## **ANALYSIS Forest Amber Essential Oil**

## Laboratoire PhytoChemia









Date: August 11, 2017

## SAMPLE IDENTIFICATION

Internal code: 17G28-FSE8-1-CC

Customer identification: Forest Amber - USA - HOA-17517

Type: Essential oil

Source: Pinus edulis and Pynion pine Customer: Flowers Shining Everywhere Inc.

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ANALYSIS

Method: PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).

 Identifications double-checked by GC-MS Analyst: Alexis St-Gelais, M. Sc., chimiste

Analysis date: 2017-07-31

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Checked and approved by:

Alexis St-Gelais, M. Sc., chimiste 2013-174

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livingilpotion	Column: BP5			Column: WAX			2017/1920
Identification	R.T. B.L %			% R.L. R.T.			Molecular Class
Toluene	1.33	760	0.02	50.24	960	1.07*	Simple phenolic
Ethyl 2-methylbutyrate	2.28	850	0.02	0.38	991	1.21*	Aliphatic ester
Tricyclene	3.25	919	0.39	0.37	925	0.93	Monoterpene
a-Thujene	3.34	924	0.09	[50.24]	960	1.07*	Monoterpene
a-Pinene	3.52	935	49.83	[50.24]	960	1.07*	Monoterpene
a-Fenchene liv	372	U 947 II	0.37	[0.38]	991	1.21*	Monoterpene
Camphene	3.74	048	1.65	1.75	1002	1,26	Monoterpene
Thuja-2,4(10)-diene	3.83	953	0.10	0.08	1053	1.70	Monoterpene
Sabinene	4.17	974	0.27	0.23	1055	1.72	Monoterpene Ch.
β-Pinana	4.25	978	6.49	6.43	1042	1.59	Monoterperios
Myrcene	4.53	995	5.14	5.08	1104	2.27	Monoterpene
Hexyl acetate	4.73	1007	0.02	0.01	1218	3.53	Allphatic ester
Mingas carene	4.80*	1010	2.92	2.48	1083	2.02	Monoterpene
+ a-Pheliandrene	4.80*	1010	(2.92)	0.35	1097	2.18	Monoterpene
a-Terpinene	4.97	1020	0.33	0.37	1124	2.34	Monoterpene
β-Phellandrene	5.27*	1036	15.11	13.21	1151	2.68	Monoterpene
Limonene	5.27*	10350	915341	0.73	1143	2.57	Monoterpene
para-Cymene	5.27*	1036	[15,11]	0.26	1204	3.36	Monoterpene
cis-β-Ocimene	5.39	1042	0.49	0.47	1186	3.13	Monoterpene
trans-β-Ocimene	5.56	1052	0.06	0.05	1200	3.30	Monoterpene
y-Terpinene	5.75	1062	0.35	0.35	1184	3.11	Monoterpene
Terpinolene	6.24	1089	0.93	0.89	1222	3/60/4	Monoterpene
Methyl 6-	6.36	1096	0.47	0.49	1288	4.52*4	Aliphatic ester
methylheptanoate							
para-Cymenene	6.46	1100	0.12	0.10	1365	5.66	Monoterpene
Linalgol	6.56	1104	0.02	0.01	1481	7.77	Monoterp, alcohol
Ethyl heptanoate	6.60	1106	0.04	100 miles (100 miles			Aliphatic ester
endo-Fenchol	7.21*	11.28	0.14	0.09	1507	8.37*	Monoterp, alcohol
g-Campholenal	7.21*	1126	[0.14]	10000000		IPANAS	Monoterp, aldehyde
Methyl octanoate	7.30	FEST	9011	(0.49)	1288	4.52*	Aliphatic ester
trans-Pinocarveol	7.66	1145	- 0.10 e	0.09	1565	9.98	Monoterp, alcohol
Ethyl 6-methylheptanoate?	8.18	1164	1.65	1.72	1341	5.29	Aliphatic ester
o-Phellandren-8-ol	8.57	1178	0.09				Monoterp, alcohol
Borneol	8.69	1182	0.12	0.13	1611	11.60	Monoterp, alcohol
Terpinen-4-of	8.86	1189	0.36	0.56	1526	9.81*	Monoterp, alcohol
pari Dymen 8 of	9.10	1197	0.04				Monoterp, alcohol
Cryptone	9.23	1201	0.09	0.12	1563	9.90	Monoterp. ketone
Ethyl octanoate	9.43	1206	1.01	0.96	1386	5.97	Aliphatic ester
a-Terpineol	9.54	1208	0.52	0.55	1615	11.77*	Monoterp. alcohol
Thymol methyl ether	10.71	1234	1.08	1.08	1521	8.68	Monoterp. ether
Bornyl acetate	13.03	1285	3.08	3.20	1500	8.22	Monoterp. ester

