


STRAIGHT HEMP

CERTIFICATE OF ANALYSIS

PRODUCT: Full Spectrum Hemp Oil
BATCH/LOT: A0059
INGREDIENTS: Full Spectrum Hemp Extract, Organic Hemp Seed Oil
ADDITIVES: none
EXCIPIENTS: none

PRODUCTION DATE: 3/6/2020
EXPIRATION DATE: 02/2022

TEST	METHOD	SPECIFICATION	RESULTS
Strength & Composition			
Identity	Organoleptic	Conforming	PASS
Identity	UPLC/UV	Chemical Fingerprint	PASS
Total Cannabidiol (CBD) ⁱ	UPLC/UV	35.0 – 43.0 mg/g	36.2 mg/g ⁱⁱ
Total Tetrahydrocannabinol (THC) ⁱⁱⁱ	UPLC/UV	NMT 0.30%	0.20%
Terpene assay ^{iv}	HS-GC/MS	n/e	1,940 ppm
Microbiological ^v			
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 ^{vi}			
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 ^{vii}	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 **33.7mg/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

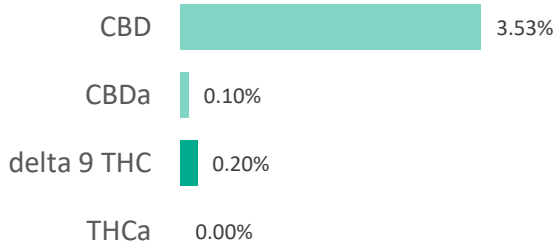
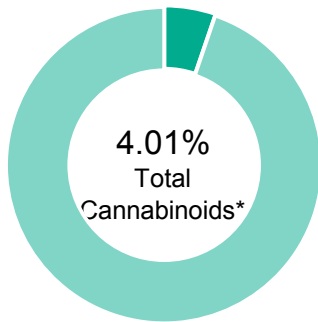
^{vii} 11 solvent panel: Propane, Butane, Pentane, Ethanol, Acetone, Isopropyl Alcohol, Hexane, Benzene, Heptanes, Toluene, Xylenes

NMT = Not More Than

MRL = Method Reporting Limit

FSO - Full Spectrum Hemp Oil

Batch ID:	A0059	Test ID:	5251402.005
Reported:	26-Mar-2020	Method:	TM14
Type:	Concentrate		
Test:	Potency		


CANNABINOID PROFILE


Compound	LOQ (%)	Result (%)	Result (mg/g)
Delta 9-Tetrahydrocannabinolic acid (THCA-A)	0.01	ND	ND
Delta 9-Tetrahydrocannabinol (Delta 9THC)	0.00	0.20	2.0
Cannabidiolic acid (CBDA)	0.01	0.10	1.0
Cannabidiol (CBD)	0.01	3.53	35.3
Delta 8-Tetrahydrocannabinol (Delta 8THC)	0.01	ND	ND
Cannabinolic Acid (CBNA)	0.01	ND	ND
Cannabinol (CBN)	0.01	0.02	0.2
Cannabigerolic acid (CBGA)	0.01	ND	ND
Cannabigerol (CBG)	0.00	0.03	0.3
Tetrahydrocannabivarinic Acid (THCVA)	0.01	ND	ND
Tetrahydrocannabivarin (THCV)	0.00	ND	ND
Cannabidivarinic Acid (CBDVA)	0.01	ND	ND
Cannabidivarin (CBDV)	0.01	0.02	0.2
Cannabichromenic Acid (CBCA)	0.01	ND	ND
Cannabichromene (CBC)	0.01	0.11	1.1
Total Cannabinoids		4.01	40.10
Total Potential THC**		0.20	2.00
Total Potential CBD**		3.62	36.18

