

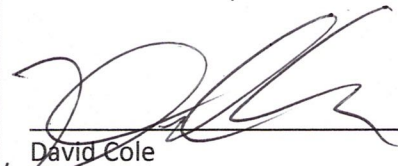
STRAIGHT HEMP

CERTIFICATE OF ANALYSIS

PRODUCT: Full Spectrum Hemp Oil
BATCH/LOT: ND200818
INGREDIENTS: Organic Hemp Seed Oil, Full Spectrum Hemp Extract
ADDITIVES: none
EXCIPIENTS: none

PRODUCTION DATE: 08/2020
EXPIRATION DATE: 08/2022

TEST	METHOD	SPECIFICATION	RESULTS
Strength & Composition			
Identity	Organoleptic	Conforming	PASS
Identity	UPLC/UV	Chemical Fingerprint	PASS
Total Cannabidiol (CBD) ⁱ	UPLC/UV	36.8 – 40.8 mg/g	40.4 mg/g ⁱⁱ
Total Tetrahydrocannabinol (THC) ⁱⁱⁱ	UPLC/UV	NMT 0.30%	0.11%
Terpene assay ^{iv}	HS-GC/MS	n/e	5,960 ppm
Microbiological ^v			
Total Plate Count	USP 42	NMT 1,000 cfu/ml	PASS
Total Yeast & Mold	USP 42	NMT 100 cfu/ml	PASS
Total Coliforms / EC	USP 42	NMT 100 cfu/ml	PASS
<i>E. coli</i>	USP 42	Absent	PASS
<i>Salmonella</i>	USP 42	Absent	PASS
Heavy Metals ^{vi}			
Arsenic (As)	ICP/MS	NMT 1.0 ppm	PASS
Cadmium (Cd)	ICP/MS	NMT 0.5 ppm	PASS
Lead (Pb)	ICP/MS	NMT 1.0 ppm	PASS
Mercury (Hg)	ICP/MS	NMT 0.1 ppm	PASS
Residual Solvents			
Multi-residue panel	GC-HS-MSD	Below MRL ^{vii}	PASS
Pesticides			
Multi-residue panel	UPLC-MS/MS	Below MRL	PASS


David Cole
Director of Quality

8/27/20
Date

ⁱ Total CBD = CBD + (0.877*CBDA) to account for loss of acid group during decarboxylation

ⁱⁱ Corresponds to **37.3mg/ml**

ⁱⁱⁱ Total THC = THC + (0.877*THCA) to account for loss of acid group during decarboxylation

^{iv} Sum of terpene assay (n=22)

^v Microbiological limits based on USP, WHO, and/or NSF/ANSI

^{vi} Limits for As and Pb set below CA Prop 65 *no significant risk level*; Cd and Hg set below USP permitted daily exposure for 110lb body weight. Complies with 1 CCR 212-3

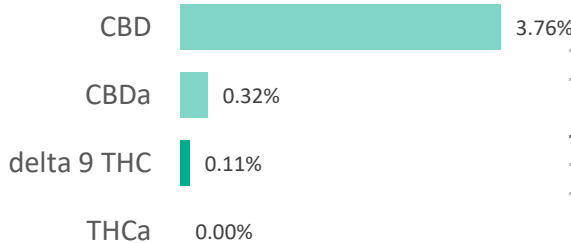
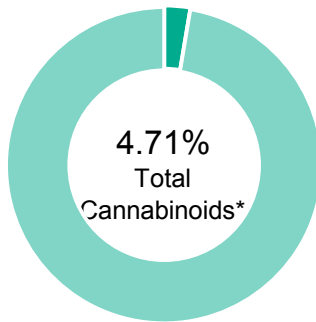
^{vii} 11 solvent panel: Propane, Butane, Pentane, Ethanol, Acetone, Isopropyl Alcohol, Hexane, Benzene, Heptanes, Toluene, Xylenes

NMT = Not More Than

MRL = Method Reporting Limit
n/e = not established

Full Spectrum Hemp Oil

Batch ID:	ND200818	Test ID:	T000091326
Reported:	21-Aug-2020	Method:	TM14
Type:	Concentrate		
Test:	Potency		


CANNABINOID PROFILE



Compound	LOQ (%)	Result (%)	Result (mg/g)
Delta 9-Tetrahydrocannabinolic acid (THCA-A)	0.03	ND	ND
Delta 9-Tetrahydrocannabinol (Delta 9THC)	0.01	0.11	1.1
Cannabidiolic acid (CBDA)	0.02	0.32	3.2
Cannabidiol (CBD)	0.01	3.76	37.6
Delta 8-Tetrahydrocannabinol (Delta 8THC)	0.01	ND	ND
Cannabinolic Acid (CBNA)	0.04	ND	ND
Cannabinol (CBN)	0.02	ND	ND
Cannabigerolic acid (CBGA)	0.02	ND	ND
Cannabigerol (CBG)	0.01	0.11	1.1
Tetrahydrocannabivarinic Acid (THCVA)	0.02	ND	ND
Tetrahydrocannabivarin (THCV)	0.01	ND	ND
Cannabidivarinic Acid (CBDVA)	0.02	ND	ND
Cannabidivarin (CBDV)	0.01	0.02	0.2
Cannabichromenic Acid (CBCA)	0.02	0.02	0.2
Cannabichromene (CBC)	0.02	0.37	3.7
Total Cannabinoids		4.71	47.1
Total Potential THC**		0.11	1.1
Total Potential CBD**		4.04	40.4

