



# STRAIGHT HEMP

## CERTIFICATE OF ANALYSIS

PRODUCT: Full Spectrum Hemp Oil  
BATCH/LOT: 0067903  
INGREDIENTS: Full Spectrum Hemp Extract, Organic Hemp Seed Oil  
ADDITIVES: none  
EXCIPIENTS: none

PRODUCTION DATE: 04/2020  
EXPIRATION DATE: 04/2022

TEST	METHOD	SPECIFICATION	RESULTS
<b>Strength &amp; Composition</b>			
Identity	Organoleptic	Conforming	PASS
Identity	UPLC/UV	Chemical Fingerprint	PASS
Total Cannabidiol (CBD) <sup>i</sup>	UPLC/UV	35.0 – 48.0 mg/g	45.8 mg/g <sup>ii</sup>
Total Tetrahydrocannabinol (THC) <sup>iii</sup>	UPLC/UV	NMT 0.30%	0.19%
Terpene assay <sup>iv</sup>	HS-GC/MS	n/e	4,890 ppm
<b>Microbiological<sup>v</sup></b>			
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
<b>Heavy Metals<sup>vi</sup></b>			
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
<b>Residual Solvents</b>			
Multi-residue panel	GC-HS-MSD	Below MRL <sup>vii</sup>	PASS
<b>Pesticides</b>			
Multi-residue panel	UPLC-MS/MS	Below MRL	PASS

  
David Cole  
Director of Quality

5/5/20  
Date

<sup>i</sup> Total CBD = CBD + (0.877\*CBDA) to account for loss of acid group during decarboxylation

<sup>ii</sup> Corresponds to **42.7mg/ml**

<sup>iii</sup> Total THC = THC + (0.877\*THCA) to account for loss of acid group during decarboxylation

<sup>iv</sup> Sum of terpene assay (n=22)

<sup>v</sup> Microbiological limits based on USP, WHO, and/or NSF/ANSI

<sup>vi</sup> 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

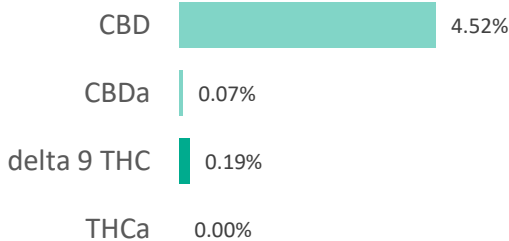
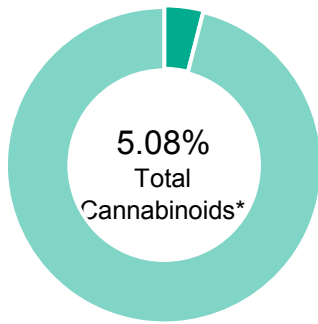
<sup>vii</sup> 11 solvent panel: Propane, Butane, Pentane, Ethanol, Acetone, Isopropyl Alcohol, Hexane, Benzene, Heptanes, Toluene, Xylenes

NMT = Not More Than

MRL = Method Reporting Limit

**FSO - Full Spectrum Hemp Oil**

<b>Batch ID:</b>	0067903	<b>Test ID:</b>	2337278.007
<b>Reported:</b>	10-Apr-2020	<b>Method:</b>	TM14
<b>Type:</b>	Concentrate		
<b>Test:</b>	Potency		


**CANNABINOID PROFILE**


Compound	LOQ (%)	Result (%)	Result (mg/g)
Delta 9-Tetrahydrocannabinolic acid (THCA-A)	0.01	ND	ND
Delta 9-Tetrahydrocannabinol (Delta 9THC)	0.01	0.19	1.9
Cannabidiolic acid (CBDA)	0.02	0.07	0.7
Cannabidiol (CBD)	0.01	4.52	45.2
Delta 8-Tetrahydrocannabinol (Delta 8THC)	0.01	ND	ND
Cannabinolic Acid (CBNA)	0.02	ND	ND
Cannabinol (CBN)	0.01	0.01	0.1
Cannabigerolic acid (CBGA)	0.01	ND	ND
Cannabigerol (CBG)	0.01	0.09	0.9
Tetrahydrocannabivarinic Acid (THCVA)	0.01	ND	ND
Tetrahydrocannabivarin (THCV)	0.00	ND	ND
Cannabidivarinic Acid (CBDVA)	0.02	ND	ND
Cannabidivarin (CBDV)	0.01	0.02	0.2
Cannabichromenic Acid (CBCA)	0.01	ND	ND
Cannabichromene (CBC)	0.01	0.18	1.8
<b>Total Cannabinoids</b>		<b>5.08</b>	<b>50.80</b>
<b>Total Potential THC**</b>		<b>0.19</b>	<b>1.90</b>
<b>Total Potential CBD**</b>		<b>4.58</b>	<b>45.81</b>

