



**PLANT THERAPY**  
100% PURE ESSENTIAL OILS

## GC/MS BATCH NUMBER: T30108

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**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	44.5
γ-TERPINENE	20.8
α-TERPINENE	9.5
TERPINOLENE	3.4
α-TERPINEOL	3.1
p-CYMENE	2.7
α-PINENE	2.5
1,8-CINEOLE	1.9

Comments from Robert Tisserand: Fresh, clean, peppery-medicinal odor profile. All fifteen key ISO constituents are within range.

**Date :** October 18, 2017

*SAMPLE IDENTIFICATION*

**Internal code :** 17J04-PTH4-1-CC

**Customer identification :** Tea Tree Organic - Australia - T301086R

**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).

Identifications double-checked by GC-MS

**Analyst :** Sylvain Mercier, M. Sc., chimiste

**Analysis date :** 2017-10-18

Checked and approved by :

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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.	
Ethanol	0.35	632	0.01	0.02	787	0.69	Aliphatic alcohol
cis-Hex-3-en-1-ol	2.49	864	0.02	0.03	1325	5.53	Aliphatic alcohol
$\alpha$ -Thujene	3.31	920	0.86	1.54	966	1.22	Monoterpene
$\alpha$ -Pinene	3.42	926	2.47	1.72	954	1.18	Monoterpene
Camphene	3.70	943	0.01	0.01	1004	1.47	Monoterpene
Sabinene	4.13	969	0.07	0.09	1057	2.01	Monoterpene
$\beta$ -Pinene	4.20	972	0.72	0.67	1042	1.84	Monoterpene
Myrcene	4.48	989	0.89	0.61	1120	2.61	Monoterpene
$\alpha$ -Phellandrene	4.75	1005	0.38	0.25	1113	2.52	Monoterpene
$\alpha$ -Terpinene	4.97	1016	9.46	9.68	1128	2.72	Monoterpene
para-Cymene	5.15	1026	2.68	2.73	1214	3.87*	Monoterpene
Limonene	5.18	1028	0.82	3.44	1149	2.99*	Monoterpene
$\beta$ -Phellandrene	5.21	1030	0.65	[3.44]	1149	2.99*	Monoterpene
1,8-Cineole	5.23	1031	1.86	[3.44]	1149	2.99*	Monoterp. ether
cis- $\beta$ -Ocimene	5.35	1037	tr	20.62	1199	3.63*	Monoterpene
trans- $\beta$ -Ocimene	5.53	1047	0.02	[2.73]	1214	3.87*	Monoterpene
$\gamma$ -Terpinene	5.78	1060	20.78	[20.62]	1199	3.63*	Monoterpene
cis-Sabinene hydrate	6.06	1076	0.01	0.16	1405	6.82*	Monoterp. alcohol
Terpinolene	6.22	1084	3.41	3.39	1229	4.09	Monoterpene
para-Cymenene	6.42	1095	0.05	0.06	1370	6.24	Monoterpene
Linalool	6.69	1106	0.08	0.23	1498	9.02*	Monoterp. alcohol
cis-para-Menth-2-en-1-ol	7.22	1125	0.19	[0.23]	1498	9.02*	Monoterp. alcohol
trans-para-Menth-2-en-1-ol	7.72	1143	0.13	0.16	1557	11.13*	Monoterp. alcohol
Unknown (m/z = 109, 124 (39), 119 (35), 43 (35), 91 (31)...) )	7.81	1147	0.10	[0.16]	1405	6.82*	Oxygenated monoterp.
Terpinen-4-ol	9.04	1191	44.50	45.94	1537	10.36*	Monoterp. alcohol
Myrtenal	9.42	1202	0.10	[45.94]	1537	10.36*	Monoterp. aldehyde
$\alpha$ -Terpineol	9.55	1205	3.09	3.51	1625	13.94*	Monoterp. alcohol
trans-Piperitol	9.98	1215	0.07	0.16	1672	16.36*	Monoterp. alcohol
Piperitone	11.85	1256	0.02	[3.51]	1625	13.94*	Monoterp. ketone
$\alpha$ -Cubebene	15.99	1331	0.02	0.04	1417	7.11	Sesquiterpene
$\alpha$ -Ylangene	17.30	1351	0.05	[0.16]	1405	6.82*	Sesquiterpene
$\alpha$ -Copaene	17.71	1357	0.09	0.11	1435	7.53	Sesquiterpene
$\alpha$ -Gurjunene	19.68	1387	0.22	0.24	1469	8.33	Sesquiterpene
$\beta$ -Caryophyllene	20.60	1400	0.20	[45.94]	1537	10.36*	Sesquiterpene
Aromadendrene	22.01	1417	0.73	[45.94]	1537	10.36*	Sesquiterpene
trans- $\alpha$ -Bergamotene	22.16	1419	0.11	[45.94]	1537	10.36*	Sesquiterpene
Seychellene	22.67	1425	0.10	0.14	1543	10.58*	Sesquiterpene
cis-Muurolo-3,5-diene	22.99	1429	0.05	[0.14]	1543	10.58*	Sesquiterpene
cis-Cadina-1(6),4-diene	23.15	1431	0.02	[0.16]	1557	11.13*	Sesquiterpene

