



Essential Oil

Sample ID: BK29099-4

Customer: Hemp Traders

Type: Oil

Instrument: UPLC-PDA-MS

Submitted: 06/20/17

Test Site: Berkeley, CA

Test: Standard Terpenes

Method: SOP-024

Reported: 06/23/17

Density: 0.86 g/mL

Compound Profile: Terpenes

Terpene	mg/mL	mg/g
β -Caryophyllene	37 mg/mL	43 mg/g
Caryophyllene oxide	15.6 mg/mL	18.1 mg/g
Citronellol	Not Detected	
D-Limonene	Not Detected	
α -Humulene	59 mg/mL	68 mg/g
Linalool	Not Detected	
β -Myrcene	390 mg/mL	450 mg/g
Phytol	Not Detected	
α -Pinene	158 mg/mL	183 mg/g
Terpinolene	200 mg/mL	230 mg/g
Total Measured:	860 mg/mL	992 mg/g



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Customer: Hemp Traders Type: Oil Instrument: UPLC-PDA-MS Submitted: 06/20/17

Test Site: Berkeley, CA Test: Standard Potency Method: SOP-024 Reported: 06/23/17

Density: 0.86 g/mL

Compound Profile: Cannabinoids

Cannabinoid	mg/mL	mg/g
■ CBD	Not Detected	
■ CBDA	Not Detected	
■ CBG	Not Detected	
■ CBN	Not Detected	
■ THC	Not Detected	
■ THCA	Not Detected	
Total Measured:	0 mg/mL	0 mg/g

Decarboxylated Values

Cannabinoid	Equation	Value
THC	THCA x 0.88 + THC	Not Detected
CBD	CBDA x 0.88 + CBD	Not Detected

Date : September 11, 2017

SAMPLE IDENTIFICATION

Internal code : 17I05-ROS1-1-DM

Customer identification : Hemp Essential Oil

Type : Essential oil

Source : *Cannabis sativa*

ANALYSIS

Method : PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).

Identifications double-checked by GC-MS

Analyst : Alexis St-Gelais, M. Sc., chimiste 2013-174

Analysis date : 2017-09-05

Checked and approved by :



