

# ANALYSIS Rose Otto White Esssential Oil

Laboratoire  
**Phyto**Chemia



*Plus que des analyses... des conseils*



Date : February 24, 2017

#### SAMPLE IDENTIFICATION

Internal code : 17B16-FSE9-1-DM

Customer Identification : White Fir - Lot #HOA-14616

Type : Essential oil

Source : Abies alba

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 : 2017-02-22

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.   |                     |
| Ethanol                 | 0.34        | 631  | 0.73   | 0.72        | 781  | 0.61   | Aliphatic alcohol   |
| Hexanol                 | 2.71        | 883  | 0.06   | 0.05        | 1303 | 4.82*  | Aliphatic alcohol   |
| Heptanal                | 3.13        | 912  | 0.04   | 0.04        | 1125 | 2.41   | Aliphatic aldehyde  |
| $\alpha$ -Pinene        | 3.43        | 929  | 0.17   | 0.17        | 943  | 1.02   | Monoterpene         |
| Sabinene                | 4.15        | 972  | 0.01   | 0.01        | 1058 | 1.75   | Monoterpene         |
| $\beta$ -Pinene         | 4.49        | 993  | 0.04   | 0.03        | 1042 | 1.60   | Monoterpene         |
| Myrcene                 | 4.56        | 997  | 0.08   | 0.08        | 1114 | 2.28   | Monoterpene         |
| 6-Methyl-5-hepten-2-one | 5.09        | 1026 | 0.02   | 0.02        | 1272 | 4.37   | Aliphatic ketone    |
| Limonene                | 6.69        | 1109 | 0.55   | 0.54        | 1487 | 8.07   | Monoterpene         |
| Linalool                | 6.80*       | 1113 | 0.17   | 0.19        | 1293 | 4.66   | Monoterp. alcohol   |
| cis-Rose oxide          | 6.80*       | 1113 | [0.17] | 0.02        | 1336 | 5.30   | Monoterp. ether     |
| Nonanal                 | 7.17*       | 1127 | 1.40   | 1.34        | 1802 | 21.98  | Aliphatic aldehyde  |
| Phenylethyl alcohol     | 7.17*       | 1127 | [1.40] | [0.05]      | 1303 | 4.82*  | Simple phenolic     |
| trans-Rose oxide        | 8.80        | 1186 | 0.09   | 0.16        | 1527 | 9.00*  | Monoterp. ether     |
| Terpinen-4-ol           | 9.46        | 1206 | 0.11   | 0.39        | 1624 | 12.37* | Monoterp. alcohol   |
| $\alpha$ -Terpineol     | 10.74       | 1237 | 12.06  | 12.06       | 1733 | 17.68  | Monoterp. alcohol   |
| Nerol                   | 11.19       | 1245 | 34.03  | 33.76       | 1714 | 16.71  | Monoterp. alcohol   |
| Citronellol             | 11.23       | 1246 | 0.27   | 0.18        | 1596 | 11.37  | Monoterp. alcohol   |
| Neral                   | 11.46       | 1251 | 0.14   | 0.13        | 1739 | 17.99  | Monoterp. aldehyde  |
| cis-Isogeraniol         | 12.26       | 1269 | 24.32  | 23.93       | 1786 | 20.95  | Monoterp. alcohol   |
| Geraniol                | 12.76       | 1280 | 0.38   | 0.33        | 1651 | 13.49* | Monoterp. alcohol   |
| Geranial                | 17.29       | 1355 | 0.12   | 0.15        | 1600 | 11.54  | Monoterp. aldehyde  |
| Citronellyl acetate     | 17.67       | 1361 | 1.10   | 1.08        | 2054 | 36.89  | Monoterp. ester     |
| Eugenol                 | 17.92       | 1364 | 0.03   | [0.33]      | 1651 | 13.49* | Phenylpropanoid     |
| Neryl acetate           | 18.17       | 1368 | 0.02   | 0.02        | 1455 | 7.32   | Monoterp. ester     |
| $\beta$ -Bourbonene     | 18.98       | 1380 | 0.03   | [0.16]      | 1527 | 9.00*  | Sesquiterpene       |
| $\beta$ -Elemene        | 19.40       | 1387 | 0.32   | 0.32        | 1690 | 15.49  | Sesquiterpene       |
| Geranyl acetate         | 20.63       | 1404 | 0.18   | 0.17        | 1521 | 8.86   | Monoterp. ester     |
| $\beta$ -Caryophyllene  | 21.65       | 1412 | 13.72  | 13.72       | 1939 | 31.45* | Sesquiterpene       |
| Methyleugenol           | 22.14       | 1423 | 0.08   | [0.16]      | 1527 | 9.00*  | Phenylpropanoid     |
| $\alpha$ -Gualene       | 23.43       | 1438 | 0.08   | 0.08        | 1583 | 10.88  | Sesquiterpene       |
| $\alpha$ -Humulene      | 25.65       | 1465 | 0.23   | [0.39]      | 1624 | 12.37* | Sesquiterpene       |
| Germacrene D            | 27.56       | 1488 | 0.08   | 0.09        | 1637 | 12.85  | Sesquiterpene       |
| $\delta$ -Gualene       | 28.78       | 1503 | 0.08   | 0.08        | 1503 | 8.44   | Sesquiterpene       |
| Pentadecane             | 33.85       | 1573 | 0.04   | 0.04        | 2023 | 35.60  | Alkane              |
| Spathulenol             | 37.86       | 1651 | 0.09   | 0.08        | 2104 | 38.55  | Sesquiterp. alcohol |
| $\alpha$ -Muurolool     | 39.00       | 1679 | 0.08   | 2.49        | 1718 | 16.94* | Sesquiterp. alcohol |
| trans-B-Heptadecene     | 40.02       | 1704 | 2.21   | [2.49]      | 1718 | 16.94* | Alkene              |
| Heptadecane             | 40.69       | 1727 | 0.65   | 0.67        | 2283 | 43.36  | Alkane              |
| (2E,6E)-Farnesol        | 43.15       | 1804 | 0.05   | 0.04        | 1817 | 22.94  | Sesquiterp. alcohol |
| Octadecane              |             |      |        |             |      |        | Alkane              |

