

CERTIFICATE OF ANALYSIS

Product Name	CRANBERRY SEED OIL
Botanical Name	Vaccinium macrocarpon
Product Code	PCO4065
CAS #	91770-88-6
EINECS #	294-875-8
INCI Name	Vaccinium Macrocarpon (Cranberry) Seed Oil

Batch #	40652102
Manufacturing Date	FEBRUARY 2021
Best Before Date	JANUARY 2023

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

<u>PROPERTIES</u>	<u>SPECIFICATIONS</u>	<u>RESULTS</u>
Appearance	Greenish golden colored liquid	CONFORMS
Odour	Characteristic slightly fruity odour	CONFORMS
Refractive Index	1.465 - 1.485 @ 20°C	1.477
Specific Gravity (g/mL)	0.915 - 0.930 @ 20°C	0.921
Saponification Value (mgKOH/g)	180 - 200	185
Peroxide Value (meq O₂/kg)	Less than 10.0	CONFORMS
Iodine Value (g I₂/100g)	150 - 190	171
Free Fatty Acids (% oleic)	Less than 1.5	0.1
Acid Value (mgKOH/g)	Less than 3.0	0.2
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	3.00 – 6.00	4.20
Stearic Acid	C18:0	0.50 - 2.00	0.90
Oleic Acid	C18:1 (n-9)	20.00 – 25.00	23.70
Linoleic Acid	C18:2 (n-6)	35.00 – 45.00	39.50
Alpha-Linolenic Acid	C18:3 (n-3)	22.00 – 35.00	30.70

<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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