

### CERTIFICATE OF ANALYSIS

|                           |                           |                   |            |
|---------------------------|---------------------------|-------------------|------------|
| <b>SAMPLE NAME</b>        | Tea Tree Oil              |                   |            |
| <b>FORM</b>               | Oil                       |                   |            |
| <b>CUSTOMER NAME</b>      | R.D Tillman & W.G Tillman |                   |            |
| <b>CERTIFICATION DATE</b> | 22 October 2021           |                   |            |
| <b>CUSTOMER REFERENCE</b> | B   2201                  |                   |            |
| <b>ARL JOB #</b>          | A212657                   | <b>LAB REF. #</b> | ARL2107412 |
| <b>ANALYSIS</b>           | FULL CoA - ISO/BP         |                   |            |

| TEST                    | ISO 4730:2017(E)**<br>SPECIFICATION       | BP 2021***<br>SPECIFICATION  | RESULTS  | TEST METHOD  |
|-------------------------|-------------------------------------------|------------------------------|----------|--------------|
| Appearance              | Clear, mobile<br>without visible<br>water | Clear mobile<br>liquid       | Conforms | ARL-TM266-5  |
| Colour                  | Colourless to<br>pale yellow              | Colourless to<br>pale yellow | Conforms |              |
| Odour                   | Characteristic                            | Characteristic               | Conforms |              |
| Relative Density @ 20°C | 0.885 – 0.906                             | 0.885-0.906                  | 0.896    | Ph.Eur.2.2.5 |
| Refractive Index @ 20°C | 1.475 – 1.482                             | 1.475-1.482                  | 1.479    | Ph.Eur.2.2.6 |
| Optical Rotation @ 20°C | +7° - +12°                                | +5° - +15°                   | +8.90°   | Ph.Eur.2.2.7 |
| Miscibility in ethanol  | < 2 volumes                               | na                           | 0.6      | ISO875       |

| TEST          | ISO 4730:2017(E)**<br>SPECIFICATION | BP 2021***<br>SPECIFICATION | RESULTS | TEST METHOD  |
|---------------|-------------------------------------|-----------------------------|---------|--------------|
|               | <b>Area %</b>                       |                             |         |              |
| α-pinene      | 1.0 – 4.0                           | 1.0 – 6.0                   | 2.4     | ARL-TM101-4* |
| sabinene      | tr – 3.5                            | < 3.5                       | 0.1     |              |
| α-terpinene   | 6.0 – 12.0                          | 5.0 – 13.0                  | 9.6     |              |
| limonene      | 0.5 – 1.5                           | 0.5 – 4.0                   | 0.8     |              |
| p-cymene      | 0.5 – 8.0                           | 0.5 – 12.0                  | 2.0     |              |
| 1,8-cineole   | tr – 10.0                           | < 15.0                      | 1.8     |              |
| γ-terpinene   | 14.0 – 28.0                         | 10.0 – 28.0                 | 20.6    |              |
| terpinolene   | 1.5 – 5.0                           | 1.5 – 5.0                   | 3.4     |              |
| terpinen-4-ol | 35.0 – 48.0                         | > 30.0                      | 38.8    |              |
| α-terpineol   | 2.0 - 5.0                           | 1.5 - 8.0                   | 2.8     |              |
| aromadendrene | 0.2 – 3.0                           | < 7.0                       | 2.2     |              |
| ledene        | 0.1 – 3.0                           | na                          | 1.7     |              |
| δ-cadinene    | 0.2 – 3.0                           | na                          | 1.5     |              |
| globulol      | tr – 1.0                            | na                          | 0.3     |              |
| viridiflorol  | tr – 1.0                            | na                          | 0.2     |              |

\* Assay by GC (FID detection –area percent report) \*\*\* Melaleuca Oil Ph. Eur. monograph 1837

\*\* ISO4730:2017(E)-Essential Oil of Melaleuca, terpinen-4-ol type (Tea Tree Oil)

  
Regan Barker  
ANALYTICAL OFFICER

  
Mr Ashley Dowell  
MANAGER - ARL

FID1 A, (I:\LABDATA\GC-3\DATA\211021\211021 2021-10-21 10-11-49\ARL2107412.D)

Chromatogram showing detector response (pA) versus time (min). The x-axis ranges from 8 to 20 minutes, and the y-axis ranges from 0 to 1600 pA. Numerous peaks are labeled with chemical names.

