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CERTIFICATE OF ANALYSIS (COA)

Product Name	COCOA BEAN OIL
Botanical Name	Theobroma cacao
Product Code	PCO4146
CAS #	8002-31-1
INCI Name	Theobroma Cacao (Cocoa) Seed Oil

Batch #	41462311
Manufacturing Date	NOVEMBER 2023
Best Before Date	OCTOBER 2025

Part Used	Beans
Extraction Method	Cold Pressed and Fractionated
Quality	100% Pure and Natural

<u>PROPERTIES</u>	<u>SPECIFICATIONS</u>	<u>RESULTS</u>
Appearance	Pale yellow to golden colored liquid	CONFORMS
Odour	Characteristic faint odour	CONFORMS
Refractive Index	1.450 - 1.490 @ 20°C	1.466
Specific Gravity (g/mL)	0.890 - 0.930 @ 20°C	0.914
Saponification Value (mgKOH/g)	170 - 200	186
Peroxide Value (meq O₂/kg)	Less than 4.0	CONFORMS
Iodine Value (g I₂/100g)	30 - 85	CONFORMS
Free Fatty Acids (% oleic)	Less than 1.5	CONFORMS
Moisture (%)	Less than 0.1%	0.01
Solubility	Soluble in Cosmetic esters and fixed oils; Insoluble in water	CONFORMS

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FATTY ACID COMPOSITION:

<u>FATTY ACID</u>	<u>C-CHAIN</u>	<u>SPECIFICATIONS (%)</u>	<u>RESULTS (%)</u>
Palmitic Acid	C16:0	5.00 – 12.00	7.60
Stearic Acid	C18:0	6.00 – 16.00	8.60
Oleic Acid	C18:1 (n-9)	66.00 – 78.00	72.00
Linoleic Acid	C18:2 (n-6)	5.00 – 14.00	10.60

<u>MICROBIAL ANALYSIS</u>	<u>SPECIFICATIONS</u>	<u>STANDARDS</u>	<u>RESULTS</u>
Aerobic Mesophilic Bacterial Count	< 100 CFU/g	ISO 21149	CONFORMS
Yeast and Mould	< 10 CFU/g	ISO 16212	CONFORMS
Candida albicans	ABSENT / 1g	ISO 18416	CONFORMS
Escherichia coli	ABSENT / 1g	ISO 21150	CONFORMS
Pseudomonas aeruginosa	ABSENT / 1g	ISO 22717	CONFORMS
Staphylococcus aureus	ABSENT / 1g	ISO 22718	CONFORMS

<u>HEAVY METAL TESTS</u>	<u>SPECIFICATIONS</u>	<u>STANDARDS</u>	<u>RESULTS</u>
Lead: Pb (mg/kg or ppm)	< 10 ppm	na	CONFORMS
Arsenic: As (mg/kg or ppm)	< 2 ppm	na	CONFORMS
Mercury: Hg (mg/kg or ppm)	< 1 ppm	na	CONFORMS

STABILITY AND STORAGE:

Keep in tightly closed container in a cool and dry place, protected from sunlight. When stored for more than 24 months, quality should be checked before use.

As it is electronically generated document, hence no signature required.

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