

CERTIFICATE OF ANALYSIS

SAMPLE NAME		Tea Tree Oil	
FORM		Oil	
CUSTOMER NAME		Main Camp Natural Extracts Pty Ltd	
CERTIFICATION DATE		21 January 2020	
CUSTOMER REFERENCE		MC1A20	
ARL JOB #	A200085	LAB REF. #	ARL2000158
ANALYSIS		FULL CoA - ISO	

Manufacture date: 14 January 2020

Re-test date: 14 January 2023

TEST	ISO 4730:2017(E)** SPECIFICATION	RESULTS	TEST METHOD
Appearance	Clear, mobile without visible water	Conforms	ARL-TM266-5
Colour	Colourless to pale yellow	Conforms	
Odour	Characteristic	Conforms	
Relative Density @ 20°C	0.885 – 0.906	0.896	ISO279
Refractive Index @ 20°C	1.475 – 1.482	1.478	ISO280
Optical Rotation @ 20°C	+7° - +12°	+9.77°	ISO592
Miscibility in ethanol	< 2 volumes	0.7	ISO875

TEST	ISO 4730:2017(E)** SPECIFICATION	RESULTS	TEST METHOD
	Area %		
α-pinene	1.0 – 4.0	2.57	ARL-TM101-4*
sabinene	tr – 3.5	0.20	
α-terpinene	6.0 – 12.0	9.26	
δ-limonene	0.5 – 1.5	0.92	
p-cymene	0.5 – 8.0	2.94	
1,8-cineole	tr – 10.0	2.23	
γ-terpinene	14.0 – 28.0	20.77	
terpinolene	1.5 – 5.0	3.37	
terpinen-4-ol	35.0 – 48.0	40.58	
α-terpineol	2.0 - 5.0	3.12	
aromadendrene	0.2 – 3.0	1.35	
ledene	0.1 – 3.0	1.01	
δ-cadinene	0.2 – 3.0	1.17	
globulol	tr – 1.0	0.24	
viridiflorol	tr – 1.0	0.19	

