

CERTIFICATE OF ANALYSIS (COA)

Product Name	BORAGE SEED OIL
Botanical Name	Borago officinalis
CAS #	84012-16-8 ; 225234-12-8
EINECS #	281-661-4
INCI Name	Borago Officinalis (Borage) Seed Oil

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

<u>PROPERTIES</u>	<u>SPECIFICATIONS</u>	<u>RESULT</u>
Appearance	Pale yellow to greenish yellow colored liquid	CONFORMS
Odour	Characteristic mild, pleasant odour	CONFORMS
Refractive Index	1.473 - 1.479 @ 20°C	1.476
Specific Gravity (g/mL)	0.910 - 0.935 @ 20°C	0.922
Saponification Value (mgKOH/g)	185 - 195	191
Peroxide Value (meq O ₂ /kg)	Less than 8.0	CONFORMS
Iodine Value (g I ₂ /100g)	125 - 160	145
Free Fatty Acids (% oleic)	Less than 2.0	CONFORMS
Acid Value (mgKOH/g)	Less than 4.0	CONFORMS
Solubility	Soluble in cosmetic esters and fixed oils; Insoluble in water	CONFORMS

FATTY ACID COMPOSITION:

FATTY ACID	C-CHAIN	SPECIFICATIONS (%)	RESULTS
Palmitic Acid	<u>C16:0</u>	<u>8.00 - 13.00</u>	<u>9.10</u>
Palmitoleic Acid	<u>C16:1 (n-7)</u>	<u>Maximum 0.60</u>	<u>0.30</u>
Stearic Acid	<u>C18:0</u>	<u>2.00 - 6.00</u>	<u>3.20</u>
Oleic Acid	<u>C18:1 (n-9)</u>	<u>14.00 - 20.00</u>	<u>18.80</u>
Linoleic Acid	<u>C18:2 (n-6)</u>	<u>34.00 - 54.00</u>	<u>40.20</u>
Alpha-Linolenic Acid	<u>C18:3 (n-3)</u>	<u>Maximum 0.50</u>	<u>0.30</u>
Gamma-Linolenic Acid	<u>C18:3 (n-6)</u>	<u>20.00 - 25.00</u>	<u>20.00</u>
11-Eicosenoic Acid	<u>C20:1 (n-9)</u>	<u>3.00 - 5.00</u>	<u>3.80</u>
Erucic Acid	<u>C22:1 (n-9)</u>	<u>1.00 - 3.00</u>	<u>1.80</u>
Nervonic Acid	<u>C24:1 (n-9)</u>	<u>1.00 - 2.50</u>	<u>1.80</u>

MICROBIAL ANALYSIS	<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

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