



CERTIFICATE OF ANALYSIS

SAMPLE NAME		Tea Tree Oil	
FORM		Oil	
CUSTOMER NAME		Main Camp Natural Extracts Pty Ltd	
CERTIFICATION DATE		05 July 2021	
CUSTOMER REFERENCE		MC2F21	
ARL JOB #	A211690	LAB REF. #	ARL2104752
ANALYSIS	FULL CoA - ISO		

Manufacture date: 14/06/2021

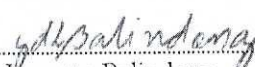
Re-test date: 14/06/2024

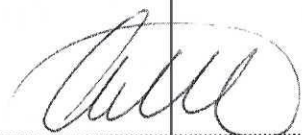
TEST	ISO 4730:2017(E)** SPECIFICATION	RESULTS	TEST METHOD
Appearance	Clear, mobile without visible water	Conforms	ARL-TM266-5
Colour	Colourless to pale yellow	Conforms	
Odour	Characteristic	Conforms	
Relative Density @ 20°C	0.885 – 0.906	0.900	ISO279
Refractive Index @ 20°C	1.475 – 1.482	1.477	ISO280
Optical Rotation @ 20°C	+7° - +12°	+9.92°	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	2.4	ARL-TM101-4*
sabinene	tr – 3.5	0.5	
α-terpinene	6.0 – 12.0	10.4	
limonene	0.5 – 1.5	0.8	
p-cymene	0.5 – 8.0	1.6	
1,8-cineole	tr – 10.0	1.9	
γ-terpinene	14.0 – 28.0	20.9	
terpinolene	1.5 – 5.0	3.6	
terpinen-4-ol	35.0 – 48.0	40.8	
α-terpineol	2.0 - 5.0	3.1	
aromadendrene	0.2 – 3.0	1.2	
ledene	0.1 – 3.0	1.0	
δ-cadinene	0.2 – 3.0	1.1	
globulol	tr – 1.0	0.2	
viridiflorol	tr – 1.0	0.1	

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

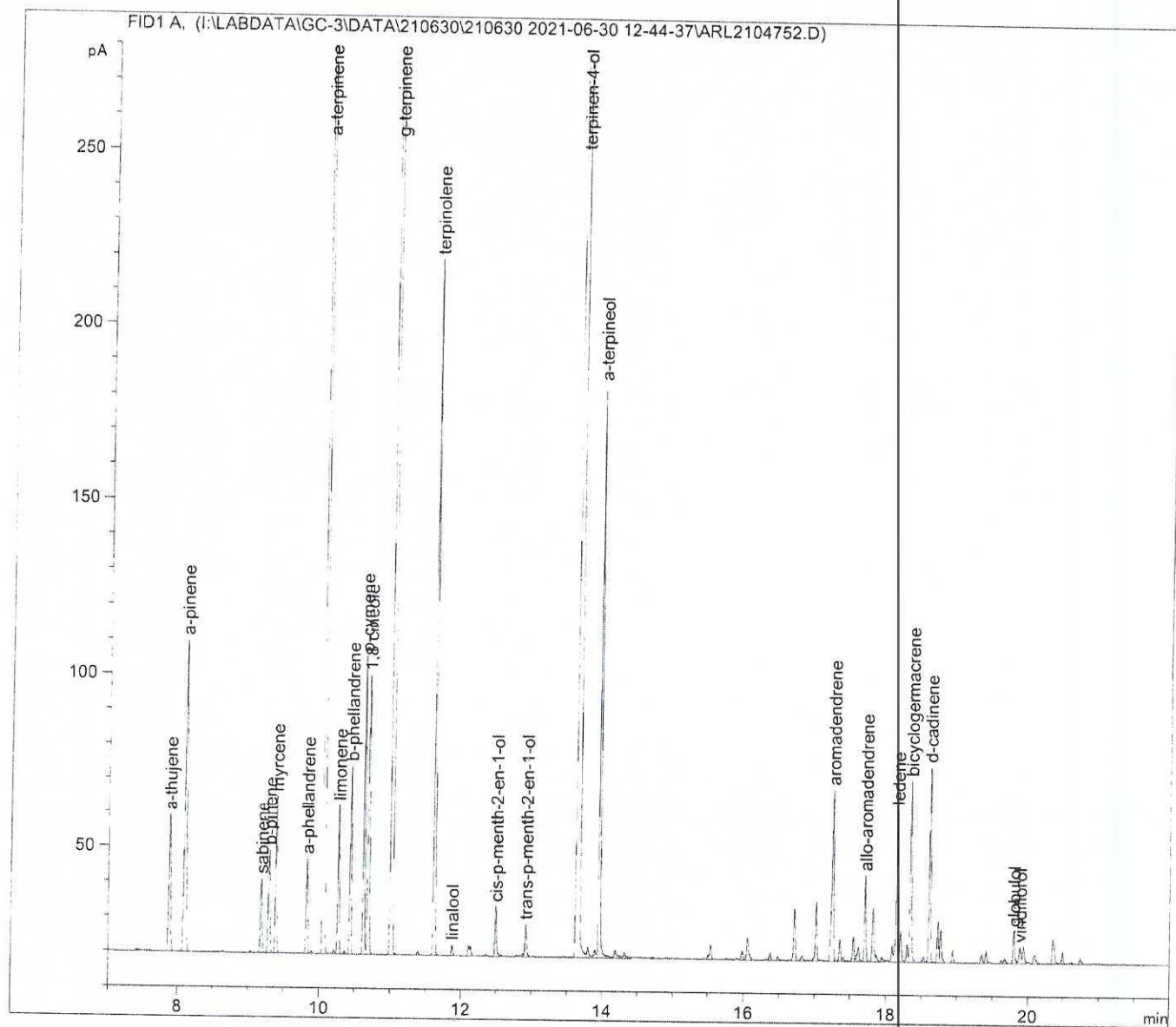
** ISO4730:2017(E)-Essential Oil of Melaleuca, terpinen-4-ol type (Tea Tree Oil)