% = % (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  
 10-Apr-2020  
 3:28 PM

  
 Greg Zimpfer  
 10-Apr-2020  
 4:03 PM

PREPARED BY / DATE

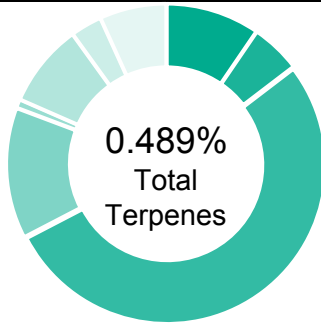
APPROVED BY / DATE

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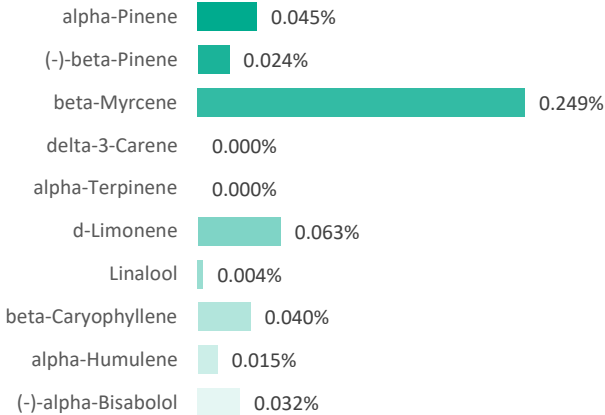


**FSO - Full Spectrum Hemp Oil**



<b>Batch ID:</b>	0067903	<b>Test ID:</b>	7116468.0012
<b>Reported:</b>	13-Apr-2020	<b>Method:</b>	TM10
<b>Type:</b>	Concentrate		
<b>Test:</b>	Terpenes		

**TERPENE PROFILE**


Compound	%(w/w)	mg/g
(-)-alpha-Bisabolol	0.032	0.32
Camphene	N/A	N/A
delta-3-Carene	0.000	0
beta-Caryophyllene	0.040	0.4
(-)-Caryophyllene Oxide	0.000	0
p-Cymene	0.000	0
Eucalyptol	0.004	0.04
Geraniol	0.000	0
alpha-Humulene	0.015	0.15
(-)-Isopulegol	0.000	0
d-Limonene	0.063	0.63
Linalool	0.004	0.04
beta-Myrcene	0.249	2.49
cis-Nerolidol	0.000	0
trans-Nerolidol	0.003	0.03
Ocimene	0.000	0
beta-Ocimene	0.004	0.04
alpha-Pinene	0.045	0.45
(-)-beta-Pinene	0.024	0.24
alpha-Terpinene	0.000	0
gamma-Terpinene	0.001	0.01
Terpinolene	0.005	0.05
	<b>0.489%</b>	<b>4.89</b>

**PREDOMINANT TERPENES**

 NOTES:  
 0

**FINAL APPROVAL**

	Michelle Gagnon 13-Apr-2020 12:58 PM		Greg Zimpfer 13-Apr-2020 4:02 PM
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PREPARED BY / DATE

APPROVED BY / DATE

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Certificate #4329.02

## FSO - Full Spectrum Hemp Oil

<b>Batch ID:</b>	0067903	<b>Test ID:</b>	T000070882
<b>Reported:</b>	9-Apr-2020	<b>Method:</b>	TM19
<b>Type:</b>	Other		
<b>Test:</b>	Metals		

## HEAVY METALS

Analyte	Dynmic Range (ppm)	Result (ppm)
Arsenic	0.071 - 7.11	ND
Cadmium	0.081 - 8.10	ND
Mercury	0.144 - 14.30	ND
Lead	0.219 - 21.90	ND

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

## FINAL APPROVAL

Alex Smith  
9-Apr-2020  
1:21 PM

PREPARED BY / DATE

Ben Minton  
9-Apr-2020  
3:03 PM

APPROVED BY / DATE

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**FSO - Full Spectrum Hemp Oil**

<b>Batch ID:</b>	0067903	<b>Test ID:</b>	T000070879
<b>Reported:</b>	10-Apr-2020	<b>Method:</b>	TM04
<b>Type:</b>	Concentrate		
<b>Test:</b>	Residual Solvents		

