



STRAIGHT HEMP

CERTIFICATE OF ANALYSIS

PRODUCT: Full Spectrum Hemp Softgels PRODUCTION DATE: 01/20/2020
BATCH/LOT: 0067638 EXPIRATION DATE: 02/2022
INGREDIENTS: Full Spectrum Hemp Extract, Organic Hemp Seed Oil, Vegan Softgel (Tapioca Starch Gel, Distilled Water, and Vegetable Glycerin)
ADDITIVES: none
EXCIPIENTS: none

TEST	METHOD	SPECIFICATION	RESULTS
Strength & Composition			
Identity	Organoleptic	Conforming	PASS
Identity	UPLC/UV	Chemical Fingerprint	PASS
Total Cannabidiol (CBD) ⁱ	UPLC/UV	19.5 – 25.0 mg/g	23.45 mg/g ⁱⁱ
Total Tetrahydrocannabinol (THC) ⁱⁱⁱ	UPLC/UV	NMT 0.30%	0.09%
Microbiological ^{iv}			
Total Plate Count	USP 42	NMT 1,000 cfu/ml	PASS
Total Yeast & Mold	USP 42	NMT 100 cfu/ml	PASS
<i>E. coli</i>	USP 42	Absent	PASS
<i>Salmonella</i>	USP 42	Absent	PASS
<i>Staph. aureus</i>	USP 42	Absent	PASS
<i>Pseudo. aeruginosa</i>	USP 42	Absent	PASS
Heavy Metals ^v			
Arsenic (As)	ICP/MS	NMT 2 ppm	PASS
Cadmium (Cd)	ICP/MS	NMT 2 ppm	PASS
Lead (Pb)	ICP/MS	NMT 2 ppm	PASS
Mercury (Hg)	ICP/MS	NMT 1 ppm	PASS
Residual Solvents			
Multi-residue panel	GC-HS-MSD	Below MRL ^{vi}	PASS
Pesticides			
Multi-residue panel	UPLC-MS/MS	Below MRL	PASS


David Cole
Director of Quality


Date

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

ⁱⁱ Corresponds to **21.8mg/ml, 10.9mg/serving**

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

^{iv} Microbiological limits based on USP, WHO, and/or NSF/ANSI.

^v 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

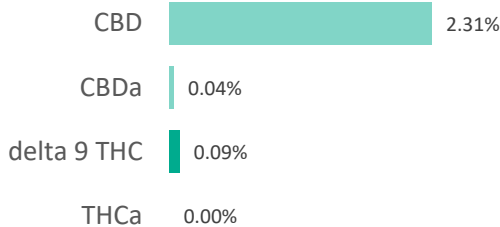
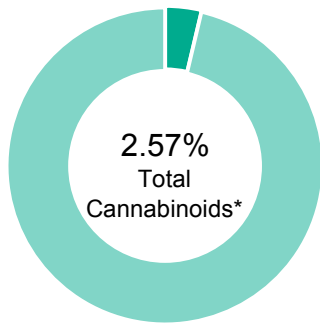
^{vi} 11 solvent panel: Propane, Butane, Pentane, Ethanol, Acetone, Isopropyl Alcohol, Hexane, Benzene, Heptanes, Toluene, Xylenes

NMT = Not More Than

MRL = Method Reporting Limit

FSO - FULL SPECTRUM HEMP OIL

Batch ID:	0067638	Test ID:	1148145.001
Reported:	27-Jan-2020	Method:	TM14
Type:	Concentrate		
Test:	Potency		