Dr Jeanette Balindong
ANALYTICAL OFFICER


Mr Ashley Dowell
MANAGER - ARL

```

=====
Acq. Operator   : RP                               Seq. Line :    9
Acq. Instrument : GC-3                             Location  : Vial 7
Injection Date  : 30/06/2021 11:46:50 PM          Inj       :    1
                                                    Inj Volume: 1.000 µl
Acq. Method     : C:\DATA_GC-3\DATA\210630\210630 2021-06-30 12-44-37\EO BASEMETHOD
                : 2020.M
Last changed    : 14/10/2020 8:51:31 AM by RP
Analysis Method : W:\ARL\ANALYTICAL\USER\ESSENTIAL OILS\...ANALYSIS METHODS 2021\GC3
                : ANALYSIS METHODS 2020\TTO.M
Last changed    : 21/04/2021 11:39:54 AM
Method Info     : Method to analyse essential oils
=====
  
```



=====
 Area Percent Report
 =====

```

Sorted By       : Signal
Calib. Data Modified : 21/04/2021 11:38:24 AM
Multiplier      : 1.0000
Dilution        : 1.0000
Use Multiplier & Dilution Factor with ISTDs
  
```

YLP
 5/7/21

Signal 1: FID1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	7.420	BB	0.0346	1.30593	0.0178	?
2	7.887	BB	0.0277	67.70016	0.9238	a-thujene
3	8.103	BB	0.0305	172.96675	2.3602	a-pinene
4	9.040	BB	0.0261	8.52374e-1	0.0116	?
5	9.188	BB	0.0253	34.24280	0.4673	sabinene
6	9.298	BV	0.0277	52.39005	0.7149	b-pinene
7	9.393	VV	0.0220	64.12414	0.8750	myrcene
8	9.828	BV	0.0238	40.28629	0.5497	a-phellandrene
9	9.895	VB	0.0239	1.10736	0.0151	?
10	10.066	VV	0.0230	762.77808	10.4084	a-terpinene
11	10.210	VV	0.0250	1.71147	0.0234	?
12	10.271	VB	0.0218	59.97078	0.8183	limonene
13	10.358	BV	0.0214	1.00568	0.0137	?
14	10.441	VB	0.0225	76.91502	1.0495	b-phellandrene
15	10.630	BV	0.0211	115.14563	1.5712	p-cymene
16	10.694	VB	0.0266	135.60735	1.8504	1,8 cineole
17	11.027	BB	0.0231	1529.02893	20.8643	g-terpinene
18	11.394	BB	0.0271	2.11702	0.0289	?
19	11.623	BB	0.0210	265.76260	3.6264	terpinolene
20	11.877	BB	0.0229	4.65371	0.0635	linalool
21	12.114	VV	0.0225	4.33816	0.0592	?
22	12.143	VB	0.0214	4.33859	0.0592	?
23	12.495	BV	0.0249	23.01462	0.3140	cis-p-menth-2-en-1-ol
