

GC/MS BATCH NUMBER: T30103

ESSENTIAL OIL: TEA TREE ORGANIC
BOTANICAL NAME: MELALEUCA ALTERNIFOLIA
ORIGIN: AUSTRALIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF TEA TREE ORGANIC OIL	%
TERPINEN-4-OL	40.6
γ-TERPINENE	20.6
α-TERPINENE	9.9
TERPINOLENE	4.0
α-PINENE	2.6
α-TERPINEOL	2.6
1,8-CINEOLE	2.6
p-CYMENE	2.0
AROMADENDRENE	1.3
VIRIDIFLORENE	1.2
δ-CADINENE	1.1
LIMONENE	0.8
GLOBULOL	0.2
SABINENE	0.2
VIRIDIFLOROL	0.1

Comments from Robert Tisserand: Organoleptically excellent, conforms to all 15 key ISO constituents. (And p-Cymene is low at 2%, which shows the oil has not oxidized.)

Date : May 4, 2016

SAMPLE IDENTIFICATION

Internal code : 16D15-PTH2-1-SM

Customer identification : Organic Tea Tree - Australia - T3010355

Type : Essential oil

Source : *Melaleuca alternifolia*

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 : 2016-05-04

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.	
<i>cis</i> -Hex-3-en-1-ol	2.41	862	0.02	0.03	1332	4.86	Aliphatic alcohol
α -Thujene	3.22	921	0.85	1.06	962	0.95	Monoterpene
α -Pinene	3.33	928	2.58	2.12	954	0.92	Monoterpene
Camphene	3.61	945	0.01	0.01	1007	1.15	Monoterpene
Sabinene	4.03	970	0.22	0.21	1062	1.59	Monoterpene
β -Pinene	4.09	974	0.69	0.69	1045	1.45	Monoterpene
Myrcene	4.37	991	0.81	0.69	1120	2.10	Monoterpene
α -Phellandrene	4.63	1006	0.52	0.44	1113	2.03	Monoterpene
α -Terpinene	4.85	1018	9.88	9.48	1130	2.22	Monoterpene
<i>para</i> -Cymene	5.00	1027	2.02	2.18	1216	3.22	Monoterpene
Limonene	5.05	1029	0.85	0.75	1145	2.40	Monoterpene
β -Phellandrene	5.08	1031	0.90	3.23	1152	2.48*	Monoterpene
1,8-Cineole	5.12	1034	2.55	[3.23]	1152	2.48*	Monoterp. ether
<i>trans</i> - β -Ocimene	5.41	1049	0.01	0.01	1210	3.15	Monoterpene
γ -Terpinene	5.64	1062	20.57	20.70	1201	3.04	Monoterpene
<i>cis</i> -Sabinene hydrate	5.91	1077	0.01	0.01	1415	6.09	Monoterp. alcohol
Terpinolene	6.07	1086	3.96	3.86	1232	3.45	Monoterpene
<i>para</i> -Cymenene	6.23	1095	0.05	0.05	1374	5.48	Monoterpene
Linalool	6.48	1107	0.06	0.24	1503	7.76*	Monoterp. alcohol
<i>cis</i> - <i>para</i> -Menth-2-en-1-ol	6.99	1126	0.17	[0.24]	1503	7.76*	Monoterp. alcohol
<i>cis</i> - <i>para</i> -Mentha-2,8-dien-1-ol	7.31	1138	0.02	0.03	1606	10.78	Monoterp. alcohol
<i>trans</i> - <i>para</i> -Menth-2-en-1-ol	7.52	1145	0.10	0.11	1565	9.48	Monoterp. alcohol
Terpinen-4-ol	8.69	1189	40.55	43.07	1543	8.84*	Monoterp. alcohol
<i>para</i> -Cymen-8-ol	8.94	1199	0.03	0.03	1773	18.85	Monoterp. alcohol
α -Terpineol	9.12	1204	2.57	2.77	1633	11.81*	Monoterp. alcohol
α -Cubebene	15.52	1334	0.05	0.05	1419	6.16	Sesquiterpene
α -Ylangene	16.81	1354	0.07	0.07	1424	6.26	Sesquiterpene
α -Copaene	17.18	1360	0.20	0.14	1442	6.59	Sesquiterpene
β -Elemene	18.16	1375	0.04	0.03	1527	8.33	Sesquiterpene
α -Gurjunene	19.11	1390	0.41	0.43	1472	7.18	Sesquiterpene
β -Caryophyllene	19.96	1403	0.51	0.47	1533	8.52	Sesquiterpene
Aromadendrene	21.33	1419	1.32	[43.07]	1543	8.84*	Sesquiterpene
Seychellene	21.47	1421	0.17	0.30	1545	8.91	Sesquiterpene
<i>cis</i> -Muurolo-3,5-diene	21.72	1424	0.05	0.06	1550	9.06	Sesquiterpene
<i>cis</i> -Cadina-1(6),4-diene	22.00	1427	0.16	0.13	1560	9.36	Sesquiterpene
α -Humulene	22.30	1431	0.12	0.47	1591	10.31*	Sesquiterpene
allo-Aromadendrene	22.94	1439	0.63	0.69	1569	9.62	Sesquiterpene
<i>trans</i> -Cadina-1(6),4-diene	24.34	1456	0.37	[0.47]	1591	10.31*	Sesquiterpene
α -Amorphene	25.26	1467	0.10	0.12	1615	11.02	Sesquiterpene

β -Selinene	25.41	1469	0.09	[2.77]	1633	11.81*	Sesquiterpene
Viridiflorene	25.66	1472	1.20	1.16	1624	11.41	Sesquiterpene
Bicyclogermacrene	26.06	1477	0.77	0.71	1648	12.49	Sesquiterpene
α -Muurolene	26.81	1486	0.14	0.17	1652	12.67	Sesquiterpene
δ -Cadinene	28.52	1507	1.13	1.19	1681	13.97	Sesquiterpene
Zonarene	28.70	1509	0.37	0.37	1675	13.70	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	29.57	1521	0.18	0.18	1698	14.73	Sesquiterpene
Spathulenol	33.07	1569	0.05	0.04	2022	34.85	Sesquiterp. alcohol
Globulol	33.54	1575	0.23	0.24	1978	32.20	Sesquiterp. alcohol
Viridiflorol	34.04	1582	0.13	0.10	1986	32.65	Sesquiterp. alcohol
Guaiol	34.29	1586	0.09	0.10	2015	34.39	Sesquiterp. alcohol
1,10-diepi-Cubenol	36.04	1615	0.13	0.13	1962	31.24	Sesquiterp. alcohol
Total identified			98.71%	99.12%			

*: 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 : Clear liquid

Refractive index : 1.4760 \pm 0.0003 (20 °C)

CONCLUSION

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