CANNABINOID PROFILE


Compound	LOQ (%)	Result (%)	Result (mg/g)
Delta 9-Tetrahydrocannabinolic acid (THCA-A)	0.02	0.00	0.0
Delta 9-Tetrahydrocannabinol (Delta 9THC)	0.01	0.09	0.9
Cannabidiolic acid (CBDA)	0.03	0.04	0.4
Cannabidiol (CBD)	0.01	2.31	23.1
Delta 8-Tetrahydrocannabinol (Delta 8THC)	0.01	0.00	0.0
Cannabinolic Acid (CBNA)	0.03	0.00	0.0
Cannabinol (CBN)	0.01	0.00	0.0
Cannabigerolic acid (CBGA)	0.02	0.00	0.0
Cannabigerol (CBG)	0.01	0.04	0.4
Tetrahydrocannabivarinic Acid (THCVA)	0.02	0.00	0.0
Tetrahydrocannabivarin (THCV)	0.01	0.00	0.0
Cannabidivarinic Acid (CBDVA)	0.02	0.00	0.0
Cannabidivarin (CBDV)	0.01	0.00	0.0
Cannabichromenic Acid (CBCA)	0.02	0.00	0.0
Cannabichromene (CBC)	0.02	0.09	0.9
Total Cannabinoids		2.57	25.70
Total Potential THC**		0.09	0.90
Total Potential CBD**		2.35	23.45


NOTES:

N/A

% = % (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.

$$\text{Total THC} = \text{THC} + (\text{THCa} * (0.877)) \text{ and Total CBD} = \text{CBD} + (\text{CBDa} * (0.877))$$
FINAL APPROVAL


Taylor Brevik
 27-Jan-2020
 3:19 PM

PREPARED BY / DATE



Greg Zimpfer
 27-Jan-2020
 3:43 PM

APPROVED BY / DATE

Testing results are based solely upon the sample submitted to Botanacor Laboratories, LLC, in the condition it was received. Botanacor Laboratories, LLC warrants that all analytical work is conducted professionally in accordance with all applicable standard laboratory practices using validated methods. Data was generated using an unbroken chain of comparison to NIST traceable Reference Standards and Certified Reference Materials. This report may not be reproduced, except in full, without the written approval of Botanacor Laboratories, LLC. ISO/IEC 17025:2005 Accredited A2LA Certificate Number 4329.02



Certificate #4329.02


FSO - FULL SPECTRUM HEMP OIL

Batch ID:	0067638	Test ID:	T000054950
Reported:	4-Feb-2020	Method:	Arsenic = Arsenic EPA 6020A (mod), Cadmium = Cadmium EPA 6020A (mod), Lead = Lead EPA 6020A (mod), Mercury = Mercury EPA 6020A (mod)
Type:	Other		
Test:	Metals		


HEAVY METALS

Compound	Reporting Limit (ppm)	Result (ppm)
Arsenic	0.05	<0.05
Cadmium	0.05	<0.05
Lead	0.05	<0.05
Mercury	0.05	<0.05

FINAL APPROVAL

 Sam Smith
4-Feb-2020
9:57 AM

PREPARED BY / DATE

 Greg Zimpfer
4-Feb-2020
8:33 PM

APPROVED BY / DATE

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FSO - FULL SPECTRUM HEMP OIL

Batch ID:	0067638	Test ID:	9341337.009
Reported:	27-Jan-2020	Method:	TM04
Type:	Concentrate		
Test:	Residual Solvents		

RESIDUAL SOLVENTS

Solvent	Reportable Range (ppm)	Result (ppm)
Propane	100 - 2000	0
Butanes (Isobutane, n-Butane)	100 - 2000	0
Pentane	100 - 2000	0
Ethanol	100 - 2000	0
Acetone	100 - 2000	0
Isopropyl Alcohol	100 - 2000	0
Hexane	6 - 120	0
Benzene	0.2 - 4	0.0
Heptanes	100 - 2000	0
Toluene	18 - 360	0
Xylenes (m,p,o-Xylenes)	43 - 860	0

NOTES:

Free from visual mold, mildew, and foreign matter.

