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TROPICAL BIOESSENCE SDN. BHD.

CERTIFICATE OF ANALYSIS

Product : Tea Tree Essential oil
Botanical name. : Melaleuca alternifolia Leaf Oil (Origin Australia)
Product Code : TTEO 01
Method : Steam Distillation

TEST	RESULT	STANDARD
Appearance	Pale Yellow Liquid	Confirm
Odour	Characteristic	
Refractive index (25°C)	1.479	1.475 - 1.482
Specific gravity (25°C)	0.901	0.885-0.906
Optical Rotation	+7.8°	+7.0° - +15°
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		
Pseudomonas aeruginosa	Absent in 1g	BP 2013, Appendix XVIB, 1
Staphylococcus aureus	Absent in 1g	BP 2013, Appendix XVIB, 1
Total Combined Yeast and Mould	ND(<10) CFU/g	BP 2013, Appendix XVIB, 2
Total Aerobic Microbial Count	ND(<10) CFU/g	BP 2013, Appendix XVIB, 2
Assay by GC		
α-Pinene	2%	1.0-4.0%
Sabinene	0.05%	Trace - 3.5%
α-Terpinene	7.50%	6.0-12.0%
Limonene	1.20%	0.5-1.5%
1,8-Cineole	7.20%	traces-10.0%
γ-Terpinene	15%	14.0-28.0%
p-Cymene	4.60%	0.5-8.0%
Terpinolene	3.50%	1.5-5.0%
Terpinen-4-ol	32.10%	30.0-48%

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