

CERTIFICATE OF ANALYSIS

SAMPLE NAME		Tea Tree Oil	
FORM		Oil	
CUSTOMER NAME		Main Camp Natural Extracts Pty Ltd	
CERTIFICATION DATE		26 June 2019	
CUSTOMER REFERENCE		MC2F19	
ARL JOB #	A191529	LAB REF. #	ARL1904181
ANALYSIS	FULL CoA - ISO	METHOD	ARL-TM101

Manufacture date: 19 June 2019
Re-test date: 19 June 2022

TEST	ISO 4730:2017(E)** SPECIFICATION	RESULTS	TEST METHOD
Appearance	Clear, mobile without visible water	Conforms	ARL-TM266-3
Colour	Colourless to pale yellow	Conforms	
Odour	Characteristic	Conforms	
Relative Density @ 20°C	0.885 – 0.906	0.893	Ph.Eur.2.2.5
Refractive Index @ 20°C	1.475 – 1.482	1.478	Ph.Eur.2.2.6
Optical Rotation @ 20°C	+7° - +12°	+9.56°	Ph.Eur.2.2.7
Miscibility in ethanol	< 2 volumes	0.6	ISO875

TEST	ISO 4730:2017(E)** SPECIFICATION	RESULTS	TEST METHOD
	Area %		
α-pinene	1.0 – 4.0	2.43	ARL-TM101-4*
sabinene	tr – 3.5	0.48	
α-terpinene	6.0 – 12.0	9.82	
limonene	0.5 – 1.5	0.93	
p-cymene	0.5 – 8.0	2.40	
1,8-cineole	tr – 10.0	2.39	
γ-terpinene	14.0 – 28.0	20.51	
terpinolene	1.5 – 5.0	3.56	
terpinen-4-ol	35.0 – 48.0	39.93	
α-terpineol	2.0 - 5.0	2.95	
aromadendrene	0.2 – 3.0	1.35	
ledene	0.1 – 3.0	1.10	
δ-cadinene	0.2 – 3.0	1.16	
globulol	tr – 1.0	0.24	
viridiflorol	tr – 1.0	0.17	

* Assay by GC (FID detection –area percent report)