FINAL APPROVAL

 Tyler Wiese 27-Jan-2020 5:20 PM	 Greg Zimpfer 27-Jan-2020 6:23 PM
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PREPARED BY / DATE

APPROVED BY / DATE

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Certificate #4329.02

FSO - FULL SPECTRUM HEMP OIL

Batch ID:	0067638	Test ID:	2171659.002
Reported:	28-Jan-2020	Method:	TM17
Type:	Concentrate		
Test:	Pesticides		

PESTICIDE RESIDUE

Compound	Dynamic Range (ppb)	Result (ppb)	Compound	Dynamic Range (ppb)	Result (ppb)
Acephate	52 - 2413	ND*	Malathion	52 - 2413	ND*
Acetamiprid	52 - 2413	ND*	Metalaxyl	313 - 2413	ND*
Avermectin	313 - 2413	ND*	Methiocarb	52 - 2413	ND*
Azoxystrobin	52 - 2413	ND*	Methomyl	52 - 2413	ND*
Bifenazate	52 - 2413	N/A	MGK 264 1	52 - 2413	ND*
Boscalid	313 - 2413	ND*	MGK 264 2	313 - 2413	ND*
Carbaryl	52 - 2413	ND*	Myclobutanil	313 - 2413	ND*
Carbofuran	52 - 2413	ND*	Naled	313 - 2413	ND*
Chlorantraniliprole	52 - 2413	ND*	Oxamyl	52 - 2413	ND*
Chlorpyrifos	313 - 2413	ND*	Paclobutrazol	52 - 2413	ND*
Clofentezine	52 - 2413	ND*	Permethrin	313 - 2413	ND*
Diazinon	52 - 2413	ND*	Phosmet	52 - 2413	ND*
Dichlorvos	313 - 2413	ND*	Prophos	313 - 2413	ND*
Dimethoate	52 - 2413	ND*	Propoxur	313 - 2413	ND*
E-Fenpyroximate	313 - 2413	ND*	Pyridaben	313 - 2413	ND*
Etofenprox	313 - 2413	ND*	Spinosad A	52 - 2413	ND*
Etoxazole	313 - 2413	ND*	Spinosad D	313 - 2413	ND*
Fenoxycarb	52 - 2413	ND*	Spiromesifen	52 - 2413	ND*
Fipronil	313 - 2413	ND*	Spirotetramat	313 - 2413	ND*
Flonicamid	52 - 2413	ND*	Spiroxamine 1	52 - 2413	ND*
Fludioxonil	313 - 2413	ND*	Spiroxamine 2	52 - 2413	ND*
Hexythiazox	313 - 2413	ND*	Tebuconazole	52 - 2413	ND*
Imazalil	313 - 2413	ND*	Thiacloprid	52 - 2413	ND*
Imidacloprid	52 - 2413	ND*	Thiamethoxam	52 - 2413	ND*
Kresoxim-methyl	52 - 2413	ND*	Trifloxystrobin	313 - 2413	ND*