**RESIDUAL SOLVENTS**


Solvent	Dynamic Range (ppm)	Result (ppm)
Propane	91 - 1823	*ND
Butanes (Isobutane, n-Butane)	176 - 3512	*ND
Methanol	64 - 1273	*ND
Pentane	96 - 1910	*ND
Ethanol	95 - 1909	*ND
Acetone	102 - 2036	*ND
Isopropyl Alcohol	107 - 2145	*ND
Hexane	6 - 123	*ND
Ethyl Acetate	103 - 2060	*ND
Benzene	0.2 - 4.2	*ND
Heptanes	98 - 1963	*ND
Toluene	19 - 371	*ND
Xylenes (m,p,o-Xylenes)	135 - 2694	*ND

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

NOTES:  
N/A**FINAL APPROVAL**

Taylor Brevik  
10-Apr-2020  
2:59 PM

PREPARED BY / DATE



Greg Zimpfer  
10-Apr-2020  
8:25 PM

APPROVED BY / DATE

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Certificate #4329.02

**FSO - Full Spectrum Hemp Oil**

<b>Batch ID:</b>	0067903	<b>Test ID:</b>	9741514.0029
<b>Reported:</b>	14-Apr-2020	<b>Method:</b>	TM17
<b>Type:</b>	Concentrate		
<b>Test:</b>	Pesticides		


**PESTICIDE RESIDUE**

Compound	Dynamic Range (ppb)	Result (ppb)	Compound	Dynamic Range (ppb)	Result (ppb)
Acephate	54 - 2514	ND*	Malathion	326 - 2514	ND*
Acetamiprid	54 - 2514	ND*	Metalaxyl	54 - 2514	ND*
Abamectin	>326	ND*	Methiocarb	54 - 2514	ND*
Azoxystrobin	54 - 2514	ND*	Methomyl	54 - 2514	ND*
Bifenazate	54 - 2514	ND*	MGK 264 1	326 - 2514	ND*
Boscalid	54 - 2514	ND*	MGK 264 2	326 - 2514	ND*
Carbaryl	54 - 2514	ND*	Myclobutanil	54 - 2514	ND*
Carbofuran	54 - 2514	ND*	Naled	54 - 2514	ND*
Chlorantraniliprole	54 - 2514	ND*	Oxamyl	54 - 2514	ND*
Chlorpyrifos	54 - 2514	ND*	Paclobutrazol	54 - 2514	ND*
Clofentezine	326 - 2514	ND*	Permethrin	326 - 2514	ND*
Diazinon	326 - 2514	ND*	Phosmet	54 - 2514	ND*
Dichlorvos	>326	ND*	Prophos	326 - 2514	ND*
Dimethoate	54 - 2514	ND*	Propoxur	54 - 2514	ND*
E-Fenpyroximate	54 - 2514	ND*	Pyridaben	54 - 2514	ND*
Etofenprox	54 - 2514	ND*	Spinosad A	54 - 2514	ND*
Etoxazole	326 - 2514	ND*	Spinosad D	326 - 2514	ND*
Fenoxycarb	>54	ND*	Spiromesifen	>326	ND*
Fipronil	54 - 2514	ND*	Spirotetramat	>326	ND*
Flonicamid	54 - 2514	ND*	Spiroxamine 1	54 - 2514	ND*
Fludioxonil	>326	ND*	Spiroxamine 2	54 - 2514	ND*
Hexythiazox	54 - 2514	ND*	Tebuconazole	326 - 2514	ND*
Imazalil	326 - 2514	ND*	Thiacloprid	54 - 2514	ND*
Imidacloprid	54 - 2514	ND*	Thiamethoxam	54 - 2514	ND*
Kresoxim-methyl	54 - 2514	ND*	Trifloxystrobin	54 - 2514	ND*


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

N/A

**FINAL APPROVAL**

  
 Tyler Wiese  
 14-Apr-2020  
 8:30 PM

PREPARED BY / DATE

  
 Ben Minton  
 14-Apr-2020  
 9:18 PM

APPROVED BY / DATE

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## Certificate of Analysis

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

Invoice Number: 20.0465  
PO Number:  
Received Date: 04/07/2020  
Number of Samples: 01  
Project Name: Routine Testing

### Microbiology Report:

Lab #: 20-3028	Sample Lot: 0067903	Sample Date: 04/06/2020
Sample Name: FSO-Full Spectrum Hemp Oil	Additional ID:	Plated Date: 04/07/2020
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>	04/10/2020
<i>E. coli</i>	absent	P/A	1	USP 42-NF 37 <2022>	04/10/2020
<i>Staph aureus</i>	absent	P/A	1	USP 42-NF 37 <2022>	04/10/2020
Yeast	nd	cfu/ml	10	USP 42-NF 37 <2021>	04/12/2020
Mold	nd	cfu/ml	10	USP 42-NF 37 <2021>	04/12/2020
Salmonella	absent	P/A	1	USP 42-NF 37 <2022>	04/11/2020
<i>Pseudo. aeruginosa</i>	absent	P/A	1	USP 42-NF 37 <m62>	04/10/2020
Enterobacteriaceae Count	nd	cfu/ml	10	02-209-01	04/08/2020