% = % (w/w) = Percent (Weight of Analyte / Weight of Product)
 * Total Cannabinoids result reflects the absolute sum of all cannabinoids detected.
 ** Total Potential THC/CBD is calculated using the following formulas to take into account the loss of a carboxyl group during decarboxylation step.
 Total THC = THC + (THCa * (0.877)) and Total CBD = CBD + (CBDa * (0.877))
 ND = None Detected (Defined by Dynamic Range of the method)

NOTES:
N/A

FINAL APPROVAL


 Tyler Wiese
 21-Aug-2020
 4:04 PM


 Greg Zimpfer
 21-Aug-2020
 4:07 PM

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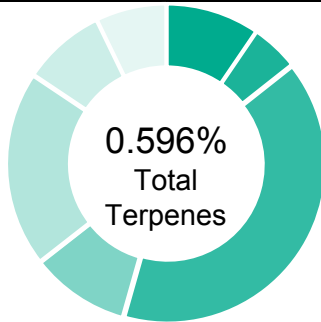
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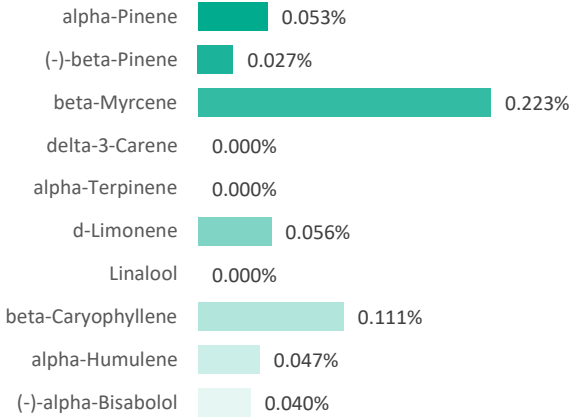


Full Spectrum Hemp Oil



Batch ID:	ND200818	Test ID:	5420591.001
Reported:	25-Aug-2020	Method:	TM10
Type:	Concentrate		
Test:	Terpenes		

TERPENE PROFILE


Compound	%(w/w)	mg/g
(-)-alpha-Bisabolol	0.040	0.4
Camphene	0.000	0
delta-3-Carene	0.000	0
beta-Caryophyllene	0.111	1.11
(-)-Caryophyllene Oxide	0.017	0.17
p-Cymene	0.000	0
Eucalyptol	0.009	0.09
Geraniol	0.000	0
alpha-Humulene	0.047	0.47
(-)-Isopulegol	0.000	0
d-Limonene	0.056	0.56
Linalool	0.000	0
beta-Myrcene	0.223	2.23
cis-Nerolidol	0.000	0
trans-Nerolidol	0.004	0.04
Ocimene	0.001	0.01
beta-Ocimene	0.000	0
alpha-Pinene	0.053	0.53
(-)-beta-Pinene	0.027	0.27
alpha-Terpinene	0.000	0
gamma-Terpinene	0.001	0.01
Terpinolene	0.007	0.07
	0.596%	5.96

PREDOMINANT TERPENES

 NOTES:
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FINAL APPROVAL

	Michelle Gagnon 25-Aug-2020 2:13 PM		Greg Zimpfer 25-Aug-2020 4:39 PM
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Certificate #4329.02

Full Spectrum Hemp Oil

Batch ID:	ND200818	Test ID:	T000091329
Reported:	23-Aug-2020	Method:	Concentrate - Test Methods: TM05, TM06
Type:	Concentrate		
Test:	Microbial Contaminants		

MICROBIAL CONTAMINANTS

Contaminant	Result (CFU/g)*
Total Aerobic Count**	None Detected
Total Coliforms**	None Detected
Total Yeast and Molds**	None Detected
E. coli	None Detected
Salmonella	None Detected

* CFU/g = Colony Forming Unit per Gram

** Values recorded in scientific notation, a common microbial practice of expressing numbers that are too large to be conveniently written in decimal form.