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

N/A

FINAL APPROVAL


 Sam Smith
 28-Jan-2020
 9:10 AM

PREPARED BY / DATE


 Greg Zimpfer
 28-Jan-2020
 1:06 PM

APPROVED BY / DATE

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Certificate of Analysis

Straight Hemp
 5135 W. 58th Ave, Ste 5
 Arvada, CO 80002
 Phone: 970-214-7814

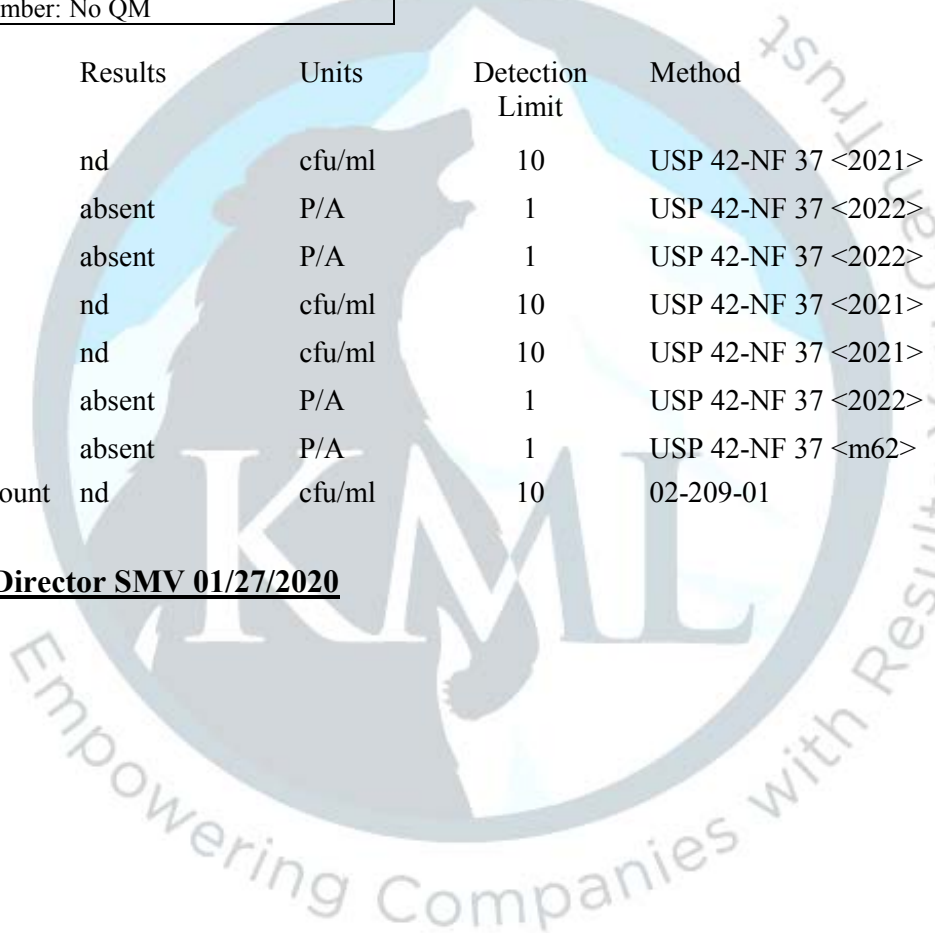
Invoice Number: 20.0099
 PO Number:
 Received Date: 1/22/2020
 Number of Samples: 01
 Project Name: Routine Testing

Microbiology Report:

Lab #: 20-0679	Sample Lot: 0067638	Sample Date:
Sample Name: FSO-Full Spectrum Hemp Oil	Additional ID:	Plated Date: 01/22/2020
Qualifying Material Number: No QM		

Test Performed	Results	Units	Detection Limit	Method	Date Analyzed
Aerobic Plate Count	nd	cfu/ml	10	USP 42-NF 37 <2021>	01/25/2020
<i>E. coli</i>	absent	P/A	1	USP 42-NF 37 <2022>	01/25/2020
<i>Staph aureus</i>	absent	P/A	1	USP 42-NF 37 <2022>	01/25/2020
Yeast	nd	cfu/ml	10	USP 42-NF 37 <2021>	01/27/2020
Mold	nd	cfu/ml	10	USP 42-NF 37 <2021>	01/27/2020
Salmonella	absent	P/A	1	USP 42-NF 37 <2022>	01/26/2020
<i>Pseudo. aeruginosa</i>	absent	P/A	1	USP 42-NF 37 <m62>	01/25/2020
Enterobacteriaceae Count	nd	cfu/ml	10	02-209-01	01/23/2020

