



## *Essential Validation Services*



## Sample:

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Client: | Artisan Aromatics  
Sample: | Spearmint (Mentha Spicata)  
Batch # | Spearmint Sample Report  
CAS Number | 8008-79-5  
Type: | Essential Oil

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## Conclusion:

- No adulterants, diluents, or contaminants were detected via this method.
- This oil meets the expected profile for genuine essential oil of Spearmint (Mentha Spicata).



X

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Validated By:

Essential Validation Services

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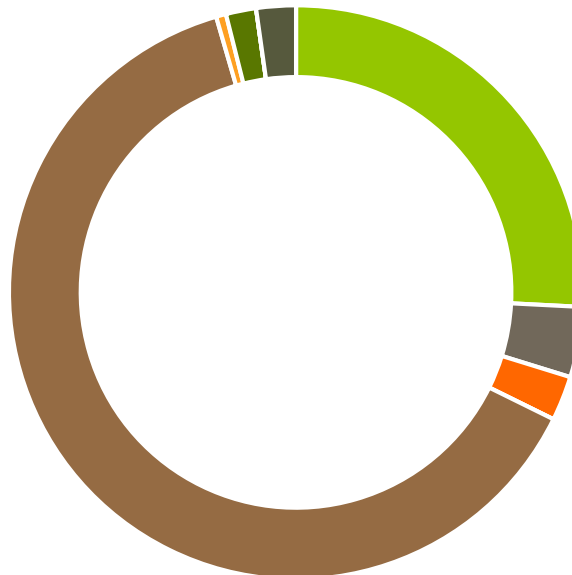
## Summary of Analyses

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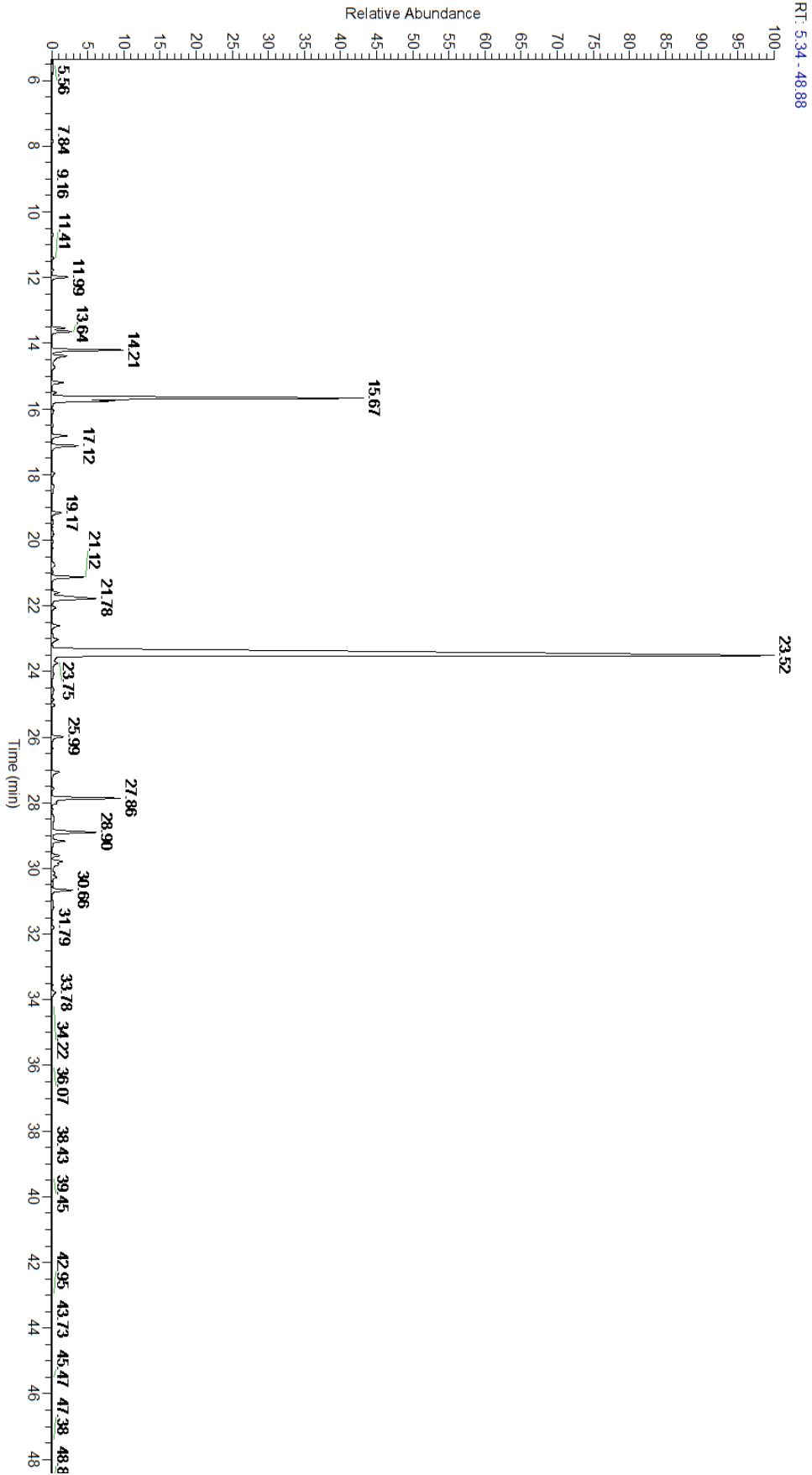
A fresh sample of Spearmint (Mentha Spicata) Essential Oil (10 uL in .5to.5 mL Hexane + ETOH) was prepared and analyzed via split injection GC/EI-MS.

