



PLANT THERAPY

100% PURE ESSENTIAL OILS

GC/MS BATCH NUMBER: P50102

ESSENTIAL OIL: PEPPERMINT
BOTANICAL NAME: MENTHA PIPERITA
ORIGIN: INDIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF PEPPERMINT OIL	%
MENTHOL	39.5
MENTHONE	23.2
1,8-CINEOLE	5.5
MENTHYL ACETATE	4.1
ISOMENTHONE	3.7
NEOMENTHOL	3.0
β -CARYOPHYLLENE	2.7
LIMONENE	2.5
MENTHOFURAN	2.0
PULEGONE	1.3
β -PINENE	1.2
Trans-THUJANOL [(E)-SABINENE HYDRATE]	0.2
3-OCTANOL	0.2

Comments from Robert Tisserand: A very good quality Indian peppermint oil. It conforms to the ISO standard apart from slightly low trans-thujanol which is not an issue in my opinion.

CUSTOMER :

**PLANT THERAPY
126 Locust Street South
Twin Falls, ID 83 301
USA**

Sample nature: ESSENTIAL OIL
Botanical species: MENTHA PIPERITA
Reference name: PEPPERMINT
Batch number: P50102
Origin: INDIA
Part: LEAF AND FLOWER
Pyrenessences reference: E004
Date of reception: 06/15/2015
Date analysis: 06/23/2015
Packaging: Amber flask of 5 ml – ambient temperature
Analysis: Classic

Validated report by :

Daniel DANTIN



GAS CHROMATOGRAPHY norm NF ISO 11024

Analysis conditions :

CPG 7890 / MS 5975 – Column : VF WAX polar 60 m × 0,25 mm × 0,5 µm

CPG 5890 FID - Column : HP INNOWAX polar 60 m × 0,25 mm × 0,5 µm

Temperature program : 6 mn to 60 °C -2 °C/mn→250 °C - 20mn to 250 °C

Carrier gas He : 23 psis/MS – 30 psis/FID

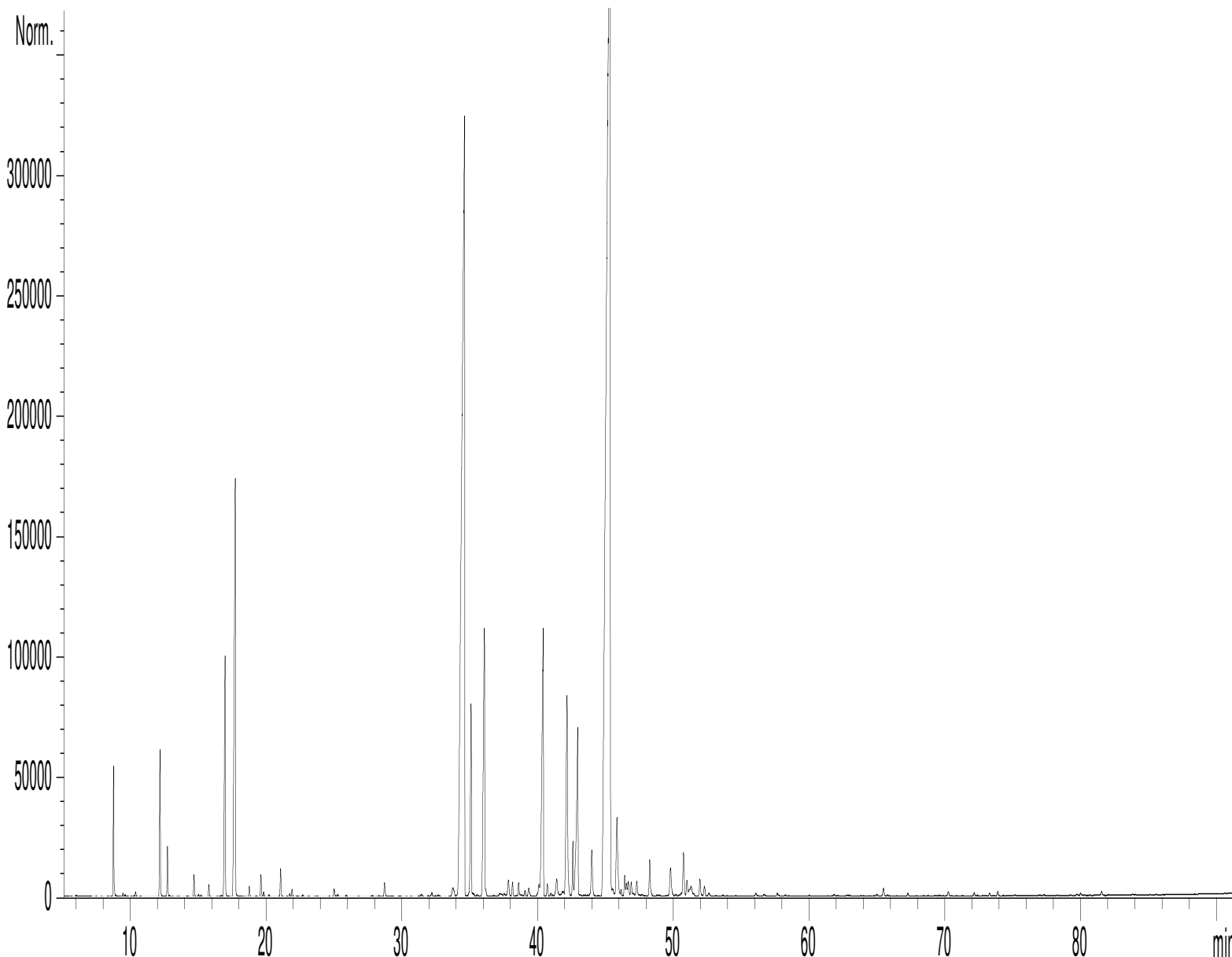
Sample injection / split : 1 µl of 10 % solution in hexane,

