

CERTIFICATE OF ANALYSIS

SAMPLE NAME		Pepper oil Black	
FORM		Oil	
CUSTOMER NAME		Buckley & Phillips Aromatics	
CERTIFICATION DATE		06 May 2019	
CUSTOMER REFERENCE		29916/26	
ARL JOB #	A190904	LAB REF. #	ARL1902298
ANALYSIS	GCFID - Area%	METHOD	ARL-TM101-3

TEST	ISO 3061** SPECIFICATION				RESULTS
	INDIA	SRI LANKA	INDONESIA	MADAGASCAR	
	Area %				
α-pinene	3 - 12	10 - 16	2.5 - 10	8 - 26	11.09
β-pinene	5 - 12	9 - 12	nd - 3	7 - 15	10.92
sabinene	6 - 15	10 - 17	4 - 10	nd - 4	10.88
δ-3-carene	3 - 15	5 - 11	9 - 20	7 - 16	6.98
limonene	10 - 17	13 - 16	7 - 12	10 - 25	14.73
δ-clemene	0.5 - 3.5	0.5 - 3	0.5 - 3	0.5 - 4.5	1.34
α-copaene	0.5 - 4.5	1.5 - 4	0.2 - 1	nd - 0.5	2.67
β-caryophyllene	12 - 29	12 - 21	25 - 40	10 - 25	25.64
germacrene D	nd - 2	nd - 1	nd - 1	1 - 6.5	0.04
β-selinene	0.5 - 3.5	nd - 2	3 - 6	1 - 4.5	1.78
α-selinene	nd - 3	0.5 - 2	2.5 - 5	0.5 - 3	0.49
caryophyllene oxide	nd - 1	nd - 1	nd - 1	nd - 1	1.11

* Assay by GC (FID detection - area percent report) nd - denotes not detected

** ISO 3061 - Oil of black pepper (*Piper nigrum* L.)


 Dr Jeanette Balindong
 ANALYTICAL OFFICER


 Mr Ashley Dowell
 MANAGER - ARL

Signal 1: FID1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Area %	Name
1	8.139	VV	0.0275	491.06952	11.0903	a-pinene
2	9.223	VV	0.0246	481.80719	10.8811	sabinene
3	9.333	VV	0.0247	483.56897	10.9209	b-pinene
4	9.416	VV	0.0214	54.46435	1.2300	myrcene
5	9.891	VV	0.0225	309.11279	6.9810	delta 3 carene
6	10.300	VB	0.0214	652.11029	14.7272	limonene
7	10.460	BV	0.0206	47.55445	1.0740	b-phelllandrene
8	10.648	VV	0.0212	26.10538	0.5896	p cymene
9	13.638	VV	0.0214	8.05342	0.1819	terpinen-4-ol
10	15.403	VV	0.0220	59.27963	1.3388	delta elemene
11	16.068	VB	0.0224	118.19836	2.6694	a-copaene
12	16.387	VV	0.0230	25.04259	0.5656	b-elemene
13	17.060	VV	0.0251	1135.49573	25.6440	caryophyllene
14	17.628	VV	0.0220	39.94512	0.9021	a-humulene
15	18.010	VV	0.0186	1.87648	0.0424	germacrene D
16	18.068	VV	0.0228	78.82619	1.7802	b-selinene
17	18.219	VV	0.0262	21.85396	0.4935	a-selinene
18	18.626	VV	0.0217	48.89663	1.1043	d-cadinene
19	20.016	VV	0.0216	49.31795	1.1138	caryophyllene oxide

Totals : 4132.57900 93.3299

*** End of Report ***

8/3
2/5/19