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

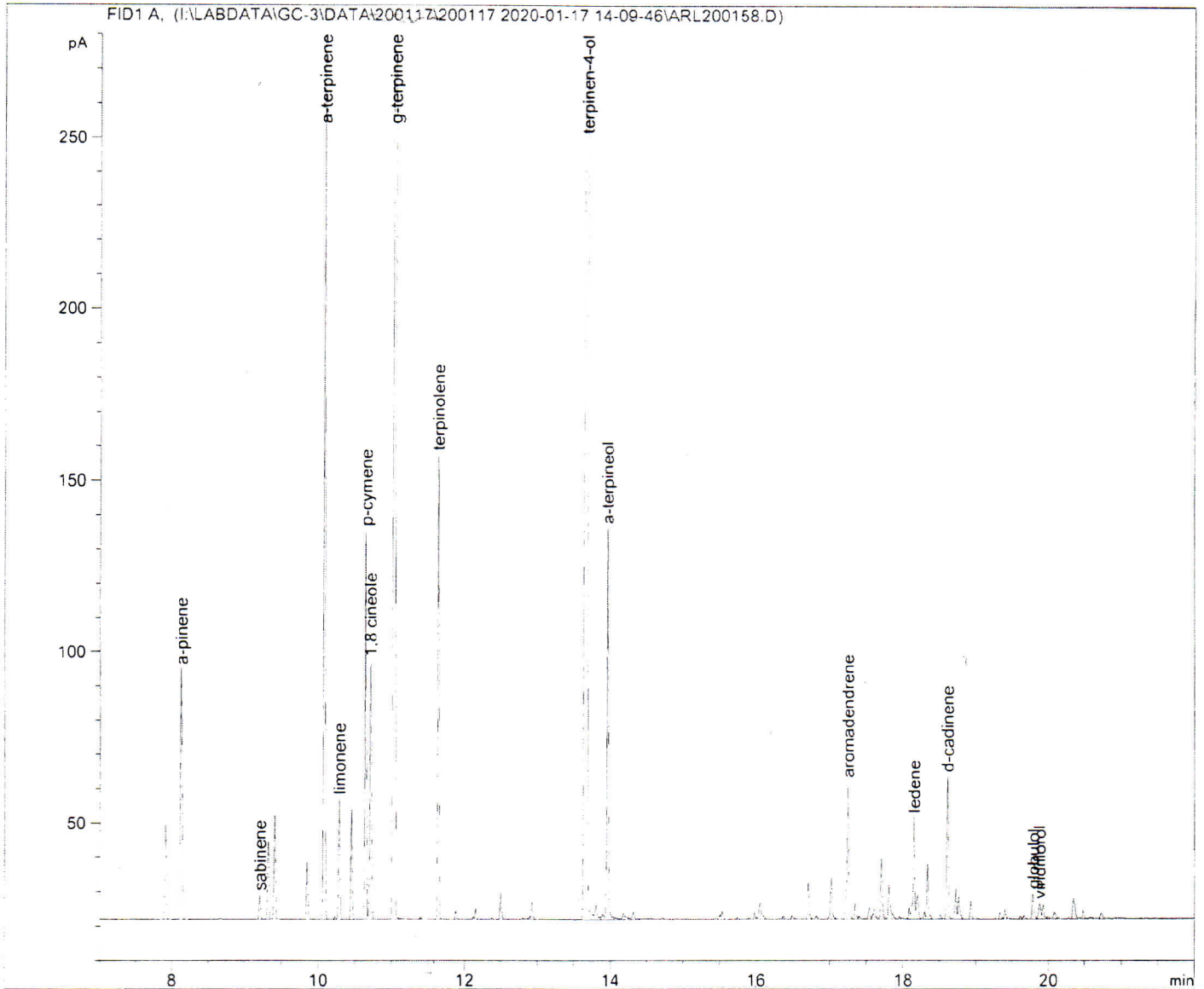
** ISO4730:2017(E)-Essential Oil of Melaleuca, terpinen-4-ol type (Tea Tree Oil)

Anastasia Whitehall
LABORATORY ASSISTANT

Mr Ashley Dowell
MANAGER - ARL

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Acq. Operator   : RB                               Seq. Line :    9
Acq. Instrument : GC-3                           Location  : Vial 7
Injection Date  : 17/01/2020 9:31:59 PM          Inj       :    1
                                                    Inj Volume: 1.000 µl
Acq. Method     : Y:\DATA\200117\200117 2020-01-17 14-09-46\TTO.M
Last changed    : 7/01/2020 4:56:04 PM by AW
Analysis Method : W:\SCPS\ANALYTICAL\OPERATOR METHOD TEMPLATES\JEANETTE BALINDONG\..GC3
                2019 METHODS - OFFICE BACK-UP\METHODS\TTO.M
Last changed    : 21/01/2020 2:38:43 PM
                (modified after loading)
Method Info     : Method to analyse essential oils
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 Area Percent Report
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Sorted By      :      Signal
Calib. Data Modified : 21/01/2020 2:38:43 PM
Multiplier     :      1.0000
Dilution       :      1.0000
Use Multiplier & Dilution Factor with ISTDs
  
