

Certificate of Analysis

Analysed essential oil : **Black Spruce (organic)**

Analysis date : February, 9th 2016

Batch : 039AD602

Shelf life : March 2018

❖ General description

Essential oil	Black Spruce	Origin	Canada
Latin name	<i>Picea mariana</i>		

❖ Organoleptic characteristics

Appearance	Clear and mobile liquid
Colour	Colourless
Odour	Characteristic

❖ Physico-chemical characteristics

	Results (at 20°C)	Technical specifications				
Specific gravity	0.904	0.900	<	d	<	0.915
Refractive index	1.4693	1.4670	<	IR	<	1.4720
Optical rotation	-24.65°	-40°	<	$[\alpha]^{20}_d$	<	-25°

❖ Volatile elucidation

GC : Perkin Elmer – Clarus 500

Column : Elite - 1, 30 m, Ø 0.25 mm, 0.25 µm df

Injection : split

Detector : FID

Carrier gas : H₂

⇒ See Chromatogram : non-polar column

Date : 2016-02-09

Software Version : 6.2.0.0:B27
 Sample Name : Epinette noir Bio
 Instrument Name : CLARUS 500
 Rack/Vial : 0/6
 Sample Amount : 1.000000
 Cycle : 6

Date : 10/02/2016 14:50:59
 Data Acquisition Time : 09/02/2016 00:41:23
 Channel : A
 Operator : Davenne
 Dilution Factor : 1.000000

Result File :
 Sequence File : C:\Sequences\CPG\2016\160208b.seq

Rapport d'analyse

colonne apolaire

Pic #	Component Name	TR [min]	Area [%]
1	santene	8.00	3.75
2	tricyclene	9.37	1.82
3	thujene <alpha>	9.55	0.19
4	pinene <alpha>	9.82	15.64
5	camphene + fenchene <alpha>	10.31	16.81
6	sabinene	11.22	0.26
7	pinene <beta>	11.37	4.31
8	myrcene	11.99	3.44
9	phellandrene <alpha>	12.51	0.39
10	carene <delta-3>	12.86	7.80
11	terpinene <alpha>	13.04	0.26
12	cymene <p>	13.18	0.17
13	phellandrene <beta> + cineole	13.49	1.41
14	limonene	13.58	3.32
15	terpinene <gamma>	14.83	0.21
16		15.17	0.03
17		15.91	0.05
18		16.01	0.06
19	terpinolene	16.16	1.05
20	linalool	16.46	0.28
21		17.24	0.13
22		17.37	0.06
23	camphor	17.90	0.08
24		18.08	0.11
25		18.42	0.45
26		18.58	0.07
27		18.86	0.05
28		18.98	0.04
29	borneol	19.24	1.15
30	terpinen-4-ol	19.82	0.21
31		20.17	0.03
32	terpineol <alpha>	20.33	0.31
33		20.66	0.05
34		20.97	0.10
35		21.53	0.03
36	fenchyl acetate <endo>	21.87	0.29
37		22.18	0.09
38		23.33	0.05
39		24.09	0.06
40		24.41	0.12
41	bornyl acetate	24.68	25.71
42		25.08	0.36
43		26.69	0.17
44		26.87	0.04
45		27.02	0.03
46		27.36	0.10
47		27.56	0.10
48		27.97	0.09
49	geranyl acetate	28.69	0.25
50		29.03	0.08
51	elemene<beta>	29.57	0.22
52		30.12	0.14
53	caryophyllene <(E)>	30.68	0.49
54		31.06	0.04
55		31.69	0.05
56		31.83	0.09
57	humulene <alpha>	31.98	0.19
58		32.31	0.11

10/02/2016 14:50:59 Result:

Pic #	Component Name	TR [min]	Area [%]
59		32.62	0.05
60		32.79	0.13
61		32.88	0.28
62	germacrene D	33.03	0.43
63		33.23	0.06
64		33.40	0.09
65		33.54	0.05
66		33.65	0.06
67	muurolene <alpha>	33.82	0.58
68	cadinene <gamma>	34.28	0.73
69	calamenene <trans>	34.43	0.10
70	cadinene <delta>	34.67	2.55
71		35.00	0.10
72		35.22	0.18
73		35.44	0.30
74		36.02	0.04
75		37.92	0.04
76		38.35	0.06
77	cadinol <epi-alpha>	38.75	0.47
78		38.90	0.12
79	cadinol <alpha>	39.19	0.43
80		40.74	0.04
81		41.52	0.03
82		41.91	0.06
			<hr/> 100.00

Chromatogram

Sample Name : Epinette noir Bio Sample #: 039AD602 Page 1 of 1
FileName : C:\Data\Colonne Apolaire\Huiles Essentielles\Epinette\Noire\2016\epinette noire bio 160208.raw
Date : 10/02/2016 14:50:59
Method : epinette noire.mth Time of Injection: 09/02/2016 00:41:23
Start Time : 0.00 min End Time : 82.00 min Low Point : -47.24 mV High Point : 993.88 mV
Plot Offset: -47.24 mV Plot Scale: 1041.1 mV