Alexis St-Gelais, M. Sc., chimiste 2013-174

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IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
Octane	1.62	799	tr	tr	789	0.70	Alkane
<i>cis</i> -Hex-3-en-1-ol	2.50	865	0.02	0.02	1324	5.65	Aliphatic alcohol
Hexanol	2.73	882	0.01	0.01	1299	5.24	Aliphatic alcohol
2-Heptanone	2.93	898	0.03	28.20	1119	2.72*	Aliphatic ketone
Heptanal	3.13	909	0.02	0.78	1139	2.99	Aliphatic aldehyde
Hashishene	3.21	914	0.10	7.30	944	1.21*	Monoterpene
α -Thujene	3.31	920	0.13	[7.30]	944	1.21*	Monoterpene
α -Pinene	3.44	928	7.13	[7.30]	944	1.21*	Monoterpene
α -Fenchene	3.69	943	0.01	0.11	992	1.51*	Monoterpene
Camphene	3.71	944	0.11	[0.11]	992	1.51*	Monoterpene
Sabinene	4.14	969	0.10	0.15	1058	2.05	Monoterpene
β -Pinene	4.21	973	2.99	2.86	1038	1.89	Monoterpene
Myrcene	4.54	993	27.80	[28.20]	1119	2.72*	Monoterpene
Δ 3-Carene	4.77*	1006	1.86	1.44	1092	2.38	Monoterpene
α -Phellandrene	4.77*	1006	[1.86]	0.25	1107	2.57	Monoterpene
α -Terpinene	4.95	1015	0.29	[28.20]	1119	2.72*	Monoterpene
para-Cymene	5.14	1026	0.13	11.57	1207	3.86*	Monoterpene
Limonene	5.18	1028	0.99	1.25	1145	3.06*	Monoterpene
β -Phellandrene	5.21	1029	0.90	[1.25]	1145	3.06*	Monoterpene
1,8-Cineole	5.23	1031	0.14	[1.25]	1145	3.06*	Monoterp. ether
<i>cis</i> - β -Ocimene	5.36	1038	1.63	1.83	1184	3.61*	Monoterpene
<i>trans</i> - β -Ocimene	5.57	1049	11.48	[11.57]	1207	3.86*	Monoterpene
γ -Terpinene	5.73	1058	0.23	[1.83]	1184	3.61*	Monoterpene
<i>cis</i> -Sabinene hydrate	6.07	1076	0.03	0.05	1402	6.97	Monoterp. alcohol
Terpinolene	6.25	1086	13.91	13.86	1229	4.19	Monoterpene
para-Cymenene	6.42	1095	0.09	0.14	1367	6.32*	Monoterpene
Linalool	6.69*	1106	0.08	0.07	1495	9.19	Monoterp. alcohol
<i>trans</i> -Sabinene hydrate	6.69*	1106	[0.08]	0.02	1483	8.88*	Monoterp. alcohol
Nonanal	6.79	1109	0.05	0.06	1336	5.82	Aliphatic aldehyde
1,3,8-para-Menthatriene	6.85	1112	0.04				Monoterpene
endo-Fenchol	7.15	1122	0.01	13.34	1521	10.14*	Monoterp. alcohol
<i>trans</i> -Pinene hydrate	7.23	1125	0.02	[0.02]	1483	8.88*	Monoterp. alcohol
allo-Ocimene	7.26	1127	0.01	0.01	1319	5.56	Monoterpene
(<i>E,E</i>)-Cosmene?	7.34	1129	0.04				Monoterpene
Epoxyterpinolene	7.62	1140	0.07				Monoterp. ether
<i>trans</i> -Pinocarveol	7.75	1144	0.02	0.03	1567	11.88	Monoterp. alcohol
Borneol	8.63	1176	0.01	0.65	1629	14.68*	Monoterp. alcohol
Limonen-4-ol	8.81*	1183	0.14	1.20	1524	10.24*	Monoterp. alcohol
Terpinen-4-ol	8.81*	1183	[0.14]	[1.20]	1524	10.24*	Monoterp. alcohol
Hexyl butyrate	9.19	1197	0.05	[0.14]	1367	6.32*	Aliphatic ester
para-Cymen-8-ol	9.35	1201	0.15	0.15	1762	22.64	Monoterp. alcohol

