

GC/MS BATCH NUMBER: N10103

ESSENTIAL OIL: NEROLI

BOTANICAL NAME: CITRUS AURANTIUM VAR. AMARA

ORIGIN: EGYPT

KEY CONSTITUENTS PRESENT IN THIS BATCH OF NEROLI OIL	%
LINALOOL	41.3
LINALYL ACETATE	12.6
LIMONENE	9.9
β-PINENE	6.8
trans-β-OCIMENE	4.2
GERANIOL	3.4
α-TERPINEOL	3.1
GERANYL ACETATE	3.0
(E)-NEROLIDOL	2.8
NERYL ACETATE	2.0
MYRCENE	1.8
cis-β-OCIMENE	1.6
(2E,6E)-FARNESOL	1.5
SABINENE	0.9
NEROL	0.8
α-PINENE	0.8
METHYL ANTHRANILATE	0.7
INDOLE	0.2

Comments from Robert Tisserand:
A delicate and true Neroli oil that conforms to all 17 key ISO constituents.

Date : August 25, 2016

SAMPLE IDENTIFICATION

Internal code : 16H10-PTH6-1-DM

Customer identification : Neroli - N1010361R

Type : Essential oil

Source : *Citrus aurantium ssp. amara*

Customer : Plant Therapy

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 : 2016-08-25

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	2.74	884	tr	tr	1299	4.31	Aliphatic alcohol
α -Thujene	3.25	918	0.02	0.04	957	0.91	Monoterpene
α -Pinene	3.35	924	0.78	0.72	948	0.87	Monoterpene
Camphene	3.64	942	0.02	0.02	1000	1.09	Monoterpene
Sabinene	4.08	968	0.94	1.03	1057	1.51	Monoterpene
β -Pinene	4.15	972	6.75	6.68	1042	1.39	Monoterpene
Myrcene	4.42	989	1.83	1.74	1117	2.00	Monoterpene
6-Methyl-5-hepten-2-one	4.50	994	0.01	0.01	1275	3.98	Aliphatic ketone
Pseudolimonene	4.63	1001	0.11	0.09	1111	1.95	Monoterpene
Δ 3-Carene	4.68	1004	0.03	0.02	1090	1.77	Monoterpene
α -Terpinene	4.87	1015	0.04	0.12	1123	2.07	Monoterpene
Limonene	5.13	1029	9.90	9.92	1143	2.31*	Monoterpene
β -Phellandrene	5.14	1030	0.05	[9.92]	1143	2.31*	Monoterpene
1,8-Cineole	5.17	1031	0.01				Monoterpene
<i>cis</i> - β -Ocimene	5.29	1038	1.63	1.66	1187	2.82*	Monoterpene
<i>trans</i> - β -Ocimene	5.48	1048	4.15	4.22	1205	3.02	Monoterpene
γ -Terpinene	5.65	1058	0.07	[1.66]	1187	2.82*	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	5.94	1073	0.07	0.06	1378	5.44	Monoterp. alcohol
<i>cis</i> -Sabinene hydrate	6.01	1077	0.02	0.12	1406	5.85*	Monoterp. alcohol
Terpinolene	6.12	1083	0.14	0.13	1225	3.28	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	6.26	1090	0.11	[0.12]	1406	5.85*	Monoterp. alcohol
Linalool	6.81	1113	41.32	41.88	1503	7.60	Monoterp. alcohol
<i>trans</i> -para-Mentha-2,8-dien-1-ol	7.19	1127	0.01	0.01	1568	9.34	Monoterp. alcohol
Camphor	7.69	1146	0.03	0.03	1425	6.14	Monoterp. ketone
Phenylacetone nitrile	7.91	1154	0.04	0.03	1805	19.97	Simple phenolic
Terpinen-4-ol	8.69	1183	0.19	0.27	1533	8.27*	Monoterp. alcohol
α -Terpineol	9.42	1205	3.07	3.09	1629	11.22*	Monoterp. alcohol
γ -Terpineol	9.55	1208	0.02	0.01	1639	11.64	Monoterp. alcohol
Nerol	10.60	1231	0.82	0.83	1734	15.84	Monoterp. alcohol
Neral	11.04	1241	0.03	0.03	1601	10.33*	Monoterp. aldehyde
Linalyl acetate	11.38	1249	12.55	12.83	1509	7.71	Monoterp. ester
Geraniol	11.94	1261	3.41	3.38	1785	18.84	Monoterp. alcohol
Geranial	12.52	1274	0.05	0.07	1652	12.22	Monoterp. aldehyde
Indole	15.40	1325	0.16	1.76	2304	42.43*	Indole
α -Terpinyl acetate	16.42	1340	0.04	[3.09]	1629	11.22*	Monoterp. ester
Methyl anthranilate	17.02	1350	0.65	0.56	2108	37.18	Phenolic ester
Neryl acetate	17.71	1360	2.03	1.97	1664	12.71	Monoterp. ester
β -Elemene	18.65	1375	0.03	[0.27]	1533	8.27*	Sesquiterpene
Geranyl acetate	19.22	1383	2.98	2.90	1695	14.12	Monoterp. ester
β -Caryophyllene	20.26	1398	0.25	0.15	1528	8.17	Sesquiterpene

Dimethyl anthranilate	20.99	1407	0.08	0.06	1935	28.53	Phenolic ester
α -Humulene	23.02	1432	0.03	[0.03]	1601	10.33*	Sesquiterpene
<i>trans</i> - β -Farnesene	24.20	1446	0.03	0.03	1621	10.92	Sesquiterpene
Bicyclogermacrene	26.46	1472	0.06	0.03	1651	12.17	Sesquiterpene
Spathulenol	33.50	1566	0.02	0.03	2009	32.93	Sesquiterp. alcohol
(<i>E</i>)-Nerolidol	33.80	1570	2.80	2.66	2003	32.54	Sesquiterp. alcohol
β -Bisabolol	38.77	1672	0.01	0.02	2059	35.49	Sesquiterp. alcohol
(2 <i>E</i> ,6 <i>E</i>)-Farnesol	40.65	1723	1.53	[1.76]	2304	42.43*	Sesquiterp. alcohol
(2 <i>E</i> ,6 <i>E</i>)-Farnesyl acetate	44.04	1836	0.03	0.02	2210	40.16	Sesquiterp. ester
Total identified			98.95%	99.23%			

*: 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 : Light yellow liquid

Refractive index : 1.4670 \pm 0.0003 (20 °C)

CONCLUSION

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