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gcb
 21/01/20

Signal 1: FID1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	7.921	BB	0.0267	46.00776	0.9081	?
2	8.136	BB	0.0284	129.99011	2.5658	a-pinene
3	9.213	BV	0.0233	10.09281	0.1992	sabinene
4	9.324	VV	0.0255	36.69194	0.7242	?
5	9.414	VB	0.0216	42.41215	0.8371	?
6	9.849	BV	0.0224	23.57175	0.4653	?
7	10.087	VV	0.0228	468.98541	9.2569	a-terpinene
8	10.229	VV	0.0241	42083	0.0280	?
9	10.290	VB	0.0211	46.79122	0.9236	limonene
10	10.459	VB	0.0221	44.23016	0.8730	?
11	10.649	BV	0.0208	149.08156	2.9426	p-cymene
12	10.714	VB	0.0235	113.03951	2.2312	1,8 cineole
13	11.046	VB	0.0231	1052.33325	20.7710	g-terpinene
14	11.402	BB	0.0257	8.77997e-1	0.0173	?
15	11.638	BB	0.0197	170.84911	3.3722	terpinolene
16	11.982	BB	0.0211	3.26877	0.0645	?
17	12.120	VV	0.0195	8.08082e-1	0.0159	?
18	12.155	VB	0.0204	4.27358	0.0844	?
19	12.500	BV	0.0225	11.44301	0.2259	?
20	12.895	VV	0.0177	9.86971e-1	0.0195	?
21	12.928	VV	0.0245	8.14233	0.1607	?
22	13.682	VV	0.0312	2055.92334	40.5799	terpinen-4-ol
23	13.805	VV	0.0294	9.11640	0.1799	?
24	13.901	VV	0.0277	3.29494	0.0650	?
25	13.962	VV	0.0212	158.28058	3.1242	a-terpineol
26	14.183	VV	0.0240	3.36605	0.0664	?
27	14.220	VV	0.0400	2.98803	0.0590	?
28	14.318	VB	0.0311	5.19173	0.1025	?
29	15.507	VV	0.0202	2.00914	0.0397	?
30	15.541	VB	0.0248	4.02504	0.0794	?
31	15.750	VV	0.0250	1.07973	0.0213	?
32	15.984	VV	0.0240	3.36036	0.0663	?
33	16.058	VV	0.0344	11.49646	0.2269	?
34	16.377	VV	0.0243	1.51337	0.0299	?
35	16.490	VV	0.0340	2.71939	0.0537	?
36	16.717	VV	0.0248	17.59035	0.3472	?
37	16.829	VV	0.0335	2.36408	0.0467	?
38	17.025	VB	0.0258	20.27697	0.4002	?
39	17.251	BV	0.0255	68.39429	1.3500	aromadendrene
40	17.355	VV	0.0229	6.95482	0.1373	?
41	17.403	VV	0.0249	1.51958	0.0300	?
42	17.544	VV	0.0254	5.91319	0.1167	?
43	17.614	VV	0.0322	6.96204	0.1374	?
44	17.708	VV	0.0239	26.82925	0.5296	?
45	17.815	VV	0.0265	17.37324	0.3429	?
46	17.864	VV	0.0234	2.67526	0.0528	?
47	17.949	VV	0.0289	1.52466	0.0301	?
48	18.086	VV	0.0230	4.82257	0.0952	?
49	18.152	VV	0.0262	51.03482	1.0073	ledene
50	18.204	VV	0.0275	12.59257	0.2486	?
51	18.296	VV	0.0234	3.23549	0.0639	?
52	18.343	VV	0.0239	24.72246	0.4880	?
53	18.516	VV	0.0262	2.44325	0.0482	?
54	18.609	VV	0.0222	59.38785	1.1722	d-cadinene
55	18.724	VV	0.0215	12.11208	0.2391	?
56	18.766	VB	0.0247	11.08592	0.2188	?
57	18.933	BV	0.0215	7.29815	0.1441	?

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Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
58	19.333	VV	0.0288	3.50093	0.0691	?
59	19.401	VV	0.0241	4.27277	0.0843	?
60	19.611	BV	0.0255	1.27320	0.0251	?
61	19.666	VV	0.0306	2.35954	0.0466	?
62	19.789	VV	0.0257	12.39483	0.2446	globulol
63	19.878	VV	0.0344	9.44979	0.1865	viridiflorol
64	19.927	VV	0.0264	7.18783	0.1419	?
65	19.995	VV	0.0325	1.29785	0.0256	?
66	20.087	VB	0.0415	5.60315	0.1106	?
67	20.344	VV	0.0323	13.49905	0.2664	?
68	20.480	VV	0.0231	3.74676	0.0740	?
69	20.606	VV	0.0269	9.13278e-1	0.0180	?
70	20.731	VV	0.0338	4.08101	0.0800	?

Totals : 5066.35574

*** End of Report ***

8/10
21/01/2