



Essential Validation Services



Sample:

Client: | 21 Drops
Sample: | Peppermint (Mentha x piperita)
Batch # | P0815KIL
CAS Number | 8006-90-4
Type: | Essential Oil

Conclusion:

- No adulterants, diluents, or contaminants were detected via this method.
- Conforms to ISO standards



X *Adam Christen*

Validated By:

Essential Validation Services

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Summary of Analyses

A fresh sample of Peppermint (Mentha x piperita) Essential Oil (10 uL in .5to.5 mL Hexane +

(EtOH) was prepared and analyzed via split injection GC/EI-MS.

Sesquiterpenes	
beta-Caryophyllene	2.05%

Monoterpenols	
Menthol	29.29%
Neomenthol	3.36%
Terpinen-4-ol	0.66%

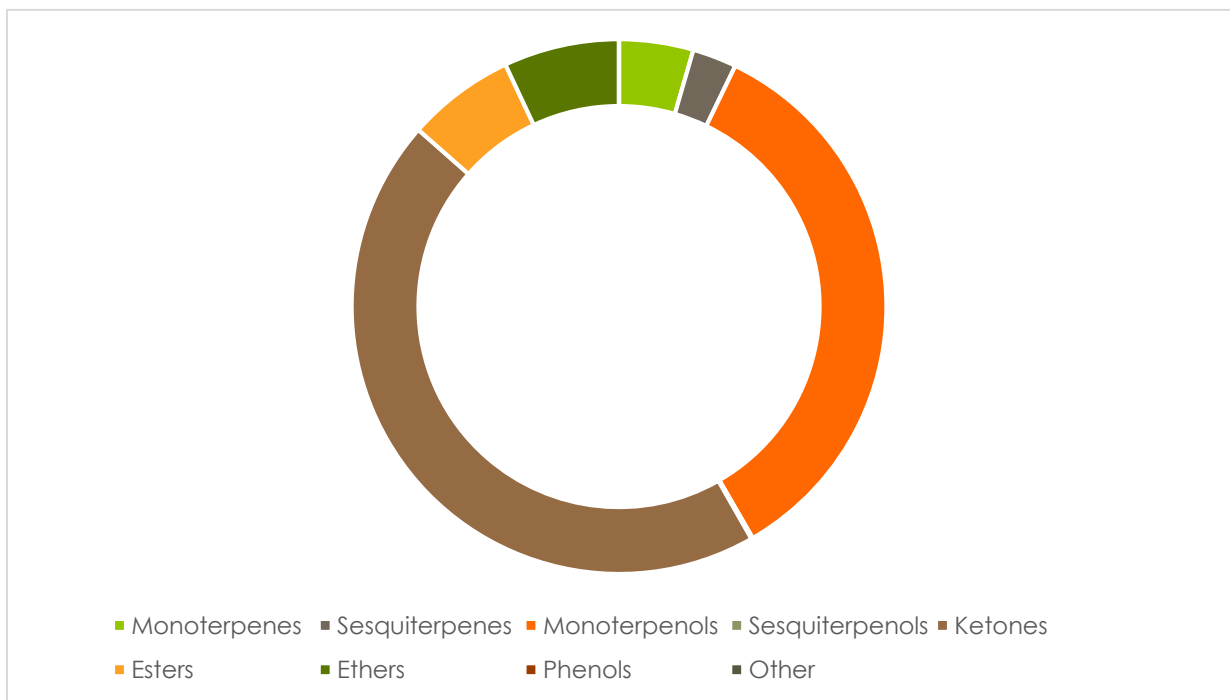
Monoterpenes	
Limonene	1.74%
beta-Pinene	1.03%
alpha-Pinene	0.71%
para-Cymene	0.43%
Sabinene	0.40%

