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Certificate of Analysis Sheet

Organic Hemp Seed Oil

(*Cannabis sativa*)

Trade Name:	Hemp Oil Organic	Inci Name:	<i>Cannabis Sativa (Hemp) Seed Oil</i>
Cas No:	89958-21-4	Einecs No:	289-644-3
Country of Origin:	China (Seed)	Country of Manufacture:	Romania
Manufactured:	September 2018	Shelf Life:	12 months, unopened
Batch Number:	241118-1		

Description:

The fixed oil expressed by cold pressing the seeds of *Cannabis sativa* L., *Cannabaceae*.

Recommended Uses:

Cosmetics, Skin Care and Food

ANALYTICAL DETAILS	Unit	RANGE	RESULT
Appearance	Organoleptic	Green to dark green mobile liquid	Conforms
Odour	Organoleptic	Characteristic, earthy	Conforms
Colour	Lovibond 1" cell	≤ 5 Red; 90 Yellow	3.1 Red; 70 Yellow
Free Fatty Acid (as Oleic)	%	≤ 5.0	0.44
Peroxide Value	meqO ₂ /kg	≤ 10.0	3.37
Refractive Index @ 20°C	-	1.450 – 1.490	1.47984
Specific Gravity @ 20°C	g/ml	0.920 – 0.940	0.929
Iodine Value	g I ₂ /100g	150 – 175	158.2
Saponification Value	mgKOH/g	185 - 205	194
Flash Point (Closed Cup)	°C	>200°	Conforms
Tetrahydrocannabinol (THC) ²	mg/kg	≤ 10 ppm	Conforms

ACID VALUES		UNIT	RANGE	RESULT
C16:0	Palmitic	%	5 – 10	6.78
C16:1	Palmitoleic	%	≤ 1.0	0.21
C18:0	Stearic	%	1 – 4.5	3.01
C18:1	Oleic (n-9)	%	8 – 16	13.91
C18:2	Linoleic (n-6)	%	45 – 65	57.21
C18:3	α-Linolenic (n-3)	%	14 – 30	16.92
C18:3	γ-Linolenic	%	≤ 5.0	0.51
C18:4	Stearidonic	%	≤ 2.0	0.23
C20:0	Arachidic	%	≤ 3.0	0.72
C20:1	Icosenoic	%	≤ 5.0	0.31

C22:0	Behenic	%	≤ 1.0	0.22
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HEAVY METALS ¹	UNIT	RANGE	TYPICAL RESULT
Lead ²	ppm	≤ 0.1	Conforms
Cadmium ²	ppm	≤ 1.0	Conforms
Mercury ²	ppm	≤ 0.1	Conforms
Arsenic ²	ppm	≤ 1.0	Conforms

CONTAMINANTS ¹	UNIT	RANGE	TYPICAL RESULT
Benzo (a) Pyrene ²	ppb	≤ 2.0	Conforms
Sum of B(a)P, B(a)A, B(b)F, chrysene (PAH4) ²	ppb	≤ 10.00	Conforms
Dioxins (WHO TEQ) ²	ppt	≤ 0.75	Conforms
Dioxins and dioxin-like PCB's (WHO TEQ) ²	ppt	≤ 1.25	Conforms
Non dioxin-like PCB's (28, 52, 101, 138, 153, 180) ²	ppb	≤ 40.0	Conforms

MICROBIAL ¹	UNIT	RANGE	TYPICAL RESULT
Total viable count (TVC) ³	cfu/g	≤ 1000	Conforms
Yeast & moulds ³	cfu/g	≤ 100	Conforms
E. Coli	g	Absent	Conforms
Salmonella	10g	Absent	Conforms
Staphylococcus Aureus	g	Absent	Conforms

¹Based on European Commission Regulation (EC) No 1881/2006, Requirements for contaminants in fats & oils (non-marine).

²These parameters are tested annually on a random batch, the most recent results being listed on the Certificate of Analysis.

³These are batch specific, as such each batch is tested and the results listed on the Certificate of Analysis.

Storage: Store in tightly closed original container in a dry, cool and well-ventilated place. Keep away from heat, sparks and open flame. Protect from freezing and direct sunlight.

Shelf Life: The shelf life is one year if unopened. Once opened the shelf life of the oil is limited by temperature, light and oxygen exposure. Any remaining oil should be blanketed with nitrogen and used as soon as possible.