Examples: $10^2 = 100$ CFU
 $10^3 = 1,000$ CFU
 $10^4 = 10,000$ CFU
 $10^5 = 100,000$ CFU

NOTES:



Free from visual mold, mildew, and foreign matter

TYM: None Detected

Total Aerobic: None Detected

Coliforms: None Detected

FINAL APPROVAL


Sarah Henning
23-Aug-2020
1:16 PM
Greg Zimpfer
23-Aug-2020
7:05 PM

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Certificate #4329.03

Full Spectrum Hemp Oil

Batch ID:	ND200818	Test ID:	T000091332
Reported:	20-Aug-2020	Method:	TM19
Type:	Concentrate		
Test:	Metals		

HEAVY METALS

Analyte	Dynamic Range (ppm)	Result (ppm)
Arsenic	0.069 - 6.87	ND
Cadmium	0.074 - 7.37	ND
Mercury	0.067 - 6.70	ND
Lead	0.071 - 7.13	ND

* ND = None Detected (Defined by Dynamic Range of the method)

FINAL APPROVAL

Morgan Ingraham
20-Aug-2020
1:05 PM

PREPARED BY / DATE

Ben Minton
20-Aug-2020
5:03 PM

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Full Spectrum Hemp Oil

Batch ID:	ND200818	Test ID:	t000091328
Reported:	20-Aug-2020	Method:	TM04
Type:	Concentrate		
Test:	Residual Solvents		

RESIDUAL SOLVENTS

Solvent	Dynamic Range (ppm)	Result (ppm)
Propane	68 - 1352	*ND
Butanes (Isobutane, n-Butane)	143 - 2864	*ND
Methanol	58 - 1158	*ND
Pentane	83 - 1656	*ND
Ethanol	82 - 1643	*ND
Acetone	95 - 1893	*ND
Isopropyl Alcohol	99 - 1974	*ND
Hexane	6 - 114	*ND
Ethyl Acetate	95 - 1909	*ND
Benzene	0.2 - 3.8	*ND
Heptanes	89 - 1781	*ND
Toluene	17 - 347	*ND
Xylenes (m,p,o-Xylenes)	127 - 2534	*ND

* ND = None Detected (Defined by Dynamic Range of the method)

NOTES:
N/A**FINAL APPROVAL**Karen Winternheimer
20-Aug-2020
2:26 PMBen Minton
20-Aug-2020
4:24 PM

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Certificate #4329.02

Full Spectrum Hemp Oil

Batch ID:	ND200818	Test ID:	T000091331
Reported:	24-Aug-2020	Method:	TM17
Type:	Concentrate		
Test:	Pesticides		


PESTICIDE RESIDUE

Compound	Dynamic Range (ppb)	Result (ppb)	Compound	Dynamic Range (ppb)	Result (ppb)
Acephate	49 - 2555	ND*	Malathion	295 - 2555	ND*
Acetamiprid	45 - 2555	ND*	Metalaxyl	48 - 2555	ND*
Abamectin	>442	ND*	Methiocarb	41 - 2555	ND*
Azoxystrobin	45 - 2555	ND*	Methomyl	50 - 2555	ND*
Bifenazate	61 - 2555	ND*	MGK 264 1	210 - 2555	ND*
Boscalid	48 - 2555	ND*	MGK 264 2	125 - 2555	ND*
Carbaryl	45 - 2555	ND*	Myclobutanil	44 - 2555	ND*
Carbofuran	45 - 2555	ND*	Naled	56 - 2555	ND*
Chlorantraniliprole	40 - 2555	ND*	Oxamyl	48 - 2555	ND*
Chlorpyrifos	38 - 2555	ND*	Paclobutrazol	44 - 2555	ND*
Clofentezine	318 - 2555	ND*	Permethrin	262 - 2555	ND*
Diazinon	293 - 2555	ND*	Phosmet	43 - 2555	ND*
Dichlorvos	>312	ND*	Prophos	301 - 2555	ND*
Dimethoate	44 - 2555	ND*	Propoxur	48 - 2555	ND*
E-Fenpyroximate	239 - 2555	ND*	Pyridaben	285 - 2555	ND*
Etofenprox	43 - 2555	ND*	Spinosad A	32 - 2555	ND*
Etoxazole	291 - 2555	ND*	Spinosad D	83 - 2555	ND*
Fenoxycarb	>52	ND*	Spiromesifen	>273	ND*
Fipronil	58 - 2555	ND*	Spirotetramat	>297	ND*
Flonicamid	48 - 2555	ND*	Spiroxamine 1	19 - 2555	ND*
Fludioxonil	>324	ND*	Spiroxamine 2	22 - 2555	ND*
Hexythiazox	39 - 2555	ND*	Tebuconazole	272 - 2555	ND*
Imazalil	301 - 2555	ND*	Thiacloprid	47 - 2555	ND*
Imidacloprid	51 - 2555	ND*	Thiamethoxam	50 - 2555	ND*
Kresoxim-methyl	48 - 2555	ND*	Trifloxystrobin	49 - 2555	ND*

* ND = None Detected (Defined by Dynamic Range of the method)

N/A

FINAL APPROVAL

 Tyler Wiese
 24-Aug-2020
 8:18 PM

 Greg Zimpfer
 24-Aug-2020
 9:33 PM

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