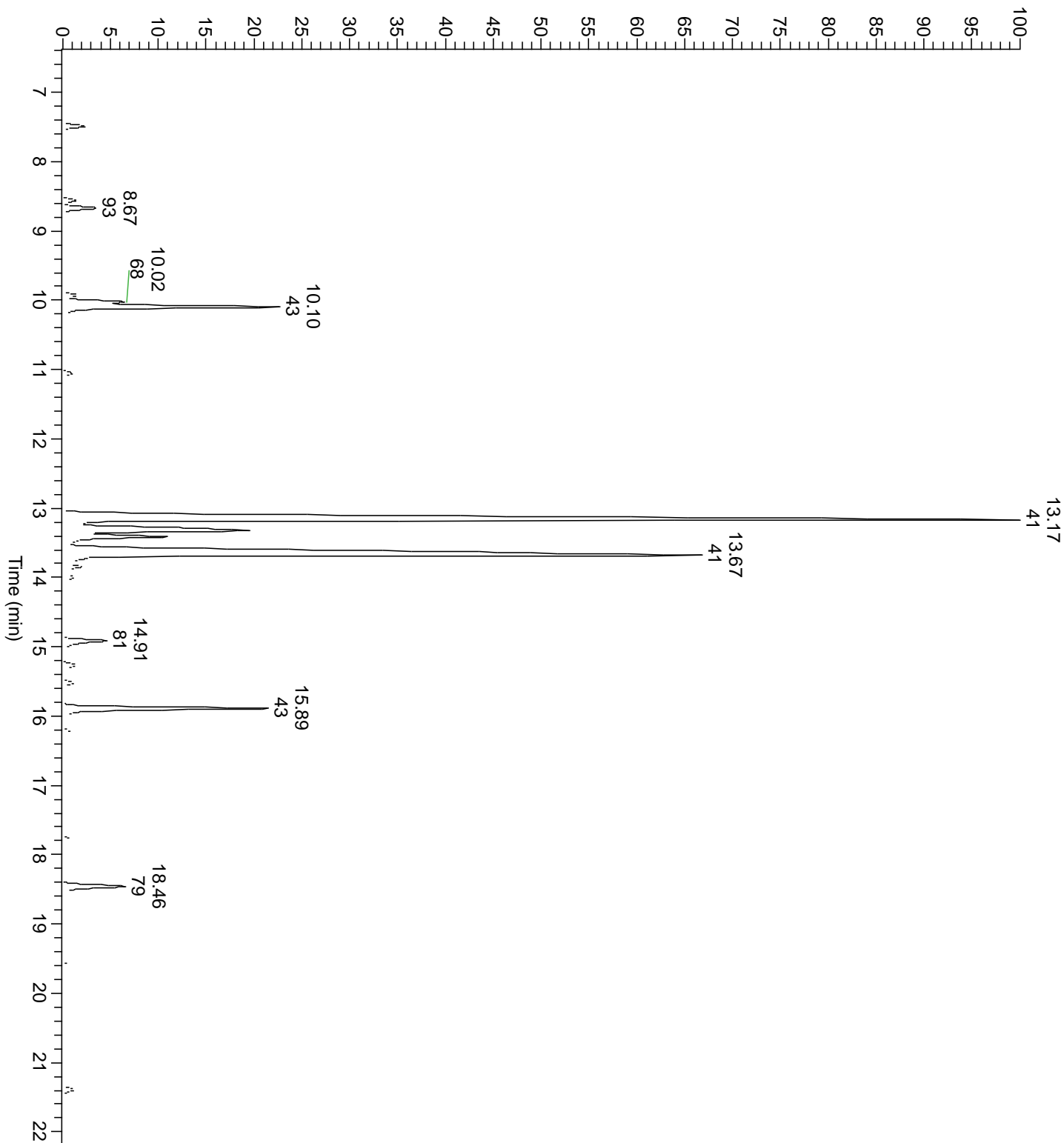
Ketones	
Menthone	34.62%
Isomenthone	7.61%
Pulegone	1.50%
Piperitone	0.49%