|                         |       |      |               |               |      |       |        |
|-------------------------|-------|------|---------------|---------------|------|-------|--------|
| trans-9-Nonadecene      | 45.12 | 1876 | 1.09          | 1.12          | 1918 | 29.91 | Alkene |
| Nonadecane              | 46.02 | 1910 | 12.23         | [13.72]       | 1939 | 31.45 | Alkane |
| Eicosane                | 48.41 | 2007 | 1.27          | 1.31          | 2035 | 36.70 | Alkane |
| Heneicosane             | 50.75 | 2108 | 2.60          | 2.81          | 2137 | 39.55 | Alkane |
| Tricosane               | 55.01 | 2308 | 0.17          | 0.19          | 2332 | 44.47 | Alkane |
| <b>Total identified</b> |       |      | <b>98.74%</b> | <b>98.62%</b> |      |       |        |

\*: 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

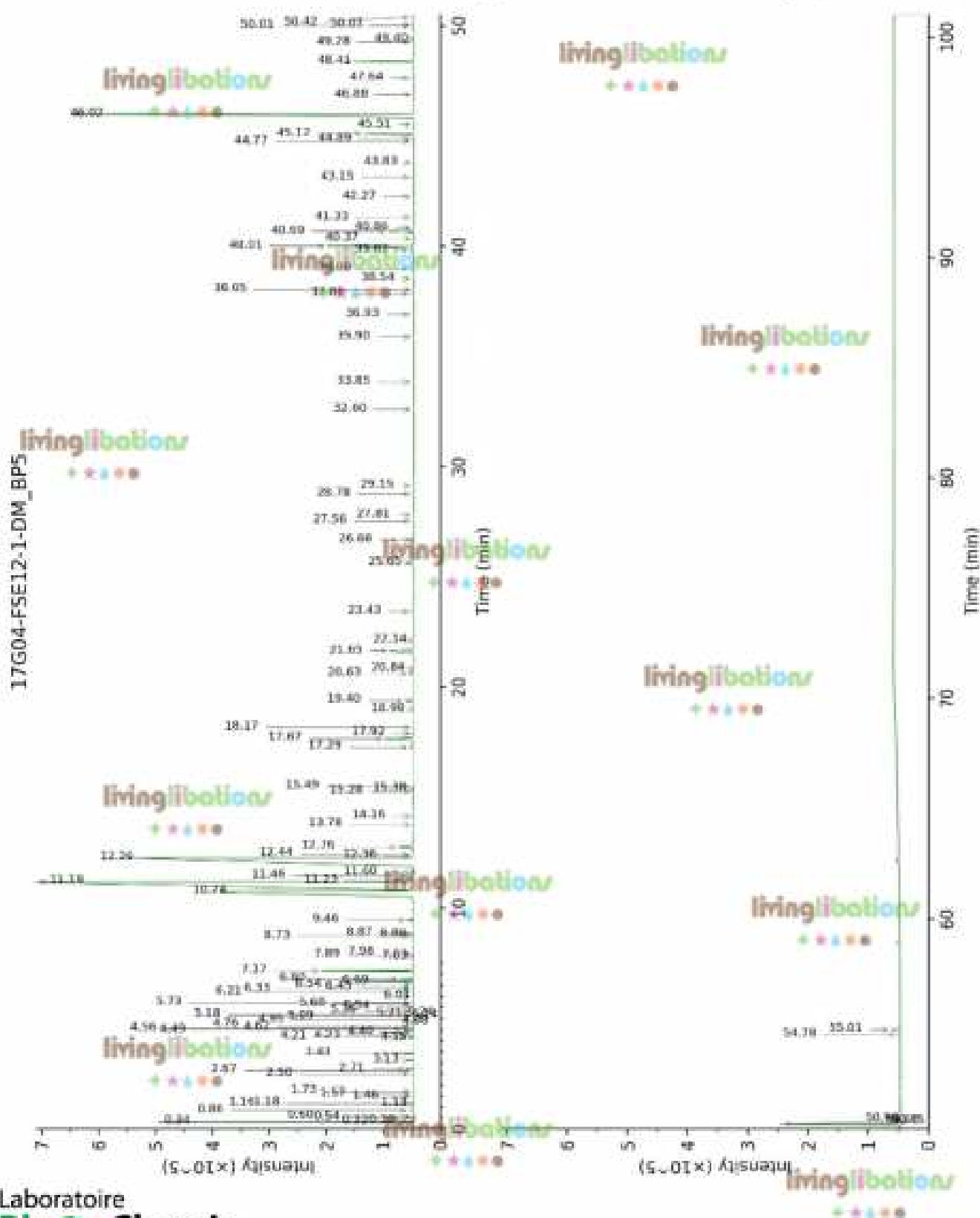
#### OTHER DATA

**Physical aspect** : Faintly yellow liquid

**Refractive Index** : 1.4613 ± 0.0003 (20 °C)

#### CONCLUSION

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



Report prepared for  
Flowers Shining Everywhere Inc.