% = % (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


 Daniel Weidensaul
 26-Mar-2020
 2:18 PM


 Greg Zimpfer
 26-Mar-2020
 3:36 PM

PREPARED BY / DATE

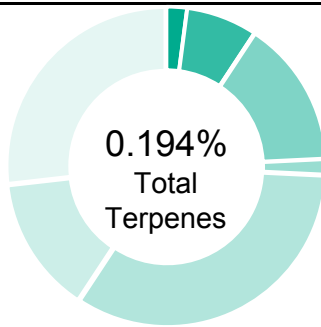
APPROVED BY / DATE

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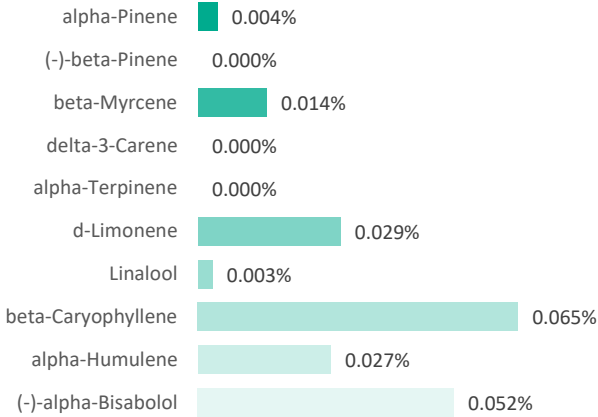


FSO - Full Spectrum Hemp Oil



Batch ID:	A0059	Test ID:	7224683.0015
Reported:	26-Mar-2020	Method:	TM10
Type:	Concentrate		
Test:	Terpenes		

TERPENE PROFILE


Compound	%(w/w)	mg/g
(-)-alpha-Bisabolol	0.052	0.52
Camphene	N/A	N/A
delta-3-Carene	0.000	0
beta-Caryophyllene	0.065	0.65
(-)-Caryophyllene Oxide	0.000	0
p-Cymene	0.000	0
Eucalyptol	0.000	0
Geraniol	0.000	0
alpha-Humulene	0.027	0.27
(-)-Isopulegol	0.000	0
d-Limonene	0.029	0.29
Linalool	0.003	0.03
beta-Myrcene	0.014	0.14
cis-Nerolidol	0.000	0
trans-Nerolidol	0.000	0
Ocimene	0.000	0
beta-Ocimene	0.000	0
alpha-Pinene	0.004	0.04
(-)-beta-Pinene	0.000	0
alpha-Terpinene	0.000	0
gamma-Terpinene	0.000	0
Terpinolene	0.000	0
	0.194%	1.94

PREDOMINANT TERPENES

 NOTES:
 0

FINAL APPROVAL

 Michelle Gagnon 26-Mar-2020 1:56 PM	 Greg Zimpfer 26-Mar-2020 2:24 PM
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PREPARED BY / DATE

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Certificate #4329.02


FSO - Full Spectrum Hemp Oil


Batch ID:	A0059	Test ID:	T000068863
Reported:	31-Mar-2020	Method:	Arsenic = Arsenic EPA 6020A (mod), Cadmium = Cadmium EPA 6020A (mod), Lead = Lead EPA 6020A (mod), Mercury = Mercury EPA 6020A (mod)
Type:	Unit		
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

 Taylor Brevik
31-Mar-2020
10:07 AM
PREPARED BY / DATE

 Greg Zimpfer
31-Mar-2020
12:56 PM
APPROVED BY / DATE

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FSO - Full Spectrum Hemp Oil

Batch ID:	A0059	Test ID:	T000068860
Reported:	27-Mar-2020	Method:	TM04
Type:	Concentrate		
Test:	Residual Solvents		