**Approved By: QA Director SMV 04/13/2020**

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Page 1 of 2

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## Certificate of Analysis

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

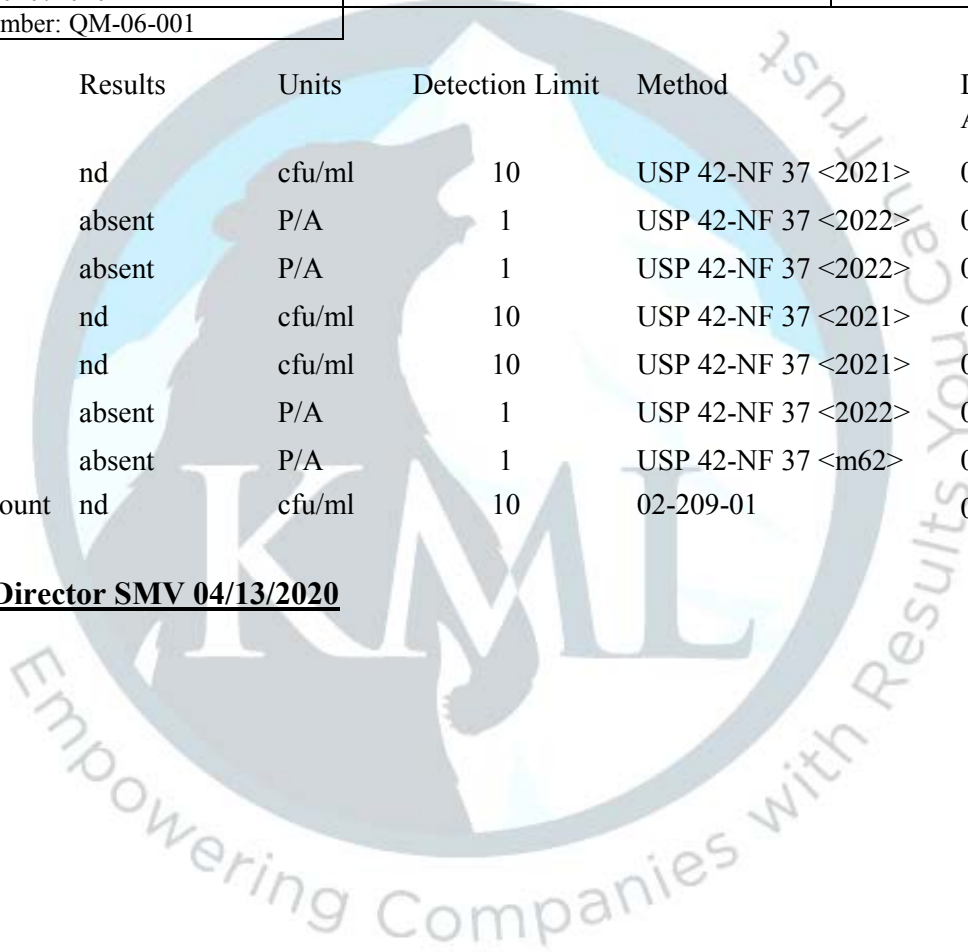
Invoice Number: 20.0465  
 PO Number:  
 Received Date: 04/07/2020  
 Number of Samples: 01  
 Project Name: Routine Testing

### Microbiology Report:

Lab #: Control 04072020	Additional ID: Negative Control Purposes	Plated Date: 04/07/2020
Sample Name: Control 04072020		
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>	04/10/2020
<i>E. coli</i>	absent	P/A	1	USP 42-NF 37 <2022>	04/10/2020
<i>Staph aureus</i>	absent	P/A	1	USP 42-NF 37 <2022>	04/10/2020
Yeast	nd	cfu/ml	10	USP 42-NF 37 <2021>	04/12/2020
Mold	nd	cfu/ml	10	USP 42-NF 37 <2021>	04/12/2020
Salmonella	absent	P/A	1	USP 42-NF 37 <2022>	04/11/2020
<i>Pseudo. aeruginosa</i>	absent	P/A	1	USP 42-NF 37 <m62>	04/10/2020
Enterobacteriaceae Count	nd	cfu/ml	10	02-209-01	04/08/2020

**Approved By: QA Director SMV 04/13/2020**



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