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TROPICAL BIOESSENCE SDN. BHD.

CERTIFICATE OF ANALYSIS

Product : Lemon Essential oil
Botanical name : Citrus Limonum Peel Oil (Origin Spain)
Product Code : LMNEO 01
Mfg Date : May 2025 Exp Date : May 2028 Batch no: 052524B
Method : Steam Distillation

TEST	RESULT	STANDARD
Appearance	Pale yellow to yellow	Confirm
Odour	Fresh Citrus	Confirm
Refractive index (25°C)	1.474	1.473 - 1.476
Specific gravity (25°C)	0.857	0.850 - 0.858
Optical Rotation	-60.2°	+57.0° - +70.0°
Solubility	Complies	Soluble in Alcohol
Heavy Metals Content		
Arsenic (mg/kg)	N.D (<0.1ppm)	BP 2013, Appendix IID, ICP-AES
Lead (mg/kg)	N.D (<0.5ppm)	BP 2013, Appendix IID, ICP-AES
Cadmium (mg/kg)	N.D (<0.1ppm)	BP 2013, Appendix IID, ICP-AES
Mercury (mg/kg)	N.D (<0.1ppm)	BP 2013, Appendix IID, ICP-AES
Microbial Content		
<i>Pseudomonas aeruginosa</i>	Absent in 1g	BP 2013, Appendix XVIB, 1
<i>Staphylococcus aureus</i>	Absent in 1g	BP 2013, Appendix XVIB, 1
<i>Total Combined Yeast and Mould</i>	ND(<10) CFU/g	BP 2013, Appendix XVIB, 2
<i>Total Aerobic Microbial Count</i>	ND(<10) CFU/g	BP 2013, Appendix XVIB, 2
Assay by GC		
β-Pinene	11.00%	7.0 - 17.0%
Sabinene	1.90%	1.0 - 3.0%
Limonene	66.80%	56.0 - 78.0%
γ-Terpinene	9.37%	6.0 - 12.0%
β-Caryophyllene	0%	< 0.5%
Neral	1.20%	0.3 - 1.5%
α-Terpineol	0.21%	< 0.6%
Neryl acetate	0.50%	0.2 - 0.9%
Geranial	1.65%	0.5 - 2.3%
Geranyl acetate	0.36%	0.1 - 0.8%

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