

Fir,White Essential Oil

Laboratoire
PhytoChemia



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Date : June 20, 2017

SAMPLE IDENTIFICATION

Internal code : 17F08-PSE25-1-DM

Customer Identification : Siberian Fir - Lot #0018893

Type : Essential oil

Source : Abies sibirica

Customer : Flowers Shining Everywhere Inc.



ANALYSIS



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

Analyst : Sylvain Mercier, M. Sc., chimiste

Analysis date : 2017-06-20

Checked and approved by :



Alexis St-Gelais

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



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IDENTIFIED COMPOUNDS

Identification	Column: BPS			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
Santene	2.62	876	2.74	2.70	898	0.84	Normonoterpene
Tricyclene	3.23	917	2.40	2.44	927	0.96	Monoterpene
α -Thujene	3.31	923	0.08	0.33	959	1.09	Monoterpene
α -Pinene	3.44	930	12.72	12.35	954	1.07	Monoterpene
Camphene	3.75*	949	23.74	23.57	1016	1.35	Monoterpene
α -Fenchene	3.75*	949	[23.74]	0.02	996	1.26	Monoterpene
Thuja-2,4(10)-diene	3.80*	952	0.01	0.02	1062	1.78*	Monoterpene
Sabinene	4.12*	971	0.06	[0.02]	1062	1.78*	Monoterpene
Benzaldehyde	4.12*	971	[0.06]	0.02	1434	6.80	Simple phenolic
β -Pinene	4.20	975	2.17	2.10	1046	1.64	Monoterpene
Myrcene	4.47	992	0.58	0.57	1119	2.33	Monoterpene
Δ^3 -Carene	4.79*	1009	12.21	11.90	1098	2.12	Monoterpene
α -Phellandrene	4.79*	1009	[12.21]	0.11	1111	2.25	Monoterpene
α -Terpinene	4.93	1018	0.06	0.05	1125	2.41	Monoterpene
para-Cymene	5.13	1028	0.14	0.19	1209	3.48	Monoterpene
Limonene	5.18	1031	5.08	4.53	1145	2.66	Monoterpene
β -Phellandrene	5.21	1031	2.84	3.24	1150	2.73	Monoterpene
γ -Terpinene	5.21	1060	0.10	0.09	1189	3.23	Monoterpene
Isoterpinolene	6.10	1081	0.04	0.03	1220	3.63	Monoterpene
Terpinolene	6.18	1086	0.85	0.80	1226	3.70	Monoterpene
para-Cymenene	6.38	1097	0.04	0.02	1371	5.83	Monoterpene
Linalool	6.64	1107	0.02	0.02	1486	8.04	Monoterp. alcohol
trans-Pinocarveol	7.58	1142	0.03	0.03	1576	10.67	Monoterp. alcohol
Camphor	7.72	1147	0.20	0.20	1428	6.72	Monoterp. ketone
Camphene hydrate	7.96	1156	0.09	29.57	1514	8.70*	Monoterp. alcohol
Pinocaryone	8.18	1164	0.01	0.02	1480	7.89	Monoterp. ketone
Borneol	8.55	1177	1.27	1.33	1621	12.29*	Monoterp. alcohol
Terpinen-4-ol	8.73	1184	0.09	0.07	1535	9.20	Monoterp. alcohol
Cryptone	9.11	1197	0.08	0.08	1570	10.44	Monoterp. ketone
α -Terpineol	9.39	1205	0.21	0.20	1629	12.57	Monoterp. alcohol
Bornyl acetate	13.08	1287	28.31	[29.57]	1514	8.70*	Monoterp. ester
Geranyl acetate	19.25	1385	0.20	0.19	1695	15.77	Monoterp. ester
Longifolene	19.55	1389	0.11	0.13	1490	8.15	Sesquiterpene
β -Caryophyllene	20.50	1403	1.01	1.12	1526	8.99	Sesquiterpene
cis-Murola-3,5-diene	22.63	1428	0.03	0.03	1558	10.00	Sesquiterpene
α -Humulene	23.26	1436	0.58	0.60	1586	11.00	Sesquiterpene
Germacrene D	25.54	1463	0.03	[1.33]	1621	12.29*	Sesquiterpene
α -Murolene	27.37	1485	0.05	0.07	1655	13.69	Sesquiterpene
β -Bisabolene	28.69	1501	0.12	0.15	1664	14.21	Sesquiterpene
trans- γ -Bisabolene	30.07	1521	0.05	0.04	1688	15.40	Sesquiterpene
Caryophyllene oxide	33.65	1571	0.10	0.07	1856	25.48	Sesquiterp. ether

α -Bisabolol	39.40	1689	0.13	0.16	2144	39.76	Sesquiterp. alcohol
Total identified	98.58%		99.16%				

+: 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 : Clear liquid

Refractive Index : 1.4693 ± 0.0003 (20 °C)

CONCLUSION

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



