

### CERTIFICATE OF ANALYSIS

<b>SAMPLE NAME</b>	Palo Santo		
<b>FORM</b>	Oil		
<b>CUSTOMER NAME</b>	Buckley & Phillips Aromatics		
<b>CERTIFICATION DATE</b>	04 September 2019		
<b>CUSTOMER REFERENCE</b>	1200071		
<b>ANALYSIS</b>	GCFID - Area%		
<b>LAB REF. #</b>	ARL1905723	<b>ARL JOB #</b>	A192069

TEST	RESULTS	TEST METHOD
	Area %	
$\alpha$ -pinene	0.11	ARL-TM101-4*
$\beta$ -myrcene	0.27	
$\alpha$ -phellandrene	0.10	
$\delta$ -limonene	71.45	
$\beta$ -phellandrene	0.10	
p-cymene	1.15	
1,8-cineole	0.12	
$\gamma$ -terpinene	0.05	
menthofuran	11.06	
terpinen-4-ol	0.33	
$\alpha$ -terpineol	5.98	
pulegone	0.72	
carvone	0.69	
$\alpha$ -cubebene	0.07	
$\alpha$ -ylangene	0.08	
$\alpha$ -copaene	0.14	
$\beta$ -elemene	0.32	
$\alpha$ -humulene	0.13	
$\gamma$ -muurolene	0.39	
germacrene D	0.88	

\* Assay by GC (FID detection –area percent report) with GCMS confirmation.