| Peak Label              | Approximate Retention Time (min) | Approximate Response (pA) |
|-------------------------|----------------------------------|---------------------------|
| a-thujene               | 8.2                              | 100                       |
| a-pinene                | 8.5                              | 150                       |
| sabinene                | 9.5                              | 100                       |
| myrcene                 | 9.8                              | 50                        |
| a-phellandrene          | 10.2                             | 250                       |
| limonene                | 10.5                             | 100                       |
| b-phellandrene          | 10.8                             | 100                       |
| 1,8-cineole             | 11.0                             | 100                       |
| g-terpinene             | 11.2                             | 1000                      |
| terpinolene             | 11.8                             | 200                       |
| linalool                | 12.2                             | 50                        |
| cis-p-menth-2-en-1-ol   | 12.8                             | 50                        |
| trans-p-menth-2-en-1-ol | 13.2                             | 50                        |
| terpinen-4-ol           | 13.8                             | 1500                      |
| a-terpineol             | 14.2                             | 150                       |
| aromadendrene           | 17.2                             | 100                       |
| allo-aromadendrene      | 17.8                             | 50                        |
| ledene                  | 18.2                             | 50                        |
| bicyclogermacrene       | 18.5                             | 50                        |
| d-cadinene              | 18.8                             | 50                        |
| α-bulbocadinol          | 19.8                             | 50                        |
| α-bulbocadinol          | 20.2                             | 50                        |

Area Percent Report

Sorted By : Signal  
Calib. Data Modified : 19/10/2021 7:17:18 AM  
Multiplier : 1.0000  
Dilution : 1.0000

Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID1 A,

| Peak # | RetTime [min] | Type | Width [min] | Area [pA*s] | Area %  | Name                    |
|--------|---------------|------|-------------|-------------|---------|-------------------------|
| 1      | 7.907         | BB   | 0.0274      | 59.21677    | 0.8440  | a-thujene               |
| 2      | 8.123         | BB   | 0.0297      | 171.28548   | 2.4414  | a-pinene                |
| 3      | 9.211         | VB   | 0.0253      | 4.62753     | 0.0660  | sabinene                |
| 4      | 9.320         | BV   | 0.0273      | 47.14987    | 0.6720  | b-pinene                |
| 5      | 9.417         | VB   | 0.0223      | 57.77765    | 0.8235  | myrcene                 |
| 6      | 9.854         | BV   | 0.0231      | 35.00654    | 0.4990  | a-phellandrene          |
| 7      | 10.091        | BV   | 0.0227      | 672.27362   | 9.5822  | a-terpinene             |
| 8      | 10.233        | VV   | 0.0239      | 2.72409     | 0.0388  | ?                       |
| 9      | 10.298        | VV   | 0.0225      | 59.16437    | 0.8433  | limonene                |
| 10     | 10.467        | BB   | 0.0226      | 64.93906    | 0.9256  | b-phellandrene          |
| 11     | 10.656        | BV   | 0.0219      | 140.71324   | 2.0056  | p-cymene                |
| 12     | 10.718        | VB   | 0.0258      | 128.32628   | 1.8291  | 1,8 cineole             |
| 13     | 11.052        | BB   | 0.0230      | 1446.72351  | 20.6207 | g-terpinene             |
| 14     | 11.649        | BB   | 0.0206      | 238.48778   | 3.3993  | terpinolene             |
| 15     | 11.918        | VB   | 0.0229      | 3.88142     | 0.0553  | linalool                |
| 16     | 12.174        | VB   | 0.0214      | 5.60231     | 0.0799  | ?                       |
| 17     | 12.388        | BB   | 0.0218      | 8.09733e-1  | 0.0115  | ?                       |
| 18     | 12.538        | BB   | 0.0249      | 9.68434     | 0.1380  | cis-p-menth-2-en-1-ol   |
| 19     | 12.834        | BV   | 0.0230      | 8.28393e-1  | 0.0118  | ?                       |
| 20     | 12.879        | VV   | 0.0199      | 8.26190e-1  | 0.0118  | ?                       |
| 21     | 12.913        | VV   | 0.0209      | 1.51935     | 0.0217  | ?                       |
| 22     | 12.967        | VV   | 0.0246      | 6.18400     | 0.0881  | trans-p-menth-2-en-1-ol |
| 23     | 13.708        | VV   | 0.0278      | 2723.47803  | 38.8187 | terpinen-4-ol           |
| 24     | 13.841        | VV   | 0.0290      | 8.12661     | 0.1158  | ?                       |
| 25     | 13.941        | VV   | 0.0329      | 3.00760     | 0.0429  | ?                       |
| 26     | 14.007        | VV   | 0.0218      | 198.07840   | 2.8233  | a-terpineol             |
| 27     | 14.230        | VV   | 0.0339      | 2.99631     | 0.0427  | ?                       |
| 28     | 14.278        | VV   | 0.0391      | 1.77533     | 0.0253  | ?                       |
| 29     | 14.364        | VV   | 0.0271      | 3.80567     | 0.0542  | ?                       |
| 30     | 15.574        | VV   | 0.0291      | 5.72948     | 0.0817  | ?                       |
| 31     | 15.814        | VV   | 0.0271      | 1.16137     | 0.0166  | ?                       |
| 32     | 16.014        | VV   | 0.0251      | 8.01992     | 0.1143  | ?                       |
| 33     | 16.094        | VV   | 0.0264      | 19.57763    | 0.2790  | ?                       |
| 34     | 16.180        | VV   | 0.0468      | 1.98962     | 0.0284  | ?                       |
| 35     | 16.416        | VV   | 0.0249      | 2.20682     | 0.0315  | ?                       |
| 36     | 16.522        | VV   | 0.0231      | 2.91311     | 0.0415  | ?                       |
| 37     | 16.750        | VV   | 0.0232      | 36.06408    | 0.5140  | ?                       |
| 38     | 16.861        | VV   | 0.0340      | 5.60021     | 0.0798  | ?                       |
| 39     | 17.061        | VV   | 0.0240      | 40.22043    | 0.5733  | ?                       |
| 40     | 17.291        | VV   | 0.0263      | 150.94519   | 2.1515  | aromadendrene           |
| 41     | 17.392        | VV   | 0.0225      | 16.03368    | 0.2285  | ?                       |