$\alpha$ -Humulene	23.40	1434	0.05	0.19	1589	12.26*	Sesquiterpene
allo-Aromadendrene	23.66	1437	0.40	0.41	1565	11.42	Sesquiterpene
<i>trans</i> -Cadina-1(6),4-diene	25.08	1454	0.16	[0.19]	1589	12.26*	Sesquiterpene
$\alpha$ -Amorphene	26.07	1465	0.06	0.11	1609	13.07	Sesquiterpene
$\beta$ -Selinene	26.25	1468	0.08	[3.51]	1625	13.94*	Sesquiterpene
Viridiflorene	26.47	1470	0.73	0.63	1618	13.58	Sesquiterpene
Bicyclgermacrene	26.88	1475	0.46	0.49	1645	14.93	Sesquiterpene
$\alpha$ -Muurolene	27.65	1484	0.09	0.07	1636	14.49	Sesquiterpene
$\gamma$ -Cadinene	28.72	1497	0.03	[0.16]	1672	16.36*	Sesquiterpene
$\delta$ -Cadinene	29.37	1506	0.61	0.74	1679	16.70*	Sesquiterpene
Zonarene	29.55	1509	0.14	[0.74]	1679	16.70*	Sesquiterpene
<i>trans</i> -Calamenene	29.74	1511	0.07	0.07	1738	20.20	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	30.50	1522	0.10	0.10	1696	17.59	Sesquiterpene
$\alpha$ -Elemol	32.90	1556	0.06	0.06	2001	36.56	Sesquiterp. alcohol
Spathulenol	33.97	1571	0.07	0.07	2019	37.31	Sesquiterp. alcohol
Globulol	34.35	1576	0.26	0.27	1972	35.21	Sesquiterp. alcohol
Viridiflorol	34.84	1583	0.16	0.18	1980	35.61	Sesquiterp. alcohol
Cubeban-11-ol	35.02	1585	0.10	0.34	1958	34.59*	Sesquiterp. alcohol
1,10-diepi-Cubenol	36.44	1611	0.11	[0.34]	1958	34.59*	Sesquiterp. alcohol
1-epi-Cubenol	36.65	1616	0.11	[0.34]	1958	34.59*	Sesquiterp. alcohol
Cubenol	37.06	1626	0.03	[0.34]	1958	34.59*	Sesquiterp. alcohol
<b>Total identified</b>			<b>98.82%</b>	<b>99.28%</b>			