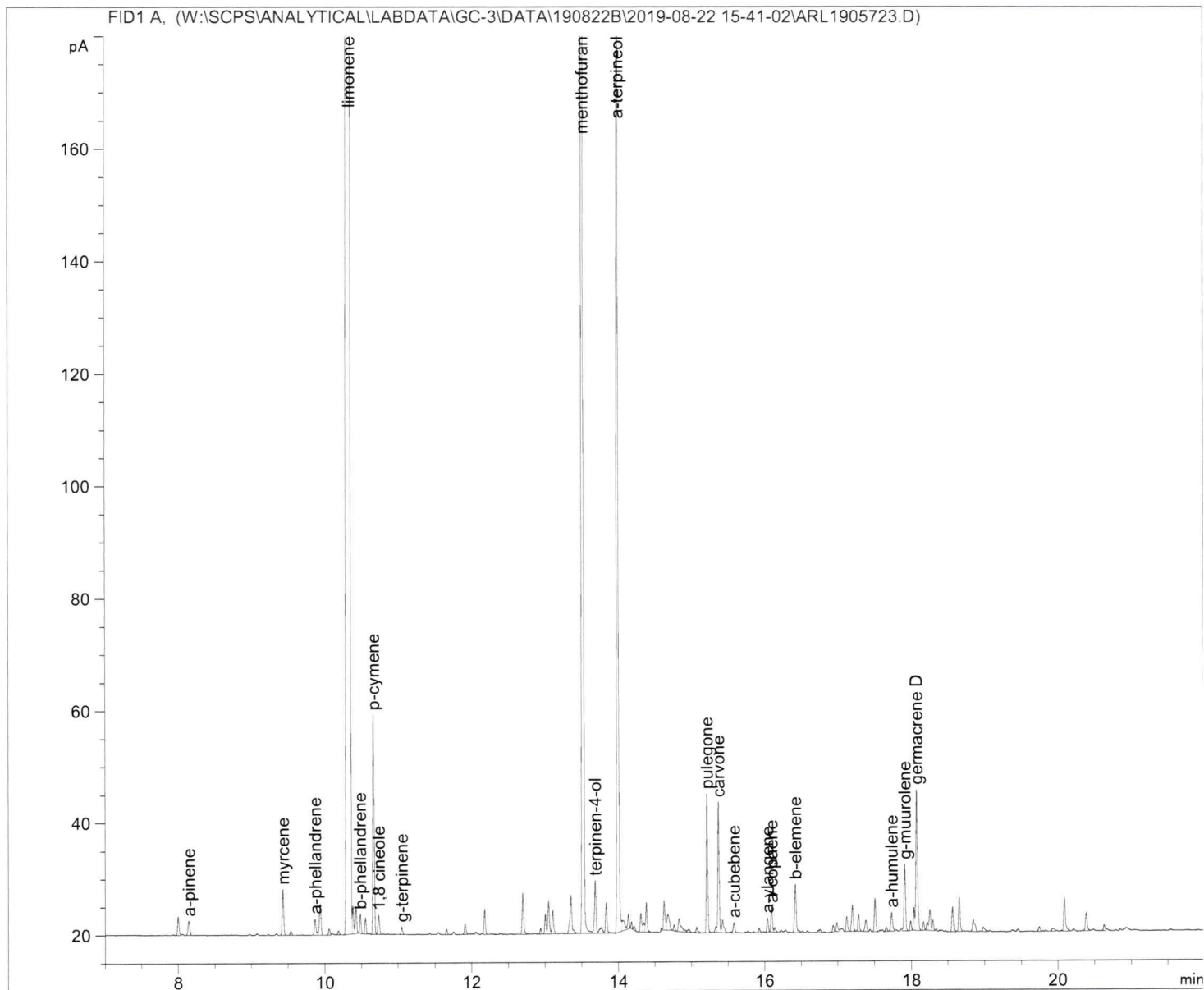
  
 .....  
 Anastasia Whitehall  
**LABORATORY ASSISTANT**
  
 .....  
 Ashley Dowell  
**MANAGER - ARL**

Sample Name: Palo Santo 1200071

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=====
Acq. Operator   : RB & SM                      Seq. Line :    6
Acq. Instrument : GC-3                          Location  : Vial 6
Injection Date  : 22/08/2019 8:00:55 PM        Inj       :    1
                                                Inj Volume: 1.000 µl

Acq. Method     : C:\DATA\GC-3\DATA\190822B\2019-08-22 15-41-02\EO BASEMETHOD.M
Last changed    : 6/02/2019 5:22:26 PM by Jeanette Balindong
Analysis Method : W:\SCPS\ANALYTICAL\LABDATA\GC-3\METHODS\PALO SANTO.M
Last changed    : 3/09/2019 12:09:11 PM
Method Info     : Method to analyse essential oils
=====
    
```



=====  
 Area Percent Report  
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Sorted By          : Signal
Calib. Data Modified : 3/09/2019 12:08:15 PM
Multiplier:         : 1.0000
Dilution:           : 1.0000
Use Multiplier & Dilution Factor with ISTDs
    
```

448  
 3/9/19

Signal 1: FID1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	8.147	VB	0.0288	4.64388	0.1068	a-pinene
2	9.433	VV	0.0226	11.69734	0.2691	myrcene
3	9.870	BV	0.0238	4.46415	0.1027	a-phellandrene
4	10.351	BV	0.0311	3106.40552	71.4511	limonene
5	10.486	BB	0.0205	4.43851	0.1021	b-phellandrene
6	10.671	BV	0.0200	50.14593	1.1534	p-cymene
7	10.739	VB	0.0235	5.08813	0.1170	1,8 cineole
8	11.053	VB	0.0225	1.96050	0.0451	g-terpinene
9	13.526	BV	0.0213	480.84131	11.0599	menthofuran
10	13.689	VV	0.0233	14.30622	0.3291	terpinen-4-ol
11	14.003	BV	0.0216	260.02979	5.9810	a-terpineol
12	15.218	BB	0.0198	31.35651	0.7212	pulegone
13	15.374	VV	0.0201	29.95405	0.6890	carvone
14	15.584	BV	0.0253	2.96780	0.0683	a-cubebene
15	16.040	BB	0.0221	3.41269	0.0785	a-ylangene
16	16.097	BV	0.0220	6.08958	0.1401	a-copaene
17	16.421	BV	0.0251	13.74834	0.3162	b-elemene
18	17.737	BV	0.0257	5.59850	0.1288	a-humulene
19	17.915	VB	0.0228	17.08394	0.3930	g-muurolene
20	18.078	VB	0.0234	38.43880	0.8841	germacrene D

Totals : 4092.67147 94.1365

\*\*\* End of Report \*\*\*

843  
3/9/19