

Date : December 12, 2017

SAMPLE IDENTIFICATION

Internal code : 17K28-ALZ1-1-CC

Customer identification : Orange Oil - L1061016

Type : Essential oil

Source : *Citrus sinensis*

Customer : Organic Aromas

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 : Benoit Roger Ph. D.

Analysis date : 2017-12-12

Checked and approved by :

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

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IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
α -Thujene	3.31	920	0.01	0.53	946	1.12*	Monoterpene
α -Pinene	3.42	926	0.53	[0.53]	946	1.12*	Monoterpene
Sabinene	4.13	969	0.62	0.60	1055	1.93	Monoterpene
β -Pinene	4.20	972	0.05	0.05	1038	1.75	Monoterpene
Myrcene	4.48	989	1.91	1.88	1118	2.51	Monoterpene
α -Phellandrene	4.76*	1005	0.28	0.03	1113	2.45	Monoterpene
Δ 3-Carene	4.76*	1005	[0.28]	0.21	1080	2.23	Monoterpene
Octanal	4.87	1011	0.26	0.25	1231	4.05	Aliphatic aldehyde
1,8-Cineole	5.30*	1035	92.86	93.25	1154	3.00*	Monoterp. ether
Limonene	5.30*	1035	[92.86]	[93.25]	1154	3.00*	Monoterpene
para-Cymene	5.30*	1035	[92.86]	0.05	1204	3.63*	Monoterpene
cis- β -Ocimene	5.37	1038	tr	0.02	1190	3.46*	Monoterpene
trans- β -Ocimene	5.54	1047	0.04	[0.05]	1204	3.63*	Monoterpene
γ -Terpinene	5.73	1057	0.02	[0.02]	1190	3.46*	Monoterpene
Terpinolene	6.20	1083	0.05	0.04	1224	3.93	Monoterpene
Linalool	6.70	1106	0.24	0.22	1491	8.71	Monoterp. alcohol
Nonanal	6.78	1109	0.05	0.04	1335	5.61	Aliphatic aldehyde
cis-Limonene oxide	7.35	1130	0.01	0.01	1369	6.14	Monoterp. ether
trans-Limonene oxide	7.46	1134	0.02	0.02	1381	6.33	Monoterp. ether
Citronellal	7.97	1152	0.04	0.04	1415	6.94	Monoterp. aldehyde
α -Terpineol	9.49	1204	0.04	0.05	1619	13.33*	Monoterp. alcohol
Decanal	9.79	1210	0.26	0.26	1436	7.43	Aliphatic aldehyde
Neral	11.17	1241	0.05	0.05	1594	12.28	Monoterp. aldehyde
Geranial	12.68	1274	0.10	0.14	1644	14.61*	Monoterp. aldehyde
Undecanal	14.70	1312	0.01	0.01	1541	10.32	Aliphatic aldehyde
α -Copaene	17.68	1357	0.02	0.01	1431	7.32	Sesquiterpene
β -Cubebene	18.65	1371	0.01	0.01	1474	8.33	Sesquiterpene
β -Caryophyllene	20.57	1400	0.03	0.06	1519	9.52*	Sesquiterpene
β -Copaene	21.51	1411	0.03	[0.06]	1519	9.52*	Sesquiterpene
Dodecanal	21.72	1414	0.05	[0.14]	1644	14.61*	Aliphatic aldehyde
Germacrene D	25.60	1460	0.01	[0.05]	1619	13.33*	Sesquiterpene
α -Selinene	26.60	1472	0.11	0.12	1628	13.83	Sesquiterpene
Valencene	27.78	1486	0.01				Sesquiterpene
δ -Cadinene	29.33	1505	0.02				Sesquiterpene
β -Sinensal	39.77	1693	0.04	0.04	2119	40.28	Sesquiterp. aldehyde
α -Sinensal	41.71	1752	0.02	0.02	2218	42.88	Sesquiterp. aldehyde
Tangeretin	70.22	3163	0.15				Flavone
Heptamethoxyflavone isomer?	73.09	3334	0.47				Flavone

Hexamethoxyflavone isomer?	73.39	3349	0.36		Flavone
Total identified			98.78%	98.01%	