Mass range : 30 to 350, Oil components are identified by a combination of retention times (our own database) and mass spectra library NKS 75 000 records,

Percentages are calculated from GC/FID peaks areas without using corrections factors,

Chromatographic profile (GC/FID)

FID1 A, (Y:\PLANTHER\MP15E004.D)



Identification results 1 : PEPPERMINT INDIA BATCH P50102

Peak	RT (min)	Compound name	%	Others origins Norm	Allergens (%)
1	8,9	α -PINENE	0,89		
2	8,9	α -THUYENE	0,05		
3	9,4	TETRAHYDROFURAN, 2,5-DIETHYL	0,02		
4	9,6	BUTYRATE, 2-METHYL ETHYL-	0,01		
5	10,2	p-MENTH-3-ENE	0,01		
6	10,4	CAMPHENE	0,04		
7	12,2	β -PINENE	1,17		
8	12,7	SABINENE	0,37		
9	12,9	PINADIENE	0,01		
10	14,2	Δ 3-CARENE	0,01		
11	14,6	β -MYRCENE	0,17		
12	15,0	α -PHELLANDRENE	0,02		
13	15,2	ψ -LIMONENE	0,01		
14	15,7	α -TERPINENE	0,10		
15	16,4	2,3-DEHYDRO-1,8-CINEOLE	0,01		
16	16,7	ISOAMYL ALCOHOL	0,02		
17	17,0	LIMONENE	2,49	1,0 – 3,0	2,49
18	17,7	1,8-CINEOLE	5,51	3,0 – 8,0	
19	18,1	MENTHATRIENE ISOMER	0,01		
20	18,7	Cis- β -OCIMENE	0,09		
21	19,6	γ -TERPINENE	0,19		
22	19,8	Trans- β -OCIMENE	0,04		
23	20,2	3-OCTANONE	0,02		
24	21,0	3,8-p-MENTHADIENE	0,01		
25	21,1	p-CYMENE	0,24		
26	21,7	2-METHYLBUTYL 2-METHYLBUTYRATE	0,03		
27	21,9	TERPINOLENE	0,06		
28	22,7	AMYL ISOVALERATE	0,02		
29	25,0	CYCLOHEXANONE, 3-METHYL	0,08		
30	25,3	6-METHYL-5-HEPTEN-2-ONE	0,03		
31	25,9	1-HEXANOL	0,02		
32	27,8	ALLO-OCIMENE + 1-OCTEN-3-YL ACETATE	0,01		
33	28,0	3-HEXEN-1-OL	0,01		
34	28,3	MYRTENYL METHYL ETHER	0,02		
35	28,7	3-OCTANOL	0,15	0,1 – 0,5	
36	29,2	CYCLOHEXENE, 1-PENTYL-	0,01		
37	31,3	cis-3-METHYLCYCLOHEXANOL	0,04		
38	31,4	TETRAHYDROLINALOL	0,03		
39	31,9	α ,p-DIMETHYLSTYRENE	0,01		
40	32,2	LINALOOL Cis-OXIDE + 1-OCTEN-3-OL	0,05		
41	32,4	HEXYL BUTYRATE, 3-METHYL-	0,01		
42	32,6	β -THUYONE	0,01		
43	32,7	Trans-3-METHYLCYCLOHEXANOL	0,02		
44	33,7	Trans-THUYANOL	0,18	0,5 – 2,0	
45	34,6	MENTHONE	23,23	13,0 – 28,0	