Approved By: QA Director SMV 01/27/2020



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Page 1 of 2

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Certificate of Analysis

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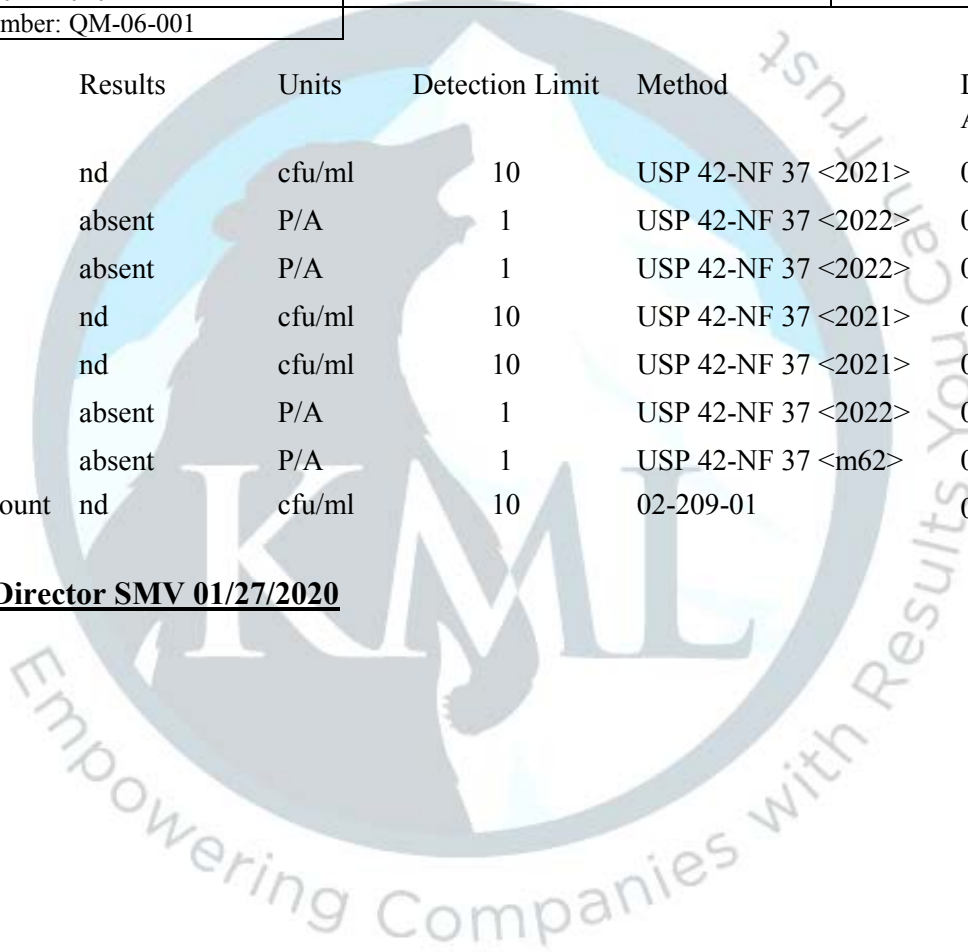
Invoice Number: 20.0099
 PO Number:
 Received Date: 1/22/2020
 Number of Samples: 01
 Project Name: Routine Testing

Microbiology Report:

Lab #: Control 01222020	Additional ID: Negative Control Purposes	Plated Date: 01/22/2020
Sample Name: Control 01222020		
Qualifying Material Number: QM-06-001		

Test Performed	Results	Units	Detection Limit	Method	Date Analyzed
Aerobic Plate Count	nd	cfu/ml	10	USP 42-NF 37 <2021>	01/25/2020
<i>E. coli</i>	absent	P/A	1	USP 42-NF 37 <2022>	01/25/2020
<i>Staph aureus</i>	absent	P/A	1	USP 42-NF 37 <2022>	01/25/2020
Yeast	nd	cfu/ml	10	USP 42-NF 37 <2021>	01/27/2020
Mold	nd	cfu/ml	10	USP 42-NF 37 <2021>	01/27/2020
Salmonella	absent	P/A	1	USP 42-NF 37 <2022>	01/26/2020
<i>Pseudo. aeruginosa</i>	absent	P/A	1	USP 42-NF 37 <m62>	01/25/2020
Enterobacteriaceae Count	nd	cfu/ml	10	02-209-01	01/23/2020

Approved By: QA Director SMV 01/27/2020



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