*: 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

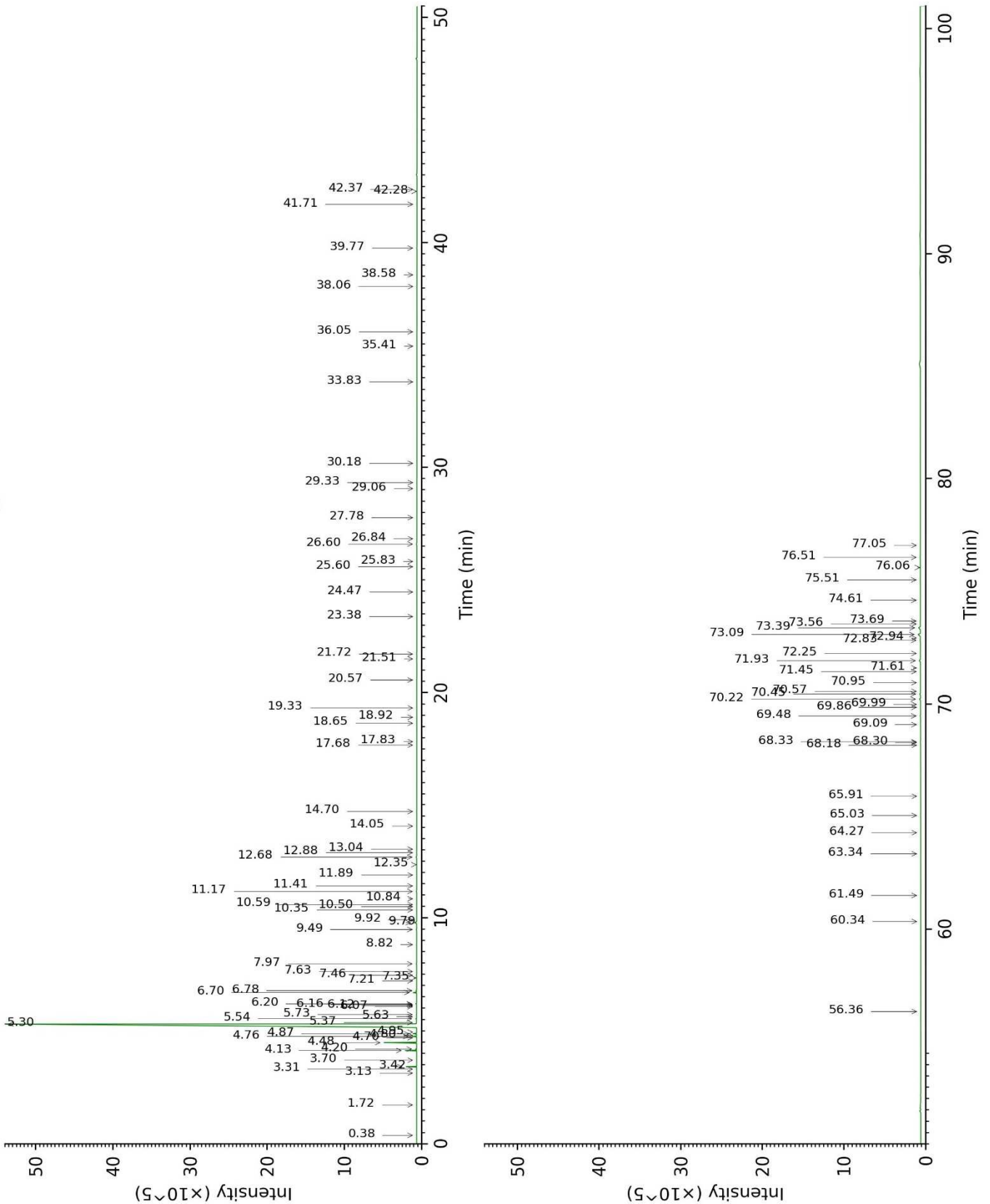
Physical aspect : Yellow/orange liquid

Refractive index : 1.4730 ± 0.0003 (20 °C)

CONCLUSION

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

17K28-ALZ1-1-CC_BP5



17K28-ALZ1-1-CC_WAX

