene
<i>trans</i> - β -Farnesene	22.95	1449	0.05	0.04	1620	11.23	Sesquiterpene
β -Bisabolene	27.07	1499	0.43	0.40	1660	12.99	Sesquiterpene
α -Bisabolol	38.46	1683	0.04	0.02	2140	38.96	Sesquiterp. alcohol
Nootkatone?	41.86	1783	0.23	0.15	2368	44.55	Sesquiterp. ketone
Citropten	47.14	1977	0.19				Coumarin

Bergapten	48.78	2046	0.14			Furanoumarin
Total identified			97.75%	98.44%		

*: Two or more compounds are coeluting on this column

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

†: The peak apexes were resolved, but the peaks overlapped and were summed for analysis.

Note: no correction factor was applied

OTHER DATA

Physical aspect : Yellow liquid

Refractive index : 1.4665 ± 0.0003 (20 °C)

CONCLUSION

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