24	12.883	VV	0.0194	1.14659	0.0156	?
25	12.922	VV	0.0247	14.91388	0.2035	trans-p-menth-2-en-1-ol
26	13.670	VV	0.0310	2992.60498	40.8354	terpinen-4-ol
27	13.801	VV	0.0297	6.60520	0.0901	?
28	13.900	VV	0.0275	4.13506	0.0564	?
29	13.961	VV	0.0211	226.25359	3.0873	a-terpineol
30	14.185	VV	0.0413	7.24066	0.0988	?
31	14.318	VB	0.0360	4.46288	0.0609	?
32	14.724	VV	0.0341	1.23562	0.0169	?
33	15.507	VV	0.0187	1.53262	0.0209	?
34	15.541	VB	0.0259	6.89190	0.0940	?
35	15.983	VV	0.0264	4.79978	0.0655	?
36	16.059	VV	0.0312	13.22423	0.1805	?
37	16.379	VV	0.0258	3.56029	0.0486	?
38	16.489	VV	0.0251	1.80095	0.0246	?
39	16.717	VV	0.0239	23.05105	0.3145	?
40	16.829	VV	0.0315	3.16681	0.0432	?
41	17.027	VV	0.0247	27.03177	0.3689	?
42	17.254	VV	0.0258	84.58337	1.1542	aromadendrene
43	17.358	VV	0.0235	9.40100	0.1283	?
44	17.407	VV	0.0246	2.15741	0.0294	?
45	17.546	VV	0.0241	11.27500	0.1539	?
46	17.617	VV	0.0301	8.69161	0.1186	?
47	17.711	VV	0.0227	35.27269	0.4813	allo-aromadendrene
48	17.819	VV	0.0253	26.09037	0.3560	?
49	17.870	VV	0.0226	2.94966	0.0402	?
50	17.952	VV	0.0262	2.56236	0.0350	?
51	18.091	VV	0.0225	7.09450	0.0968	?
52	18.157	VV	0.0250	71.99076	0.9823	ledene
53	18.210	VV	0.0295	16.13439	0.2202	?
54	18.300	VV	0.0225	7.44463	0.1016	?
55	18.347	VB	0.0224	76.45927	1.0433	bicyclogermacrene
56	18.522	VV	0.0229	2.55339	0.0348	?
57	18.615	VV	0.0219	79.58078	1.0859	d-cadinene

46/3
5/7/21

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
58	18.729	VV	0.0214	16.64103	0.2271	?
59	18.773	VV	0.0232	14.50568	0.1979	?
60	18.938	VV	0.0227	5.52092	0.0753	?
61	19.343	VV	0.0252	4.46810	0.0610	?
62	19.409	VV	0.0246	5.59090	0.0763	?
63	19.622	VV	0.0275	1.62718	0.0222	?
64	19.675	VV	0.0310	2.87464	0.0392	?
65	19.800	VV	0.0254	15.40998	0.2103	globulol
66	19.887	VV	0.0330	9.84063	0.1343	viridiflorol
67	19.938	VV	0.0261	9.00110	0.1228	?
68	20.099	VV	0.0419	7.09717	0.0968	?
69	20.355	VV	0.0336	16.95032	0.2313	?
70	20.492	VV	0.0229	5.04491	0.0688	?
71	20.622	VV	0.0283	1.02918	0.0140	?
72	20.743	VV	0.0337	3.58836	0.0490	?

Totals : 7328.45263

*** End of Report ***

840
5/7/2