RESIDUAL SOLVENTS

Solvent	Dynamic Range (ppm)	Result (ppm)
Propane	88 - 1751	*ND
Butanes (Isobutane, n-Butane)	172 - 3435	*ND
Methanol	62 - 1245	*ND
Pentane	94 - 1877	*ND
Ethanol	94 - 1880	*ND
Acetone	101 - 2010	*ND
Isopropyl Alcohol	106 - 2123	*ND
Hexane	6 - 122	*ND
Ethyl Acetate	101 - 2029	*ND
Benzene	0.2 - 4	*ND
Heptanes	98 - 1954	*ND
Toluene	18 - 369	*ND
Xylenes (m,p,o-Xylenes)	134 - 2681	*ND

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

NOTES:
N/A**FINAL APPROVAL**Tyler Wiese
27-Mar-2020
4:59 PM

PREPARED BY / DATE

Greg Zimpfer
27-Mar-2020
7:14 PM

APPROVED BY / DATE

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Certificate #4329.02

FSO - Full Spectrum Hemp Oil

Batch ID:	A0059	Test ID:	7197630.0016
Reported:	25-Mar-2020	Method:	TM17
Type:	Concentrate		
Test:	Pesticides		


PESTICIDE RESIDUE

Compound	Dynamic Range (ppb)	Result (ppb)	Compound	Dynamic Range (ppb)	Result (ppb)
Acephate	52 - 2416	ND*	Malathion	313 - 2416	ND*
Acetamiprid	52 - 2416	ND*	Metalaxyl	52 - 2416	ND*
Abamectin	>313	ND*	Methiocarb	52 - 2416	ND*
Azoxystrobin	52 - 2416	ND*	Methomyl	52 - 2416	ND*
Bifenazate	52 - 2416	ND*	MGK 264 1	313 - 2416	ND*
Boscalid	52 - 2416	ND*	MGK 264 2	313 - 2416	ND*
Carbaryl	52 - 2416	ND*	Myclobutanil	52 - 2416	ND*
Carbofuran	52 - 2416	ND*	Naled	52 - 2416	ND*
Chlorantraniliprole	52 - 2416	ND*	Oxamyl	52 - 2416	ND*
Chlorpyrifos	52 - 2416	ND*	Paclobutrazol	52 - 2416	ND*
Clofentezine	313 - 2416	ND*	Permethrin	313 - 2416	ND*
Diazinon	313 - 2416	ND*	Phosmet	52 - 2416	ND*
Dichlorvos	>313	ND*	Prophos	313 - 2416	ND*
Dimethoate	52 - 2416	ND*	Propoxur	52 - 2416	ND*
E-Fenpyroximate	52 - 2416	ND*	Pyridaben	52 - 2416	ND*
Etofenprox	52 - 2416	ND*	Spinosad A	52 - 2416	ND*
Etoxazole	313 - 2416	ND*	Spinosad D	313 - 2416	ND*
Fenoxycarb	>52	ND*	Spiromesifen	>313	ND*
Fipronil	52 - 2416	ND*	Spirotetramat	>313	ND*
Flonicamid	52 - 2416	ND*	Spiroxamine 1	52 - 2416	ND*
Fludioxonil	>313	ND*	Spiroxamine 2	52 - 2416	ND*
Hexythiazox	52 - 2416	ND*	Tebuconazole	313 - 2416	ND*
Imazalil	313 - 2416	ND*	Thiacloprid	52 - 2416	ND*
Imidacloprid	52 - 2416	ND*	Thiamethoxam	52 - 2416	ND*
Kresoxim-methyl	52 - 2416	ND*	Trifloxystrobin	52 - 2416	ND*