Ethers	
1,8-Cineole	6.49%
Caryophyllene oxide	0.43%

Esters	
Menthyl acetate	5.95%

Monoterpenes	Sesquiterpenes	Monoterpenols	Sesquiterpenols	Ketones
4.45%	2.65%	34.18%	0.09%	44.33%
Esters	Ethers	Aldehydes	Phenols	Other
6.46%	6.92%	0.00%	0.00%	0.00%





Total Percentage		99.32%				
Peak Number	RT	Area %	Compound Name	RI	Chemical Family	
1	7.31	0.03%	alpha-Thujene	927.80	Monoterpenes	
2	7.49	0.71%	alpha-Pinene	936.10	Monoterpenes	
3	7.94	0.01%	Camphene	950.30	Monoterpenes	
4	8.56	0.40%	Sabinene	973.00	Monoterpenes	
5	8.67	1.03%	beta-Pinene	977.70	Monoterpenes	
6	9.02	0.04%	Myrcene	989.20	Monoterpenes	
7	9.70	0.01%	alpha-Terpinene	1017.10	Monoterpenes	
8	9.92	0.43%	para-Cymene	1024.30	Monoterpenes	
9	10.02	1.74%	Limonene	1029.50	Monoterpenes	
10	10.10	6.49%	1,8-Cineole	1031.80	Ethers	
11	10.10	Co-Eluting	beta-Phellandrene	1030.00	Monoterpenes	
12	10.75	0.05%	gamma-Terpinene	1063.71	Monoterpenes	
13	11.05	0.32%	cis-Sabinene hydrate	1066.50	Monoterpenols	
14	11.78	0.19%	Linalool	1099.00	Monoterpenols	
15	12.94	0.02%	Isopulegol	1155.00	Monoterpenols	
16	13.17	34.62%	Menthone	1159.43	Ketones	
17	13.17	Co-Eluting	Menthofuran	1164.00	Ethers	
18	13.32	7.61%	Isomenthone	1164.33	Ketones	
19	13.41	3.36%	Neomenthol	1165.00	Monoterpenols	
20	13.67	29.29%	Menthol	1177.40	Monoterpenols	
21	13.84	0.66%	Terpinen-4-ol	1180.57	Monoterpenols	
22	13.99	0.34%	Isomenthol	1193.00	Monoterpenols	
23	14.91	1.50%	Pulegone	1244.43	Ketones	
24	15.07	0.11%	Carvone	1248.14	Ketones	
25	15.26	0.49%	Piperitone	1259.60	Ketones	
26	15.52	0.30%	neo-Menthyl acetate	1275.00	Esters	
27	15.89	5.95%	Menthyl acetate	1297.00	Esters	
28	16.21	0.21%	Isomenthyl acetate	1306.00	Esters	
29	16.73	0.03%	Bicycloelemene	1340.00	Sesquiterpenes	
30	17.18	0.17%	Menthofuro lactone	1368.00	Lactone	
31	17.60	0.03%	alpha-Copaene	1379.00	Sesquiterpenes	
32	17.77	0.19%	beta-Bourbonene	1388.70	Sesquiterpenes	
33	18.46	2.05%	beta-Caryophyllene	1427.14	Sesquiterpenes	
34	18.64	0.08%	beta-Copaene	1445.00	Sesquiterpenes	
35	18.90	0.02%	(Z)-beta-Farnesene	1453.40	Sesquiterpenes	
36	19.12	0.10%	alpha-Humulene	1461.43	Sesquiterpenes	
37	19.59	0.15%	Germacrene D	1484.71	Sesquiterpenes	
38	20.04	0.07%	Mint Lactone	1521.00	Lactone	
39	21.39	0.43%	Caryophyllene oxide	1594.86	Ethers	
40	21.60	0.09%	Ledol	1623.00	Sesquiterpenols	