** ISO4730:2017(E)-Essential Oil of Melaleuca, terpinen-4-ol type (Tea Tree Oil)

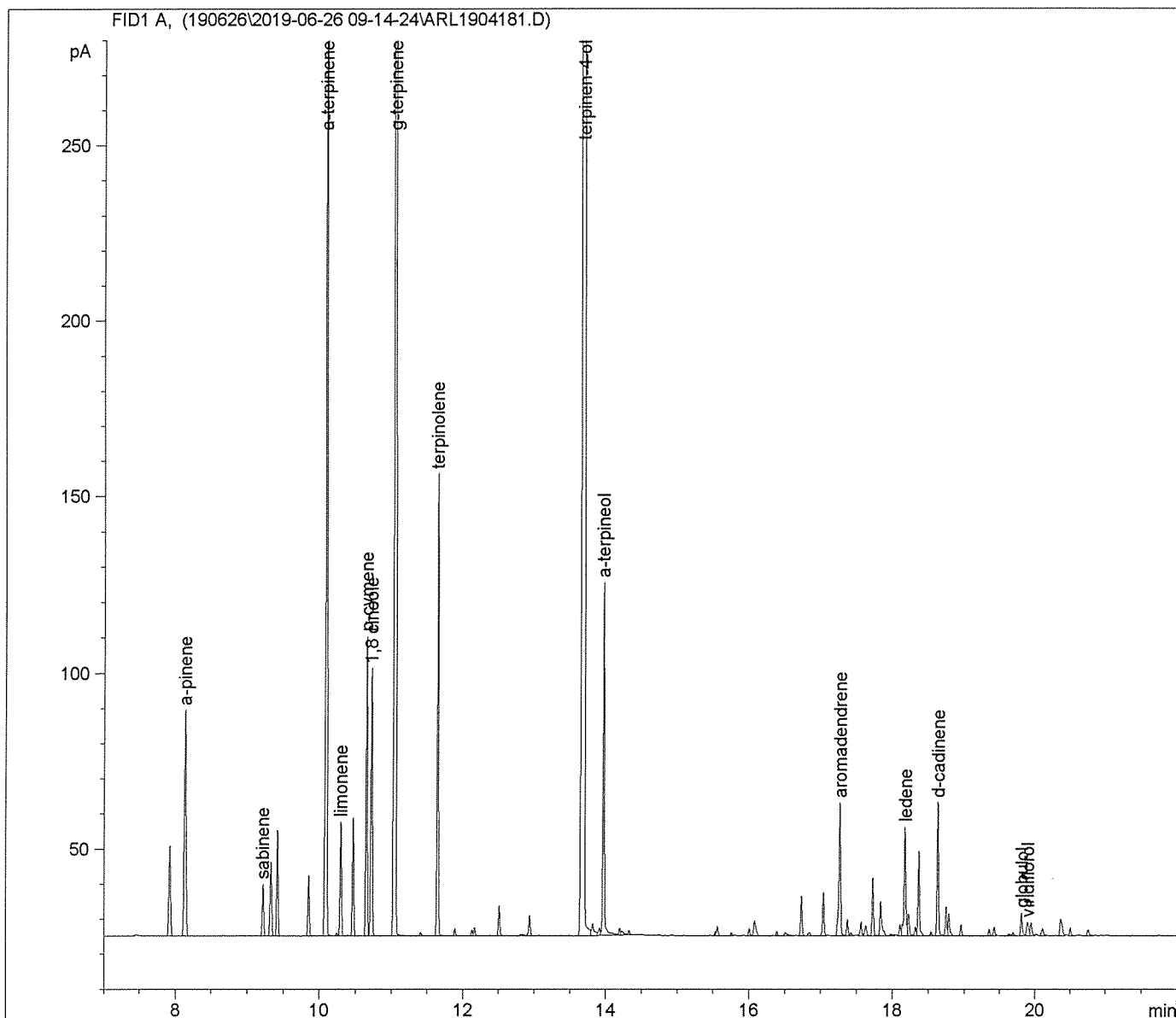

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Samantha Morrow
ANALYTICAL OFFICER

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Mr Ashley Dowell
MANAGER - ARL

Sample Name: TTO MC2F19

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Acq. Operator : Regan Barker	Seq. Line : 2
Acq. Instrument : GC-3	Location : Vial 3
Injection Date : 6/26/2019 11:05:40 AM	Inj : 1
	Inj Volume : 1 µl
Acq. Method : C:\DATA\GC-3\DATA\190626\2019-06-26 09-14-24\TTO.M	
Last changed : 2/11/2019 10:30:31 AM by Jeanette Balindong	
Analysis Method : C:\DATA\GC-3\METHODS\TTO.M	
Last changed : 6/26/2019 2:00:31 PM by Anastasia Whitehall (modified after loading)	
Method Info : Method to analyse essential oils	