\*: 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

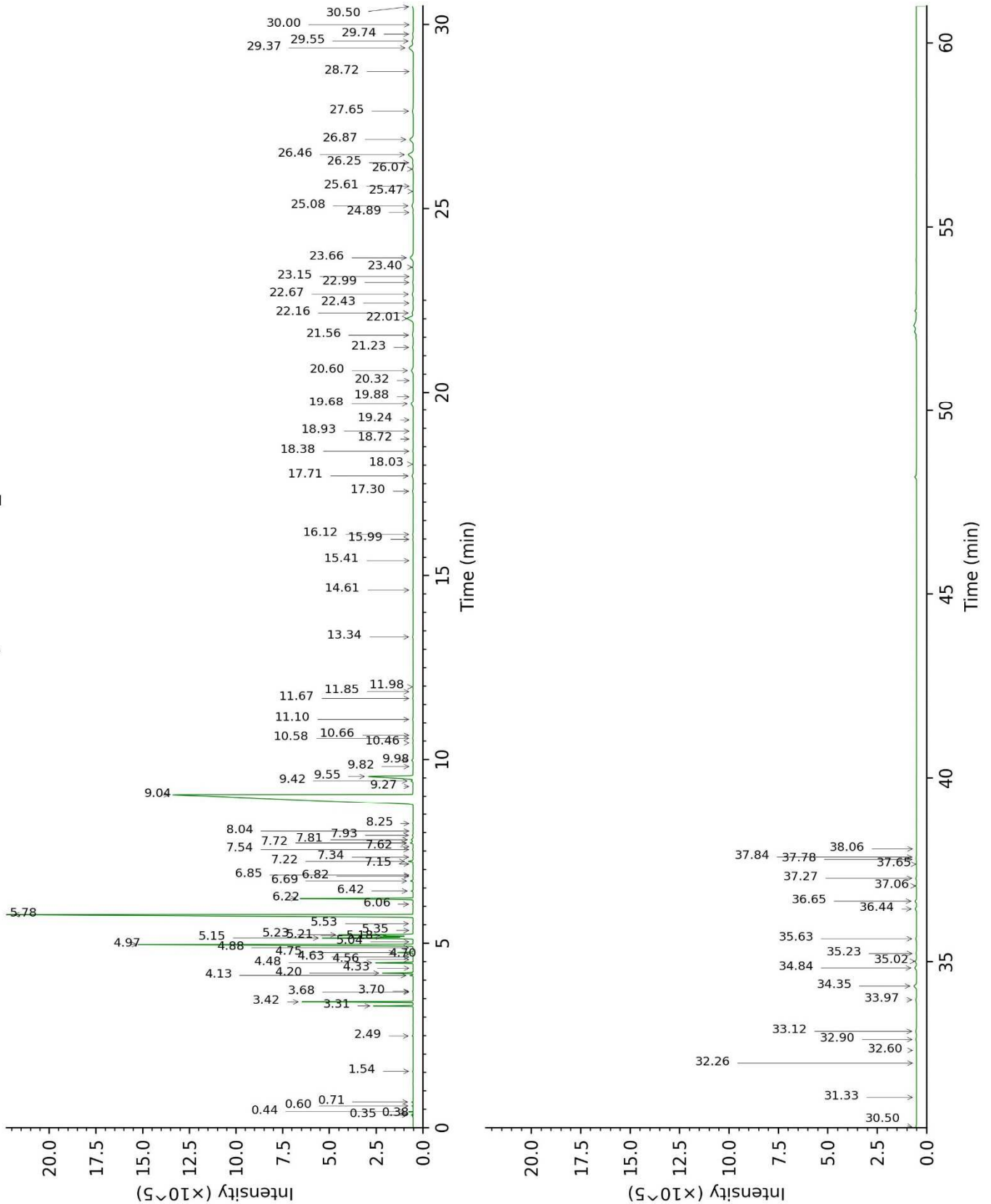
**Physical aspect :** Clear liquid

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

#### CONCLUSION

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

17J04-PTH4-1-CC\_BP5



17J04-PTH4-1-CC\_WAX