α -Terpineol	9.47	1203	0.03	[0.65]	1629	14.68*	Monoterp. alcohol
2-Methyl-2-nonen-4-one	10.04	1216	0.02				Aliphatic ketone
Citronellol	10.82	1233	0.02	0.30	1717	19.60*	Monoterp. alcohol
(<i>E</i>)-Anethole	13.53	1293	0.02				Phenylpropanoid
α -Copaene	17.72	1357	0.01	0.02	1421	7.39	Sesquiterpene
β -Elemene	18.92	1376	0.04	[1.20]	1524	10.24*	Sesquiterpene
Hexyl hexanoate	19.59	1386	0.38	4.02	1582	12.43*	Aliphatic ester
Isocaryophyllene	19.88	1390	0.09	0.42	1503	9.48	Sesquiterpene
Sesquithujene	20.20	1395	0.05	0.26	1512	9.80*	Sesquiterpene
β -Caryophyllene	20.82	1403	13.20	[13.34]	1521	10.14*	Sesquiterpene
<i>cis</i> - α -Bergamotene	21.02	1405	0.14	[0.26]	1512	9.80*	Sesquiterpene
<i>trans</i> - α -Bergamotene	22.21	1419	0.92	[1.20]	1524	10.24*	Sesquiterpene
α -Humulene	23.52	1435	3.94	[4.02]	1582	12.43*	Sesquiterpene
allo-Aromadendrene	23.72	1437	0.40	0.46	1558	11.54	Sesquiterpene
9-epi- β -Caryophyllene	24.14	1442	0.08	0.07	1666	16.68*	Sesquiterpene
<i>trans</i> - β -Farnesene	24.58	1448	1.29	1.41	1614	13.89	Sesquiterpene
4,5-diepi-Aristolochene	24.68	1449	0.03	0.10	1596	12.98	Sesquiterpene
Selina-4,11-diene	25.18	1455	0.08				Sesquiterpene
β -Selinene	26.29	1468	0.75	0.78	1622	14.33	Sesquiterpene
Valencene	26.65	1472	0.08	0.07	1671	16.93*	Sesquiterpene
α -Selinene	26.92	1476	0.51	[0.65]	1629	14.68*	Sesquiterpene
α -Muurolene	27.56	1483	0.05	0.04	1639	15.23	Sesquiterpene
Spirovetiva-1(10),7(11)-diene	28.04	1489	0.08				Sesquiterpene
β -Bisabolene	28.63*	1496	0.22	0.16	1655	16.08	Sesquiterpene
7-epi- α -Selinene	28.63*	1496	[0.22]	0.85	1678	17.32*	Sesquiterpene
γ -Cadinene	28.88*	1499	0.13	[0.07]	1666	16.68*	Sesquiterpene
β -Curcumene	28.88*	1499	[0.13]	[0.85]	1678	17.32*	Sesquiterpene
(<i>E,E</i>)- α -Farnesene	29.12*	1503	0.36	0.40	1691	17.98*	Sesquiterpene
δ -Cadinene	29.12*	1503	[0.36]	[0.07]	1671	16.93*	Sesquiterpene
Sesquicineole	29.37	1506	0.04	[0.40]	1691	17.98*	Sesquiterp. ether
Selina-3,7(11)-diene	30.29*	1519	0.41	[0.85]	1678	17.32*	Sesquiterpene
β -Sesquiphellandrene	30.29*	1519	[0.41]	0.11	1704	18.75*	Sesquiterpene
Unknown (m/z = 204, 189 (88), 161 (78), 105 (59), 133 (59), 91 (56), 119 (39))	30.45	1521	0.26				Sesquiterpene
Selina-4(15),7(11)-diene	30.75	1525	0.38	[0.85]	1678	17.32*	Sesquiterpene
<i>trans</i> - α -Bisabolene	31.89	1541	0.04	[0.11]	1704	18.75*	Sesquiterpene
Germacrene B	32.06	1544	0.29	[0.30]	1717	19.60*	Sesquiterpene
Eudesma-5,7(11)-diene	32.64	1552	0.06	0.09	1723	20.01	Sesquiterpene
Caryophyllene oxide	33.86*	1569	1.91	1.82	1842	28.30	Sesquiterp. ether
Caryophyllene oxide epimer	33.86*	1569	[1.91]	0.04	1837	27.94	Sesquiterp. ether
Humulene epoxide I	34.96	1585	0.04				Sesquiterp. ether

Humulene epoxide II	35.50	1592	0.40	0.41	1893	32.09	Sesquiterp. ether
Caryophylla-4(12),8(13)-dien-5 α -ol	36.92	1623	0.07	0.28	2175	42.31*	Sesquiterp. alcohol
Caryophylla-4(12),8(13)-dien-5 β -ol	37.12	1628	0.08	0.07	2190	42.72	Sesquiterp. alcohol
Phytone	44.42	1844	0.03	0.03	2079	39.68	Aliphatic ketone
meta-Camphorene	46.95	1940	0.39	0.45	2132	41.18	Diterpene
para-Camphorene	47.84	1975	0.15	[0.28]	2175	42.31*	Diterpene
Cannabidiol	57.64	2428	0.12				Cannabinoid
Total identified			98.15%	98.01%			