Sample Name: Tea Tree Oil B 2201

| Peak<br># | RetTime<br>[min] | Type | Width<br>[min] | Area<br>[pA*s] | Area<br>% | Name               |
|-----------|------------------|------|----------------|----------------|-----------|--------------------|
| 42        | 17.438           | VV   | 0.0239         | 3.50403        | 0.0499    | ?                  |
| 43        | 17.579           | VV   | 0.0255         | 10.21198       | 0.1456    | ?                  |
| 44        | 17.625           | VV   | 0.0190         | 3.20206        | 0.0456    | ?                  |
| 45        | 17.655           | VV   | 0.0234         | 8.91645        | 0.1271    | ?                  |
| 46        | 17.746           | VV   | 0.0217         | 50.87020       | 0.7251    | allo-aromadendrene |
| 47        | 17.854           | VV   | 0.0259         | 37.08178       | 0.5285    | ?                  |
| 48        | 17.906           | VV   | 0.0226         | 4.07024        | 0.0580    | ?                  |
| 49        | 17.982           | VV   | 0.0234         | 2.37744        | 0.0339    | ?                  |
| 50        | 18.033           | VV   | 0.0368         | 1.52796        | 0.0218    | ?                  |
| 51        | 18.128           | VV   | 0.0228         | 11.66685       | 0.1663    | ?                  |
| 52        | 18.194           | VV   | 0.0242         | 122.41308      | 1.7448    | ledene             |
| 53        | 18.246           | VV   | 0.0278         | 23.66488       | 0.3373    | ?                  |
| 54        | 18.336           | VV   | 0.0224         | 4.50980        | 0.0643    | ?                  |
| 55        | 18.382           | VV   | 0.0243         | 34.05802       | 0.4854    | bicyclogermacrene  |
| 56        | 18.560           | VV   | 0.0237         | 3.68644        | 0.0525    | ?                  |
| 57        | 18.652           | VV   | 0.0227         | 106.64799      | 1.5201    | d-cadinene         |
| 58        | 18.765           | VV   | 0.0215         | 25.18631       | 0.3590    | ?                  |
| 59        | 18.812           | VV   | 0.0242         | 20.85141       | 0.2972    | ?                  |
| 60        | 18.975           | VV   | 0.0234         | 10.35647       | 0.1476    | ?                  |
| 61        | 19.391           | VV   | 0.0248         | 7.32948        | 0.1045    | ?                  |
| 62        | 19.450           | VV   | 0.0331         | 9.38477        | 0.1338    | ?                  |
| 63        | 19.497           | VV   | 0.0290         | 1.54275        | 0.0220    | ?                  |
| 64        | 19.667           | VV   | 0.0269         | 2.37217        | 0.0338    | ?                  |
| 65        | 19.717           | VV   | 0.0290         | 4.41229        | 0.0629    | ?                  |
| 66        | 19.847           | VV   | 0.0265         | 24.51585       | 0.3494    | globulol           |
| 67        | 19.934           | VV   | 0.0321         | 16.98909       | 0.2422    | viridiflorol       |
| 68        | 19.986           | VV   | 0.0261         | 13.20910       | 0.1883    | ?                  |
| 69        | 20.037           | VV   | 0.0346         | 2.02221        | 0.0288    | ?                  |
| 70        | 20.144           | VV   | 0.0394         | 11.91988       | 0.1699    | ?                  |
| 71        | 20.401           | VV   | 0.0368         | 24.20487       | 0.3450    | ?                  |
| 72        | 20.538           | VV   | 0.0238         | 7.45395        | 0.1062    | ?                  |
| 73        | 20.629           | VV   | 0.0283         | 1.19557        | 0.0170    | ?                  |
| 74        | 20.670           | VV   | 0.0320         | 1.90002        | 0.0271    | ?                  |
| 75        | 20.789           | VV   | 0.0339         | 6.03755        | 0.0861    | ?                  |
| 76        | 20.974           | VV   | 0.0329         | 1.72743        | 0.0246    | ?                  |
| 77        | 21.023           | VV   | 0.0315         | 1.16856        | 0.0167    | ?                  |
| 78        | 21.078           | VV   | 0.0346         | 1.44506        | 0.0206    | ?                  |
| 79        | 21.395           | VV   | 0.0511         | 2.76841        | 0.0395    | ?                  |

Totals : 7015.88336

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\*\*\* End of Report \*\*\*