



Aromatic Plant Research Center

We provide uncompromising
quality control for your products.

Customer: doTERRA International

Lot Number: 1908510

Date Filled: 3/26/2019

Column: ZB5 (60 m length × 0.25 mm inner diameter × 0.25 µm film thickness)

Instrument: Shimadzu GCMS-QP2010 Ultra

Carrier gas: Helium 80 psi

Temperature ramp: 2 degrees celsius per minute up to 260-degrees celsius

Split ratio: 30:1

Sample preparation: 5%w/v solution with Dichloromethane.



Comments:

The analysis of this Peppermint lot revealed no contaminants or adulteration.

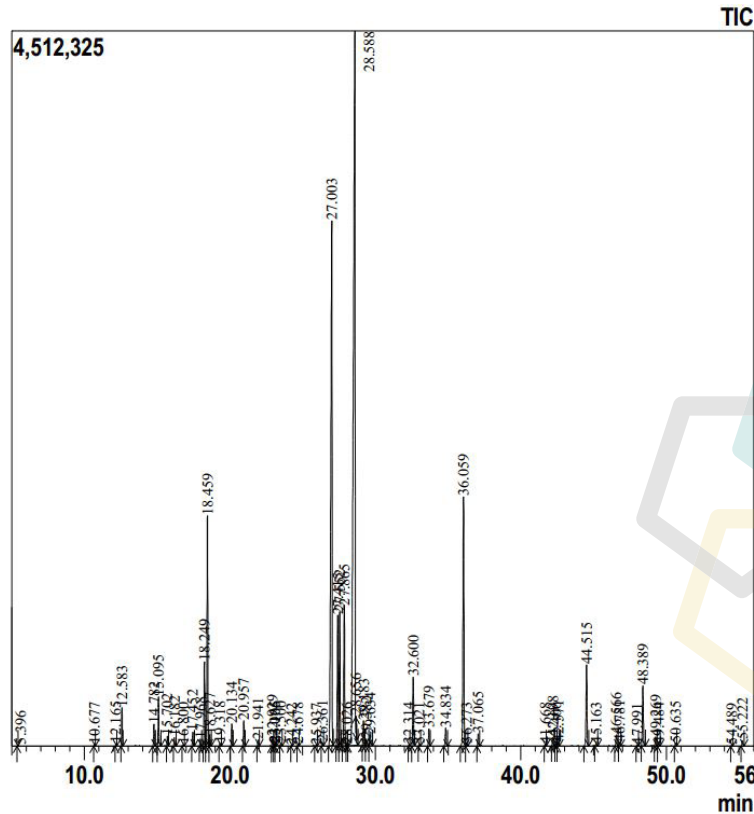
The sample meets the expected chemical profile for authentic essential oils of *Mentha piperita*.



Peppermint Essential Oil

Customer: doTERRA International
Lot Number: 1908510
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Chromatogram



Peak Report

Ret.Time	Compound Name	Area %	Ret.Time	Compound Name	Area %	Ret.Time	Compound Name	Area %
5.396	Pentanol	0.02	23.5	2-Methyl butyl isovalerate	0.06	36.273	Dihydroedulan	0.07
10.677	2,5-diethyltetrahydro-Furan	0.03	24.242	3-Octyl acetate	0.03	37.065	iso-Menthyl acetate	0.34
12.185	alpha-Thujene	0.05	24.678	cis-para-Menth-2-en-1-ol	0.05	41.668	alpha-Copaene	0.04
12.583	alpha-Pinene	0.75	25.937	trans-para-Menth-2-en-1-ol	0.04	42.198	alpha-Bourbonene	0.24
14.782	Sabinene	0.46	26.381	Isopulegol	0.09	42.406	beta-Bourbonene	0.04
15.095	beta-Pinene	1.12	27.003	Menthone	19.76	42.571	beta-Elimene	0.09
15.702	Myrcene	0.21	27.415	Menthofuran	3.52	44.515	beta-Caryophyllene	2.54
16.182	3-Octanol	0.19	27.552	Isomenthone	3.45	45.163	beta-Copaene	0.06
16.8	alpha-Phellandrene	0.04	27.865	Neomenthol	3.96	46.566	trans-beta-Farnesene	0.35
17.452	alpha-Terpinene	0.32	28.026	Borneol	0.03	46.781	alpha-Humulene	0.11
17.968	para-Cymene	0.16	28.588	Menthol	38.07	47.991	trans-Cadin-1(6),4-diene	0.03
18.249	Limonene	2.06	28.656	Terpinen-4-ol	0.1	48.389	Germacrene D	1.81
18.459	1,8-cineole	5.46	29.183	iso-Menthol	0.64	49.269	Bicyclogermacrene	0.28
18.627	cis-beta-Ocimene	0.27	29.382	neiso-Menthol	0.19	49.484	Valencene	0.06
19.318	trans-beta-Ocimene	0.07	29.634	alpha-Terpineol	0.33	50.635	delta-Cadinene	0.09
20.134	gamma-Terpinene	0.53	32.314	3-cis-Hexenyl 2-methyl butanoate	0.03	54.489	Caryophyllene oxide	0.03
20.957	cis-Sabinene hydrate	0.63	32.6	Pulegone	1.87	55.222	Viridiflorol	0.18
21.941	Terpinolene	0.15	33.021	Carvone	0.04			
22.929	Linalool	0.23	33.679	Piperitone	0.47			
23.065	trans-Sabinene hydrate	0.06	34.834	neo-Menthyl acetate	0.53			
23.106	2-Methyl butyl-2-methyl butyrate	0.06	36.059	Menthyl acetate	7.51			

Area Total: 100

Comments:

The analysis of this Peppermint lot revealed no contaminants or adulteration.
The sample meets the expected chemical profile for authentic essential oils of *Mentha piperita*.

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