Identification results 2 : PEPPERMINT INDIA BATCH P50102

Peak	RT (min)	Compound name	%	Others origins Norm	Allergens (%)
46	35,1	MENTHOFURANE	2,04	1,0 – 8,0	
47	35,3	Cis-3-HEXENYL METHYLBUTYRATE	0,05		
48	35,5	YLANGENE	0,03		
49	36,0	ISOMENTHONE	3,71	2,0 – 8,0	
50	36,1	α -COPAENE	0,08		
51	37,2	COMPONENT Mw=152	0,10		
52	37,5	α -BOURBONENE	0,05		
53	37,8	β -BOURBONENE	0,26		
54	38,1	NEOMENTHYL ACETATE	0,16		
55	38,4	α -GURJUNENE	0,02		
56	38,6	LINALOOL	0,15		0,15
57	38,7	β 1-CUBEBENE	0,04		
58	39,1	cis-THUYANOL + p-MENTHA-4-OL	0,08		
59	39,3	1-OCTANOL	0,10		
60	39,4	PINOCAMPHONE	0,04		
61	40,1	Trans-p-MENTH-2-EN-1-OL	0,17		
62	40,4	MENTHYL ACETATE	4,13	2,0 – 8,0	
63	40,7	ISOPULEGOL	0,15		
64	40,9	Cis-ISOPULEGONE	0,04		
65	41,4	ϵ -CADINENE + ISOMENTHYL ACETATE	0,33		
66	41,9	Trans-ISOPULEGONE	0,11		
67	41,1	NEOMENTHOL	2,95	2,0 – 6,0	
68	42,2	β -ELEMENE	0,15		
69	42,5	TERPINENE-4-OL	0,40		
70	42,6	β -CUBEBENE	0,08		
71	42,9	β-CARYOPHYLLENE	2,74	1,0 – 3,5	
72	43,1	SESQUITERPENE	0,01		
73	43,4	AROMADENDRENE	0,04		
74	43,9	NEOISOMENTHOL	0,65		
75	44,5	MYRTENAL	0,02		
76	45,3	MENTHOL	39,46	32,0 – 49,0	
77	45,5	1-NONANOL	0,12		
78	45,8	PULEGONE	1,31	0,5 – 3	
79	46,1	ALLO-AROMADENDRENE	0,07		
80	46,4	E- β -FARNESENE	0,22		
81	46,5	ISOMENTHOL	0,15		
82	46,6	δ -TERPINEOL	0,19		
83	46,8	ZONARENE	0,17		
84	47,0	SESQUITERPENE	0,05		
85	47,3	α -HUMULENE	0,22		
86	47,5	Cis-4,5-MUUROLADIENE	0,02		
87	47,6	MYRTENYL ACETATE	0,04		
88	48,2	α -TERPINEOL	0,40		
89	48,3	Trans-SABINOL	0,05		
90	48,8	BORNEOL	0,02		

Identification results 3 : PEPPERMINT INDIA BATCH P50102

Peak	RT (min)	Compound name	%	Others origins Norm	Allergens (%)
91	49,0	LEDENE	0,03		
92	49,8	GERMACRENE D	0,49		
93	50,2	SESQUITERPENE	0,03		
94	50,5	α -MUUROLENE	0,06		
95	50,7	PIPERITONE	0,59		
96	51,0	CARVONE	0,20		
97	51,3	BICYCLOGERMACRENE	0,27		
98	51,5	Trans-ISOPIPERITENOL	0,04		
99	51,9	1-DECANOL	0,20		
100	52,0	CITRONELLOL	0,02		0,02
101	52,1	MYRCENYL ACETATE	0,02		
102	52,2	δ -CADINENE	0,12		
103	52,6	γ -CADINENE	0,05		
104	52,7	CYCLOALKYL COMPONENT	0,01		
105	53,1	METHYL SALICYLATE + α -BISABOLENE	0,02		
106	53,6	MYRTENOL	0,03		
107	54,0	NEROL	0,02		
108	54,5	α -AMORPHENE	0,02		
109	56,1	Trans-ANETHOL + trans-CARVEOL	0,06		
110	56,5	GERANIOL	0,01		0,01
111	56,6	CALAMENENE	0,02		
112	56,7	p-CYMENE-8-OL	0,01		
113	57,6	E-GERANYL ACETONE	0,06		
114	58,2	PERILLYL ACETATE	0,02		
115	60,0	PHENYL ETHYL ALCOHOL	0,02		
116	61,8	PIPERITENONE	0,03		
117	62,8	Trans-JASMONE	0,02		
118	63,0	AROMATIC COMPONENT	0,01		
119	63,8	2-PHENYLETHYL ESTER	0,01		
120	65,0	ISOCARYOPHYLLENE EPOXIDE	0,02		
121	65,5	CARYOPHYLLENE EPOXIDE	0,11		
122	65,7	METHYL, DIISOPROPYLPHENOL ISOMER	0,02		
123	67,3	NEROLIDOL	0,04		
124	70,2	VIRIDIFLOROL	0,05		
125	72,2	SPATHULENOL	0,04		
126	73,3	EUGENOL	0,03		0,03
127	73,9	THYMOL	0,05		
128	77,3	α -CADINOL	0,01		
129	80,0	PHENOL, 1,1-DIMETHYL-2-METHYL	0,02		
130	81,5	MINT LACTONE	0,05		
131	95,5	AROMATIC COMPONENT	0,03		
		TOTAL	99,86		2,70