

GC/MS BATCH NUMBER: O30103

ESSENTIAL OIL: ORGANIC ORANGE
BOTANICAL NAME: CITRUS SINENSIS
ORIGIN: USA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF ORGANIC SWEET ORANGE OIL	%
LIMONENE	95.2
MYRCENE	1.9
α -PINENE	0.6
LINALOOL	0.3
OCTANAL	0.2
SABINENE	0.2
GERANIAL	0.07
NONANAL	0.04
NERAL	0.03
β -PINENE	0.02
NOOTKATONE	0.01
VALENCENE	0.01

Comments from Robert Tisserand: An excellent, juicy, fresh, orange oil that conforms to all 12 key ISO constituent standards.

Date : January 4, 2016

SAMPLE IDENTIFICATION

Internal code : 15L14-PTH3-1-LC

Customer identification : Organic Orange - USA - O30103510R

Type : Essential oil

Source : *Citrus sinensis*

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 : 2016-01-03

IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
α-Thujene	2.68	915	tr	tr	958	1.03	Monoterpene
α-Pinene	2.76	920	0.55	0.57	947	0.98	Monoterpene
Sabinene	3.44	964	0.23	0.25	1063	1.74	Monoterpene
β-Pinene	3.48	967	0.02	0.02	1042	1.57	Monoterpene
Myrcene	3.79	988	1.90	1.96	1122	2.31	Monoterpene
α-Phellandrene	4.02*	1002	0.09	0.04	1112	2.19	Monoterpene
Δ3-Carene	4.02*	1002	[0.09]	0.07	1095	2.01	Monoterpene
Octanal	4.15	1010	0.24	0.23	1243	3.86	Aliphatic aldehyde
Limonene	4.56*	1033	95.79	95.16	1156	2.72	Monoterpene
1,8-Cineole	4.56*	1033	[95.79]	0.29	1157	2.73	Monoterp. ether
Terpinolene	5.41	1083	0.01	0.01	1228	3.64	Monoterpene
Linalool	5.87	1108	0.30	0.32	1510	8.49	Monoterp. alcohol
Nonanal	5.93	1110	0.05	0.04	1348	5.37	Monoterp. aldehyde
cis-Limonene oxide	6.34	1129	0.00	0.00	1384	5.90	Monoterp. ether
trans-Limonene oxide	6.43	1134	0.01	0.01	1396	6.09	Monoterp. ether
Citronellal	6.84	1153	0.04	0.04	1426	6.66	Monoterp. aldehyde
α-Terpineol	7.98	1203	0.03	0.03	1634	12.92	Monoterp. alcohol
Decanal	8.26	1211	0.23	0.18	1446	7.06	Aliphatic aldehyde
Neral	9.33	1240	0.04	0.03	1611	11.84	Monoterp. aldehyde
Geranial	10.56	1273	0.07	0.08	1658	14.06	Monoterp. aldehyde
α-Copaene	14.62	1354	0.02	0.02	1428	6.70	Sesquiterpene
β-Cubebene	15.47	1369	0.02	0.02	1476	7.67	Sesquiterpene
β-Caryophyllene	17.04	1397	0.02	0.01	1518	8.74	Sesquiterpene
Dodecanal	18.24	1413	0.03	0.02	1650	13.67	Aliphatic aldehyde
Germacrene D	21.49	1456	0.02	0.02	1619	12.21	Sesquiterpene
α-Selinene	22.39	1468	0.04	0.05	1627	12.60	Sesquiterpene
Valencene	23.43	1482	0.01	0.01	1661	14.20	Sesquiterpene
β-Sinensal	37.64	1691	0.03				Sesquiterp. aldehyde
α-Sinensal	39.77	1750	0.02	0.02	2233	42.39	Sesquiterp. aldehyde
Nootkatone	40.99	1786	0.01				Sesquiterp. ketone
Total identified			99.82%	99.50%			

*: 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 : Bright yellow liquid

Refractive index : 1.4725 ± 0.0003 (20 °C)

CONCLUSION

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

Checked and approved by :

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

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