Main Compounds	Percentages
Carvone	60.96%
Limonene	19.30%
Myrcene	2.56%
1,8-Cineole	1.70%
cis-Dihydrocarvone	1.35%
beta-Pinene	1.05%
beta-Bourbonene	1.02%
Terpinen-4-ol	0.94%
alpha-Pinene	0.85%
Germacrene D	0.79%
gamma-Terpinene	0.60%
beta-Copaene	0.52%

Monoterpenes	Sesquiterpenes	Monoterpenols	Sesquiterpenols	Ketones
25.81%	3.96%	2.52%	0.00%	63.22%
Esters	Ethers	Aldehydes	Phenols	Other
0.56%	1.70%	0.00%	0.00%	2.23%



- Monoterpenes   ■ Sesquiterpenes   ■ Monoterpenols
- Sesquiterpenols   ■ Ketones   ■ Esters
- Ethers   ■ Phenols   ■ Other





Total Percentage		98.39%			
Peak Number	RT	Area %	Compound Name	RI	Chemical Family
1	10.68	0.06%	2,5-Diethyltetrahydrofuran	895.30	Furan
2	11.41	0.08%	Hashishene	922.00	Monoterpene
3	11.76	0.06%	alpha-Thujene	927.80	Monoterpene
4	11.99	0.85%	alpha-Pinene	936.10	Monoterpene
5	12.58	0.01%	Camphene	950.30	Monoterpene
6	13.54	0.47%	Sabinene	973.00	Monoterpene
7	13.64	1.05%	beta-Pinene	974.00	Monoterpene
8	14.21	2.56%	Myrcene	989.20	Monoterpene
9	14.39	0.39%	3-Octanol	992.00	Aliphatic Alcohol
10	14.73	0.22%	alpha-Phellandrene	1002.00	Monoterpene
11	15.20	0.25%	alpha-Terpinene	1014.00	Monoterpene
12	15.51	0.14%	para-Cymene	1024.30	Monoterpene
13	15.67	19.30%	Limonene	1029.50	Monoterpene
14	15.76	1.70%	1,8-Cineole	1031.80	Monoterpene Ether
15	16.06	0.08%	(Z)-beta-Ocimene	1037.80	Monoterpene
16	16.82	0.60%	gamma-Terpinene	1054.00	Monoterpene
17	17.12	0.35%	trans-Sabinene hydrate	1072.00	Monoterpenol
18	17.97	0.14%	Terpinolene	1092.10	Monoterpene
19	18.39	0.12%	Linalool	1099.00	Monoterpenol
20	18.50	0.05%	1-Octenyl-3 acetate	1107.00	Monoterpene Ester
21	19.17	0.09%	Octan-3-yl acetate	1124.00	Aliphatic Ester
22	19.82	0.08%	trans-Pinocarveol	1143.75	Monoterpenol
23	20.23	0.20%	Menthone	1155.00	Monoterpene Ketone
24	20.75	0.21%	Isomenthone	1164.33	Monoterpene Ketone
25	20.97	0.13%	Menthol	1177.40	Monoterpenol
26	21.12	0.94%	Terpinen-4-ol	1180.57	Monoterpenol
27	21.60	0.27%	alpha-Terpineol	1191.71	Monoterpenol
28	21.78	1.35%	cis-Dihydrocarvone	1197.57	Monoterpene Ketone
29	22.06	0.16%	trans-Dihydrocarvone	1203.83	Monoterpene Ketone
30	22.60	0.33%	trans-Carveol	1223.14	Monoterpenol
31	23.03	0.30%	cis-Carveol	1232.25	Monoterpenol
32	23.52	60.96%	Carvone	1248.14	Monoterpene Ketone
33	23.75	0.25%	Piperitone	1258.50	Monoterpene Ketone
34	24.07	0.04%	cis-Carvone oxide		
35	24.54	0.09%	trans-Carvone oxide	1277.00	Monoterpene Ketone
36	25.99	0.40%	Dihydrocarvyl acetate	1330.50	Monoterpene Ester
37	27.06	0.02%	cis-Carvyl acetate	1368.00	Monoterpene Ester
38	27.57	0.08%	alpha-Copaene	1379.00	Sesquiterpene
39	27.86	1.02%	beta-Bourbonene	1388.70	Sesquiterpene
40	28.01	0.17%	cis-Jasmone	1390.00	Jasmonate
41	28.90	0.30%	beta-Caryophyllene	1427.14	Sesquiterpene
42	29.17	0.52%	beta-Copaene	1445.00	Sesquiterpene
43	29.61	0.27%	(E)-beta-Farnesene	1456.29	Sesquiterpene



44	29.78	0.47%	(Z)-beta-Farnesene	1453.40	Sesquiterpene
45	29.88	0.31%	alpha-Humulene	1461.43	Sesquiterpene
46	30.15	0.14%	cis-Muurola-4(14),5-diene	1465.75	Sesquiterpene
47	30.66	0.79%	Germacrene D	1484.71	Sesquiterpene
48	31.57	0.01%	gamma-Cadinene	1515.29	Sesquiterpene
49	31.79	0.05%	delta-Cadinene	1524.14	Sesquiterpene

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