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26/06/19

Sample Name: TTO MC2F19

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 Area Percent Report
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Sorted By : Signal
 Calib. Data Modified : 2/11/2019 10:30:01 AM
 Multiplier: : 1.0000
 Dilution: : 1.0000
 Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	7.918	BB	0.0266	42.83302	0.90429	?
2	8.133	BB	0.0279	115.26441	2.43347	a-pinene
3	9.216	VV	0.0238	22.61542	0.47746	sabinene
4	9.326	VV	0.0252	33.97243	0.71723	?
5	9.417	VB	0.0213	41.18684	0.86954	?
6	9.852	BV	0.0225	24.60849	0.51954	?
7	10.091	BV	0.0227	465.34656	9.82441	a-terpinene
8	10.238	VV	0.0243	1.28463	0.02712	?
9	10.293	VV	0.0212	43.81436	0.92501	limonene
10	10.464	VB	0.0214	45.99720	0.97109	?
11	10.654	BV	0.0211	113.75875	2.40168	p-cymene
12	10.724	VB	0.0238	113.22874	2.39049	1,8 cineole
13	11.052	BB	0.0236	971.36884	20.50756	g-terpinene
14	11.405	BB	0.0236	1.52766	0.03225	?
15	11.646	BB	0.0200	168.44623	3.55624	terpinolene
16	11.885	BV	0.0216	2.85321	0.06024	?
17	12.125	VV	0.0219	2.49943	0.05277	?
18	12.162	VB	0.0205	3.03702	0.06412	?
19	12.505	BV	0.0217	12.37439	0.26125	?
20	12.838	VV	0.0292	1.06916	0.02257	?
21	12.933	VV	0.0238	9.33872	0.19716	?
22	13.689	VV	0.0287	1891.36279	39.93050	terpinen-4-ol
23	13.814	VV	0.0359	8.95450	0.18905	?
24	13.910	VV	0.0291	4.27800	0.09032	?
25	13.968	VV	0.0217	139.72250	2.94983	a-terpineol
26	14.192	VV	0.0252	3.40461	0.07188	?
27	14.226	VV	0.0326	2.70028	0.05701	?
28	14.323	VB	0.0232	2.00057	0.04224	?
29	15.528	VV	0.0197	1.56186	0.03297	?
30	15.560	VB	0.0242	4.38808	0.09264	?
31	15.755	VV	0.0248	1.56960	0.03314	?
32	16.002	VV	0.0241	3.30418	0.06976	?
33	16.075	VV	0.0378	10.57813	0.22333	?
34	16.395	VB	0.0245	2.08137	0.04394	?
35	16.512	BV	0.0438	3.14084	0.06631	?
36	16.739	VV	0.0231	16.52856	0.34895	?
37	16.850	VV	0.0332	2.43241	0.05135	?
38	17.045	VV	0.0232	18.72533	0.39533	?
39	17.272	VV	0.0256	64.08182	1.35290	aromadendrene

A handwritten signature and date '26/06/19' are located in the bottom right corner of the page.

Sample Name: TTO MC2F19

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
40	17.378	VV	0.0233	6.96419	0.14703	?
41	17.428	VV	0.0275	1.81684	0.03836	?
42	17.567	VV	0.0243	6.44581	0.13608	?
43	17.635	VV	0.0301	6.04116	0.12754	?
44	17.731	VV	0.0232	24.20600	0.51104	?
45	17.840	VV	0.0291	19.62370	0.41430	?
46	17.979	VV	0.0441	1.82138	0.03845	?
47	18.108	VV	0.0223	4.88488	0.10313	?
48	18.177	VV	0.0255	52.12691	1.10050	ledene
49	18.227	VV	0.0295	12.21261	0.25783	?
50	18.320	VV	0.0233	3.90357	0.08241	?
51	18.368	VB	0.0228	35.72620	0.75425	?
52	18.541	BV	0.0254	2.08950	0.04411	?
53	18.635	VV	0.0223	54.80508	1.15705	d-cadinene
54	18.751	VV	0.0215	11.40466	0.24078	?
55	18.790	VB	0.0250	10.62829	0.22438	?
56	18.960	BV	0.0230	5.07107	0.10706	?
57	19.355	VV	0.0246	3.07559	0.06493	?
58	19.427	VV	0.0244	4.06948	0.08591	?
59	19.636	VV	0.0280	1.10805	0.02339	?
60	19.693	VV	0.0312	1.98711	0.04195	?
61	19.814	VV	0.0268	11.42628	0.24123	globulol
62	19.904	VV	0.0330	7.95433	0.16793	viridiflorol
63	19.953	VV	0.0265	6.65229	0.14044	?
64	20.114	VV	0.0346	4.45374	0.09403	?
65	20.373	VV	0.0348	11.53353	0.24350	?
66	20.509	VV	0.0241	3.58369	0.07566	?
67	20.761	VV	0.0337	3.78012	0.07981	?

Totals : 4736.63697

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 *** End of Report ***

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 26/06/19