Certificate of Analysis

Product: Tea tree oil
Botanical Name: *Melaleuca alternifolia*
INCI: *Melaleuca alternifolia* (Tea Tree) Leaf Oil
CAS Number: 85085-48-9 and 68647-73-4
EC Number: 285-377-1
Batch Number: VAT#20 241016

1. Physical and Organoleptic Analysis

Test	Ph. Eur[i]	ISO[ii]	Results
Appearance	Clear, mobile, colourless or pale yellow liquid	Clear, mobile without visible water	Conforms
Colour	---	Colourless to pale yellow	Conforms
Odour	Characteristic	Characteristic	Conforms
Optical Rotation @ 20°C[iii]	5° – 15°	7° – 12°	+10.44°
Refractive Index @ 20°C[iv]	1.475 – 1.482	1.475 – 1.482	1.477
Relative Density @ 20°C[v]	0.885 – 0.906	0.885 – 0.906	0.896
Miscibility in 85% ethanol (volumes)[vi]	---	< 2	0.6

2. Gas Chromatography Analysis (FID)[vii]

Constituent	Ph. Eur Area %	ISO Area %	Results Area %
α-pinene	1 – 6	1 – 4	2.2
sabinene	< 3.5	< 3.5	0.2
α-terpinene	5 – 13	6 – 12	9.6
limonene	0.5 – 4	0.5 – 1.5	0.8
p-cymene	0.5 – 12	0.5 – 8	2.2
1,8 cineole	< 15	< 10	2.3
γ-terpinene	10 – 28	14 – 28	20.5
terpinolene	1.5 – 5	1.5 – 5	3.4
terpinen-4-ol	> 30	35 – 48	46
α-terpineol	1.5 – 8	2 – 5	2.6
aromadendrene	< 7	0.2 – 3	0.7
Ledene	---	0.1 – 3	0.6
d-cadinene	---	0.2 – 3	0.6
globulol	---	< 1	0.1
viridiflorol	---	< 1	0.1

3. Methyl Eugenol[viii]

Constituent	% w/w	ppm
methyl eugenol	0.015	154

Tested by Southern Cross University Analytical Research Laboratory (ARL)

ARL JOB#: A24-00-1557

SAMPLE ID#: A24-00-1557-0001A

Certification Date: 17 December 2024

[i] *Melaleucae aetheroleum*, European Pharmacopoeia, 11th Edition, Monograph No. 1837.
[ii] ISO 4730:2017, Oil of Melaleuca, terpinen-4-ol type (Tea Tree oil) - Specification, International Organization for Standardization, Geneva.
[iii] Ph. Eur. 2.2.7, Optical rotation, European Pharmacopoeia, Council of Europe, Strasbourg.
[iv] Ph. Eur. 2.2.6, Refractive index, European Pharmacopoeia, Council of Europe, Strasbourg.
[v] Ph. Eur. 2.2.5, Relative density, European Pharmacopoeia, Council of Europe, Strasbourg.
[vi] ISO 875:1999, Essential oils - Evaluation of miscibility in ethanol, International Organization for Standardization, Geneva.
[vii] Assay by GC (FID detection - area percent report)
[viii] GCFID- QTA analysis of methyl eugenol.

**Este documento es copia fiel del certificado proporcionado por nuestro proveedor.*