

GC/MS BATCH NUMBER: G50102

ESSENTIAL OIL: GRAPEFRUIT
BOTANICAL NAME: CITRUS X PARADISI
ORIGIN: USA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF GRAPEFRUIT OIL	%
LIMONENE	94.4
MYRCENE	2.0
α -PINENE	0.6
SABINENE	0.5
OCTANAL	0.5
β -CARYOPHYLLENE	0.3
NONANAL	0.1
β -PINENE	0.05
NERAL	0.05

Comments from Robert Tisserand: A fresh, zesty Grapefruit oil which conforms to the ISO standard, except that two constituents are slightly out of range. I am not concerned by these.

Date : September 18, 2015

SAMPLE IDENTIFICATION

Internal code : 15111-PTH4-1-HM

Customer identification : Grapefruit, Pink - USA Florida - G5010252

Type : Essential Oil

Source : *Citrus x paradisi*

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.

Analysis date : 2015-09-15

IDENTIFIED COMPOUNDS

Identification	Colonne: BP5			Colonne: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
α-Thujene	2.71	920	tr	0.01	995	1.11	Monoterpene
α-Pinene	2.79	925	0.55	0.53	984	1.06	Monoterpene
Camphene	3.06	942	0.00	0.00	1024	1.35	Monoterpene
Sabinene	3.47	968	0.47	0.48	1083	1.87	Monoterpene
β-Pinene	3.51	971	0.05	0.04	1063	1.69	Monoterpene
Myrcene	3.83	991	1.96	1.94	1135	2.46	Monoterpene
α-Phellandrene	4.06	1005	0.03	0.03	1126	2.34	Monoterpene
Octanal	4.19	1013	0.46	0.44	1253	4.04	Aliphatic aldehyde
para-Cymene	4.61*	1036	94.59	0.00	1229	3.69	Monoterpene
1,8-Cineole	4.61*	1036	[94.59]	0.28	1172	2.92	Monoterp. ether
Limonene	4.61*	1036	[94.59]	94.40	1171	2.91	Monoterpene
trans-β-Ocimene	4.85	1050	0.13	0.11	1221	3.58	Monoterpene
γ-Terpinene	5.00	1059	tr	0.01	1207	3.38	Monoterpene
Terpinolene	5.45	1084	tr	tr	1241	3.86	Monoterpene
Octanol	5.48	1086	0.04	0.05	1521	8.99	Aliphatic alcohol
Linalool	5.91	1109	0.10	0.10	1516	8.82	Monoterp. alcohol
Nonanal	5.97	1111	0.09	0.06	1357	5.57	Monoterp. aldehyde
cis-Limonene oxide	6.29	1126	0.01	0.01	1393	6.12	Monoterp. ether
trans-Limonene oxide	6.48	1135	0.01	0.02	1404	6.31	Monoterp. ether
Citronellal	6.90	1154	0.04	0.04	1434	6.93	Monoterp. aldehyde
α-Terpineol	8.07	1204	0.06	0.07	1641	13.50	Monoterp. alcohol
Decanal	8.34	1212	0.33	0.27	1455	7.36	Aliphatic aldehyde
Neral	9.42	1241	0.05	0.06	1618	12.40	Monoterp. aldehyde
Geranial	10.66	1274	0.10	0.10	1667	14.73	Monoterp. aldehyde
Undecanal?	12.35	1313	0.01				Aliphatic aldehyde
α-Copaene	14.76	1355	0.09	0.12	1439	7.03	Sesquiterpene
β-Cubebene	15.64	1371	0.08	0.09	1489	8.06	Sesquiterpene
Geranyl acetate	16.40	1384	0.03	0.03	1711	16.98	Monoterp. ester
β-Caryophyllene	17.24	1399	0.26	0.27	1529	9.25	Sesquiterpene
Dodecanal	18.40	1414	0.02	0.03	1674	15.10	Aliphatic aldehyde
α-Humulene	19.72	1432	0.03	0.04	1596	11.42	Sesquiterpene
trans-β-Farnesene	20.93	1447	0.03	0.14	1630	12.98*	Sesquiterpene
Germacrene D	21.72	1458	0.08	[0.14]	1630	12.98*	Sesquiterpene
δ-Cadinene	25.18	1503	0.11	0.10	1685	15.62	Sesquiterpene
Total identified			99.81%	99.87%			

*: 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 : Orange liquid

Refractive index : 1.4750 ± 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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