

### CERTIFICATE OF ANALYSIS

<b>SAMPLE NAME</b>		Bergamot oil Calabrian	
<b>FORM</b>		Oil	
<b>CUSTOMER NAME</b>		Buckley & Phillips Aromatics	
<b>CERTIFICATION DATE</b>		18 June 2019	
<b>CUSTOMER REFERENCE</b>		Batch: 31658/03 Ref: 1200056	
<b>ARL JOB #</b>	A191478	<b>LAB REF. #</b>	ARL1904034
<b>ANALYSIS</b>	GCFID - Area%	<b>METHOD</b>	ARL-TM101

TEST	ISO 3520 ** SPECIFICATION	RESULTS	TEST METHOD
	Area %		
β-pinene	5.5 – 9.5	6.67	ARL-TM101*
limonene	30.0 – 45.0	35.83	
γ-terpinene	6.0 – 10.0	5.91	
linalool	3.0 – 15.0	11.73	
linalyl acetate	22.0 – 36.0	32.86	
geranial	0.25 – 0.5	0.27	
β-bisabolene	0.3 – 0.55	0.06	

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

\*\* ISO 3520 - Oil of bergamot [*Citrus aurantium* L. subsp. bergamia (Wight et Arnott) Engler], Italian type



Samantha Morrow  
ANALYTICAL OFFICER

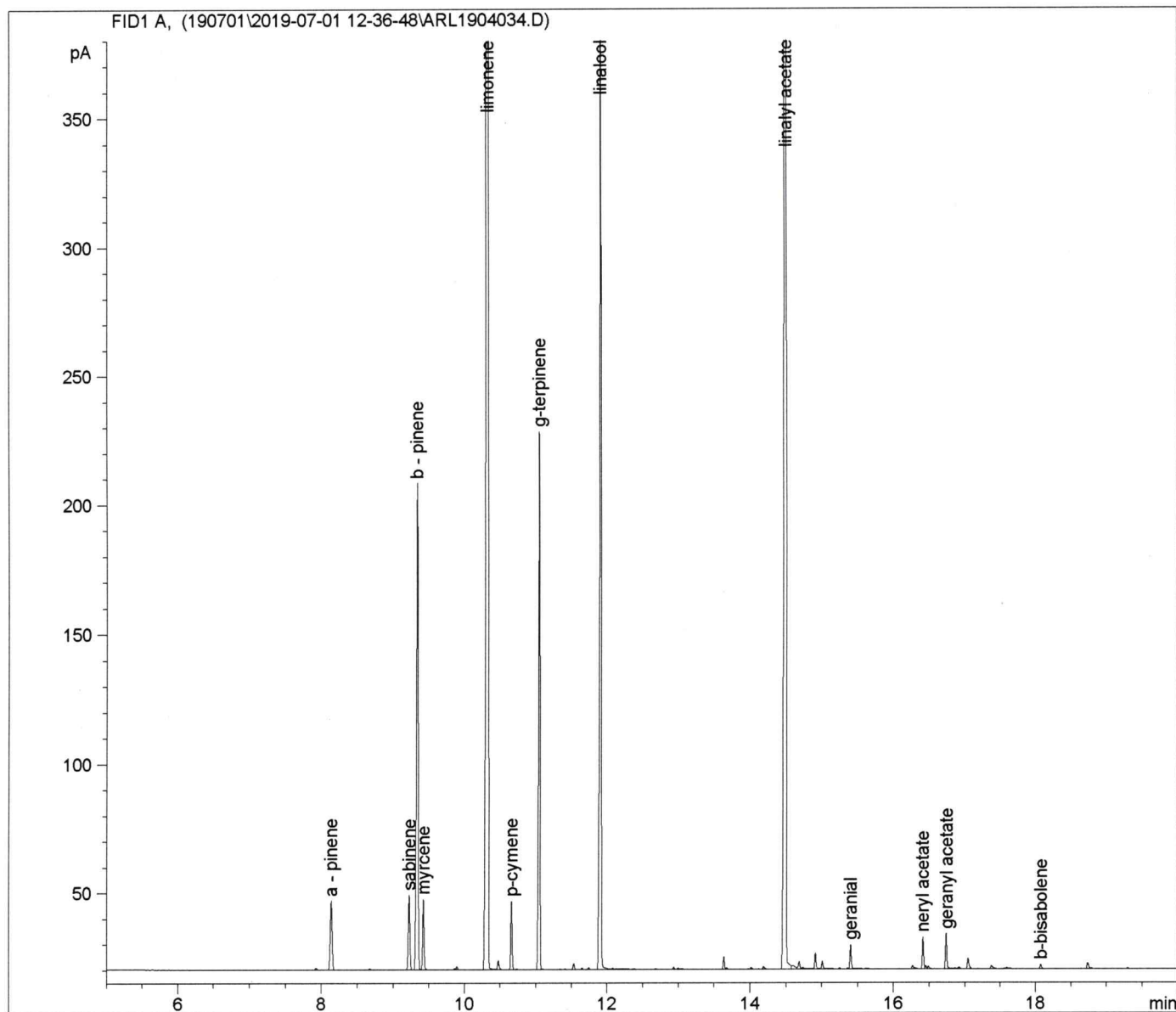


Ashley Dowell  
MANAGER - ARL

Sample Name: BERGAMOT CALABRIAN B31658/03 R1200056

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Acq. Operator   : Jeanette Balindong           Seq. Line :   21
Acq. Instrument : GC-3                         Location  : Vial 24
Injection Date  : 7/2/2019 1:29:55 AM         Inj       :    1
                                           Inj Volume: 1 µl

Acq. Method     : C:\DATA\GC-3\DATA\190701\2019-07-01 12-36-48\BERGAMOT.M
Last changed    : 6/14/2019 12:11:10 AM by Jeanette Balindong
Analysis Method : C:\DATA\GC-3\METHODS\BERGAMOT.M
Last changed    : 6/14/2019 12:11:10 AM by Jeanette Balindong
Method Info     : Method to analyse essential oils
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✓  
07/07/19

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Area Percent Report  
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Sorted By : Signal  
Calib. Data Modified : Friday, February 22, 2019 2:47:36 PM  
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	8.137	BB	0.0287	48.79094	1.04916	a - pinene
2	9.222	BV	0.0249	45.64614	0.98153	sabinene
3	9.334	VV	0.0263	310.31857	6.67281	b - pinene
4	9.421	VV	0.0220	37.54885	0.80742	myrcene
5	10.322	BV	0.0284	1666.07739	35.82581	limonene
6	10.657	BV	0.0207	34.34400	0.73850	p-cymene
7	11.044	BB	0.0209	274.66489	5.90614	g-terpinene
8	11.907	BB	0.0229	545.29016	11.72542	linalool
9	14.493	VV	0.0263	1528.00842	32.85690	linalyl acetate
10	15.401	VV	0.0205	12.44715	0.26765	geranial
11	16.411	VV	0.0205	16.02347	0.34455	neryl acetate
12	16.743	BB	0.0212	18.52202	0.39828	geranyl acetate
13	18.080	VV	0.0241	2.82875	0.06083	b-bisabolene

Totals : 4540.51075 97.6350

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

*Handwritten signature*  
03/07/19