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dinene dinene Cadina-1,4-diene dinene tinol urolol dinol Total identified	28.85 29.52 29.69 29.89 37.63 37.74 37.86 38.18	1504 1513 1515 1518 16461 9 1648 1651 1659	0.25 0.81 0.03 0.02 0.08 0.09 0.03 0.19	0.27 [0.85] 0.02 0.04 0.09 0.11 0.04 0.19	1676 1682 1691 1709 2073 2090 2105 2130	14.36 14.62* 15.08 16.03 37.24 37.75 38.21 38.98	Sesquiterpene Sesquiterpene Sesquiterpene Sesquiterp. alcohol Sesquiterp. alcohol Sesquiterp. alcohol Sesquiterp. alcohol
dinone dinone -Cadina-1,4-diene dinone tinol urolol	28.85 29.52 29.69 29.89 37.63 37.74	1513 1515 1518 164619	0.81 0.03 0.02 0.08 0.09	0.27 [0.85] 0.02 0.04 0.09 0.11	1682 1691 1709 2073 2090	14.36 14.62* 15.08 16.03 37.24 37.75	Sesquiterpene Sesquiterpene Sesquiterpene Sesquiterp, alcohol Sesquiterp, alcohol
dinene dhene -Cadina-1,4-diene dinene tinol	28.85 29.52 29.69 29.89 37.63	1513 1515 1518 16461 9	0.81 0.03 0.02 0.08	0.27 [0.85] 0.02 0.04 0.09	1682 1691 1709 2073	14.36 14.62* 15.08 16.03 37.24	Sesquiterpene Sesquiterpene Sesquiterpene Sesquiterpene Sesquiterp, alcohol
dinone dinone -Cadina-1,4-diene dinone	28.85 29.52 29.69 29.89	1513 1515 1518	0.81 0.03 0.02	0.27 [0.85] 0.02 0.04	1682 1691 1709	14.36 14.62* 15.08 16.03	Sesquiterpene Sesquiterpene Sesquiterpene Sesquiterpene
dinene dhene -Cadina-1,4-diene	28.85 29.52 29.69	1513 1515	0.81	0.27 [0.85] 0.02	1682 1691	14.36 14.62* 15.08	Sesquiterpene Sesquiterpene Sesquiterpene
linene Jihene	28.85 29.52	1513	0.81	0.27 [0.85]	1682	14.36 14.62*	Sesquiterpene Sesquiterpene
linene	28.85		100000	0.27	1107070	14.36	Sesquiterpene
linene	10000	1504	0.25		1676		E-MILES COLUMN TO THE REAL PROPERTY OF THE PERTY OF THE P
urolene							
District Co.	27.80	1491	0.30	10.301	1656	13.35*	Sesquiterpene
acrene D	25.77	1466	0.87	0.89	1629	12,26	Sesquiterpene
urolene	25.63	1464	0.26	[0.55]	1615	11.77*	Sesquiterpene
-Cadina-1(6),4-diene	25.19	1459	0.06	0.06	1588	10.82	Sesquiterpene
-β-Famesene	24.21	1447	0.02	0.93	1620	11.95	Sesquiterpene .
mulene	23.52	1439	0.02	0.02	1581	10.56	Sesquiterpene
paene	2164	1416	0.05	[0.09]	1507	8.37*	Sesquiterpene
ryophyllene	20.73	1406	0.18	[0.56]	1526	8.81*	Sesquiterpene
decanoate	20.10	1397	0.08	2000	- Sec. 19		Aliphatic ester
nyl acetate	19.40	1387	0.09	0.85	1682	14.62"	Monoterp. ester
Ifolene	19.04	1381	0.14	0.21	1491	8.01	Sesquiterpene
urbonene	18.24	1369	0.14	0.17	1461	7.31	Sesquiterpene
paene	17.81	1363	0.34	0.34	1443	6.90	Sesquiterpene
