

GC/MS BATCH NUMBER: G50103

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

KEY CONSTITUENTS PRESENT IN THIS BATCH OF OIL	%
LIMONENE	92.9
MYRCENE	2.0
SABINENE	0.6
α -PINENE	0.6
OCTANAL	0.4
β -CARYOPHYLLENE	0.2
NERAL	0.1
NONANAL	0.1
NOOTKATONE	0.6
β -PINENE	0.04

Comments from Robert Tisserand: Excellent fresh fruity odor profile, and lasts well for a citrus oil. 9 of 10 key constituents conform to the ISO standard.

Date : August 30, 2016

SAMPLE IDENTIFICATION

Internal code : 16H23-PTH1-1-DM

Customer identification : Pink Grapefruit - G5010363R

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 : Sylvain Mercier, M. Sc., chimiste

Analysis date : 2016-08-29

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 -Pinene	3.35	924	0.58	0.62	947	0.86	Monoterpene
Camphene	3.64	942	tr	tr	998	1.08	Monoterpene
Sabinene	4.07	968	0.61	0.64	1056	1.50	Monoterpene
β -Pinene	4.13	971	0.04	0.04	1039	1.37	Monoterpene
Myrcene	4.42	989	1.97	2.08	1116	1.99	Monoterpene
α -Phellandrene	4.69	1004	0.03	0.03	1110	1.93	Monoterpene
Octanal	4.81	1011	0.37	0.38	1233	3.40	Aliphatic aldehyde
Limonene	5.22*	1034	92.89	93.99	1153	2.43	Monoterpene
1,8-Cineole	5.22*	1034	[92.89]	0.26	1154	2.44	Monoterp. ether
<i>trans</i> - β -Ocimene	5.47	1048	0.20	0.21	1204	3.01	Monoterpene
γ -Terpinene	5.65	1058	tr	tr	1188	2.83	Monoterpene
Terpinolene	6.12	1083	tr	tr	1225	3.29	Monoterpene
Octanol	6.18	1086	0.05	0.04	1504	7.61	Aliphatic alcohol
Linalool	6.65	1107	0.11	0.10	1493	7.42	Monoterp. alcohol
Nonanal	6.70	1109	0.06	0.05	1339	4.88	Aliphatic aldehyde
<i>cis</i> -Limonene oxide	7.24	1129	0.02	0.02	1373	5.37	Monoterp. ether
<i>trans</i> -Limonene oxide	7.36	1133	0.02	0.01	1386	5.55	Monoterp. ether
Citronellal	7.86	1152	0.05	0.04	1420	6.04	Monoterp. aldehyde
α -Terpineol	9.35	1203	0.06	0.21	1628	11.16*	Monoterp. alcohol
Decanal	9.65	1210	0.27	0.29	1441	6.45*	Aliphatic aldehyde
<i>trans</i> -Piperitol	9.79	1213	0.02	0.02	1675	13.22	Monoterp. alcohol
Neral	10.99	1240	0.08	0.05	1601	10.32	Monoterp. aldehyde
Geranial	12.49	1273	0.11	0.11	1652	12.23	Monoterp. aldehyde
α -Copaene	17.38	1355	0.09	[0.29]	1441	6.45*	Sesquiterpene
β -Cubebene	18.36	1370	0.08	0.06	1481	7.19	Sesquiterpene
Geranyl acetate	19.12	1382	0.03	0.02	1694	14.04	Monoterp. ester
β -Caryophyllene	20.24	1398	0.20	0.21	1527	8.13	Sesquiterpene
α -Humulene	23.01	1432	0.03	0.02	1588	9.94	Sesquiterpene
<i>trans</i> - β -Farnesene	24.18	1446	0.09	[0.21]	1628	11.16*	Sesquiterpene
Germacrene D	25.20	1458	0.07	[0.21]	1628	11.16*	Sesquiterpene
δ -Cadinene	28.91	1503	0.09	0.08	1680	13.46	Sesquiterpene
α -Bisabolol	39.61	1691	0.12	0.10	2137	38.13	Sesquiterp. alcohol
Nootkatone	43.17	1804	0.06				Sesquiterp. ketone
7-Methoxy-8-(2-formyl-methylpropyl)-coumarin	53.51	2234	0.30				Coumarin
Unknown (m/z = 131, 187 (49), 202 (41), 159 (40), 43 (28), 77 (26), 103 (23), 260 (20))	53.71	2243	0.76				Coumarin

Auraptenol?	54.50	2281	0.10		Coumarin
Total identified			98.50%	99.68%	

*: 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 : 1.4750 ± 0.0003 (20 °C)

CONCLUSION

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