*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

Note: no correction factor was applied

OTHER DATA

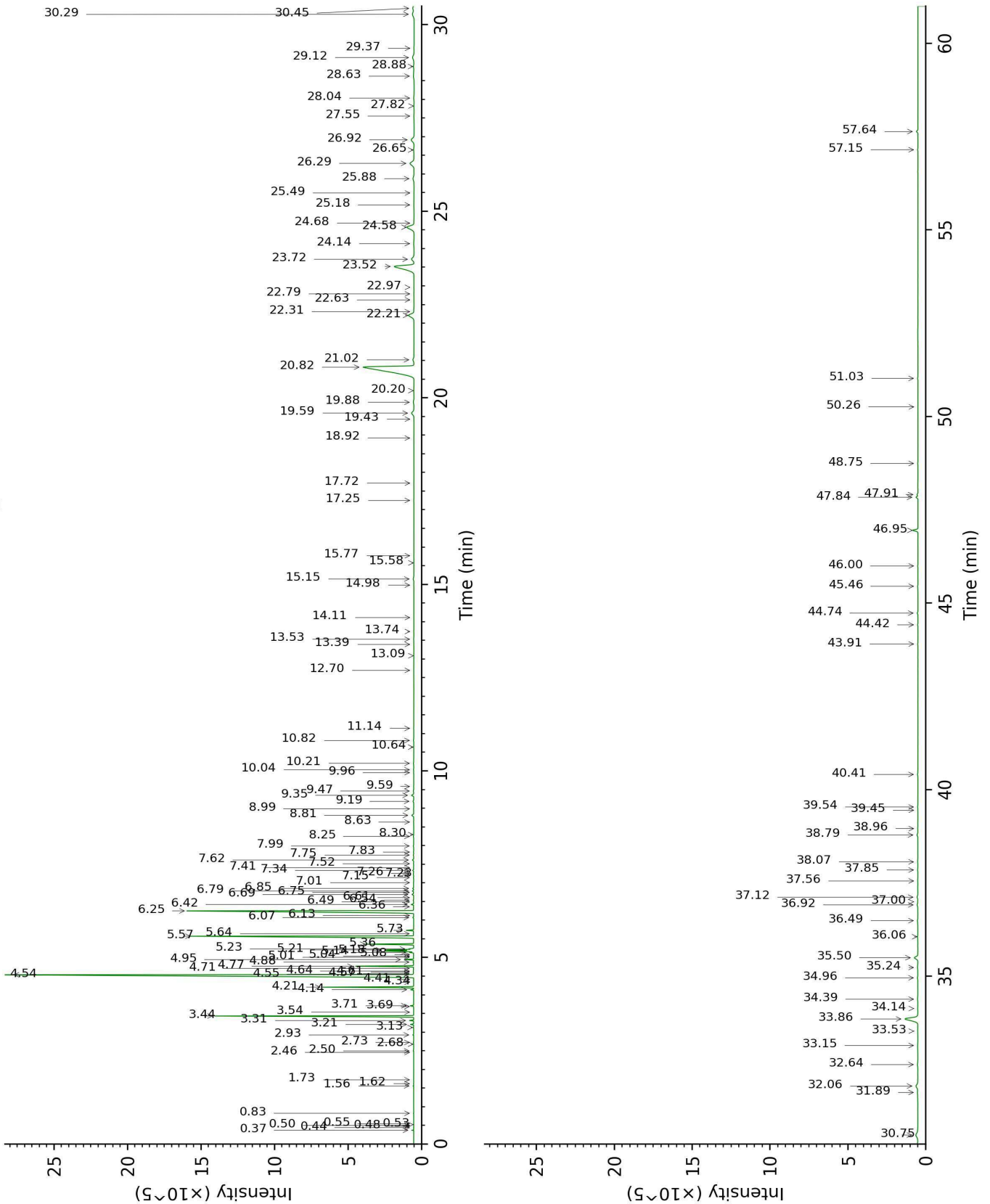
Physical aspect : Yellow liquid

Refractive index : 1.4830 \pm 0.0003 (20 °C)

CONCLUSION

No adulterant, contaminant or diluent were detected using this method.

17105-ROS1-1-DM_BP5



17105-ROS1-1-DM_WAX