acetate Dollory	17.35	1356	0.05	0.30	1656	13.95*	Monoterp, ester
	16.76	1347	0.27	0.13	1605	11.40	Monoterp. ester
	paerie	pinyl acetate 17.35 saerie 17.81 irbonene 18.24 folene 19.04 nyl acetate 19.40 decanoate 20.10 yophyllene 20.73 xaerie 22.64 mulene 23.52 G-Farmesene 24.21 Cadina-1(6),4-diene 25.19 urolene 25.63 acrene D 25.77	pinyl acetate 16.76 1347 scetate 17.35 1356 saene 18.24 1369 strbonene 18.24 1369 folene 19.04 1381 nyl acetate 19.40 1387 decanoate 20.10 1397 yophyllene 20.73 1406 saene 17.64 1416 saene 23.52 1439 G-Farnesene 24.21 1447 Cadina-1(6),4-diene 25.19 1459 urolene 25.63 1464 acrene D 25.77 1466	pinyl acetate 16.76 1347 0.27 17.35 1356 0.05 17.81 1363 0.34 17.81 1369 0.14 1361 0.14 1381 0.14 1381 0.14 1387 0.09 1387 0.09 1387 0.09 1387 0.09 1387 0.08 1387 0.09 1387 0.08 1387 0.05 1387 0.	pinyl acetate 16.76 1347 0.27 0.13 17.35 1356 0.05 0.30 17.81 1363 0.34 0.34 17.81 1363 0.34 0.34 17.81 1369 0.14 0.17 18.24 1369 0.14 0.21 18.24 1369 0.14 0.21 18.24 1387 0.09 0.85 18.24 1387 0.09 0.85 18.24 1387 0.09 0.85 18.25 18.	pinyl acetate 16.76 1347 0.27 0.13 1605 acetate 17.35 1356 0.05 0.30 1656 acetate 17.81 1363 0.34 0.34 1443 arbonene 18.24 1369 0.14 0.17 1461 folene 19.04 1381 0.14 0.21 1491 ayl acetate 19.40 1387 0.09 0.85 1682 decanoate 20.10 1397 0.08 yophyllene 20.73 1406 0.18 (0.56) 1526 acetate 23.52 1439 0.02 0.02 1581 β-Farmesene 24.21 1447 0.02 0.93 1620 Cadina-1(6),4-diene 25.19 1459 0.06 0.06 1588 arolene 25.63 1464 0.26 [0.55] 1615 acrene D 25.77 1466 0.87 0.89 1629	pinyl acetate 16.76 1347 0.27 0.13 1605 11.40 acetate 17.35 1356 0.05 0.30 1656 13.85° acetate 17.81 1363 0.34 0.34 1443 6.90 arbonene 18.24 1369 0.14 0.17 1461 7.31 folene 19.04 1381 0.14 0.21 1491 8.01 nyl acetate 19.40 1387 0.09 0.85 1682 14.62° decanoate 20.10 1397 0.08 yophyllene 20.73 1406 0.18 [0.56] 1526 8.81° xeene 21.64 1416 0.05 [0.09] 1507 8.37° nulene 23.52 1439 0.02 0.02 1581 10.56 β-Farnesene 24.21 1447 0.02 0.93 1620 11.96 Cadina-1(6),4-diene 25.19 1459 0.06 0.06 1588 10.82 prolene 25.63 1464 0.26 [0.55] 1615 11.77° acrene D 25.77 1466 0.87 0.89 1629 12.26 prolene 25.77 1466 0.87 0.

<sup>\*:</sup> Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, not taken account in the identified total \*

Note; no correction factor was applied

OTHER DATA

Physical aspect aClear liquid

Refractive Index: 1.4693 ± 0.0003 (20 °C)

CONCLUSION

No adulterant, contaminant or diluent were detected using this method.

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