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

N/A

FINAL APPROVAL


 Tyler Wiese
 25-Mar-2020
 3:57 PM

PREPARED BY / DATE


 Greg Zimpfer
 25-Mar-2020
 7:56 PM

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Certificate of Analysis

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

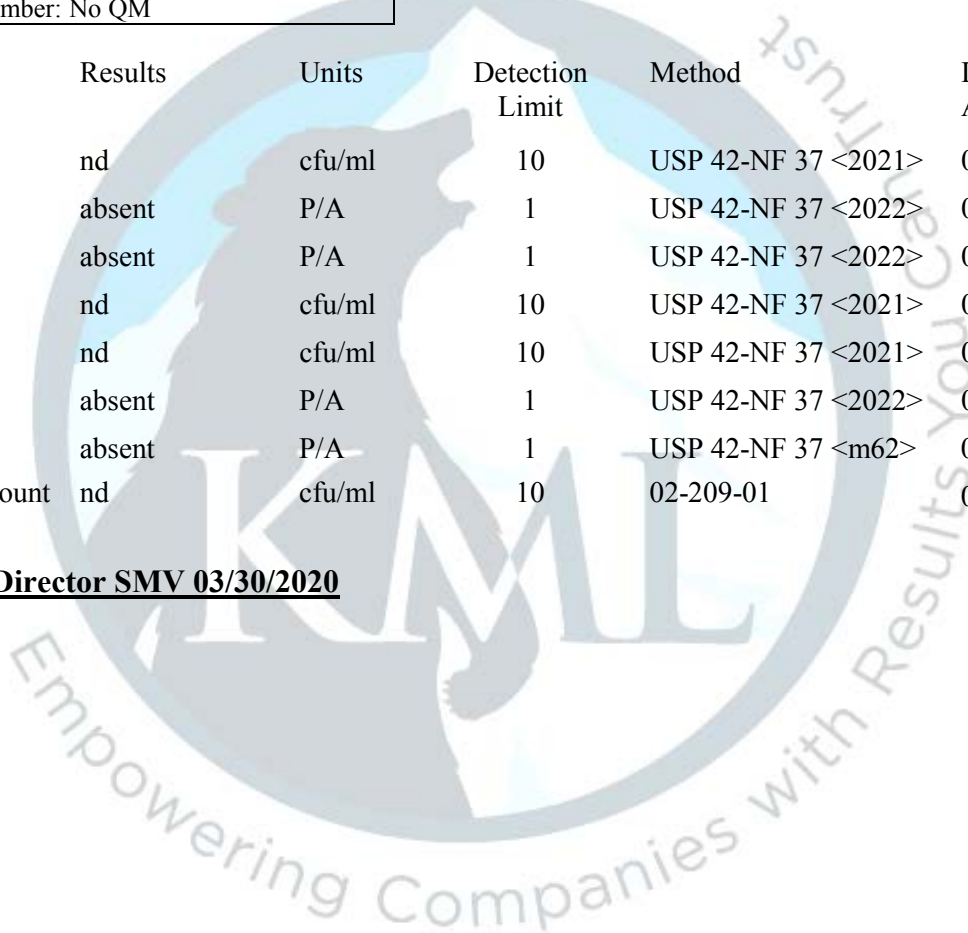
Invoice Number: 20.0397
PO Number:
Received Date: 03/25/2020
Number of Samples: 01
Project Name: Routine Testing

Microbiology Report:

Lab #: 20-2479	Sample Lot: A0059	Sample Date:
Sample Name: FSO-Full Spectrum Hemp Oil	Additional ID:	Plated Date: 03/25/2020
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>	03/28/2020
<i>E. coli</i>	absent	P/A	1	USP 42-NF 37 <2022>	03/28/2020
<i>Staph aureus</i>	absent	P/A	1	USP 42-NF 37 <2022>	03/28/2020
Yeast	nd	cfu/ml	10	USP 42-NF 37 <2021>	03/30/2020
Mold	nd	cfu/ml	10	USP 42-NF 37 <2021>	03/30/2020
Salmonella	absent	P/A	1	USP 42-NF 37 <2022>	03/29/2020
<i>Pseudo. aeruginosa</i>	absent	P/A	1	USP 42-NF 37 <m62>	03/28/2020
Enterobacteriaceae Count	nd	cfu/ml	10	02-209-01	03/26/2020

Approved By: QA Director SMV 03/30/2020



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Page 1 of 2

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Certificate of Analysis

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

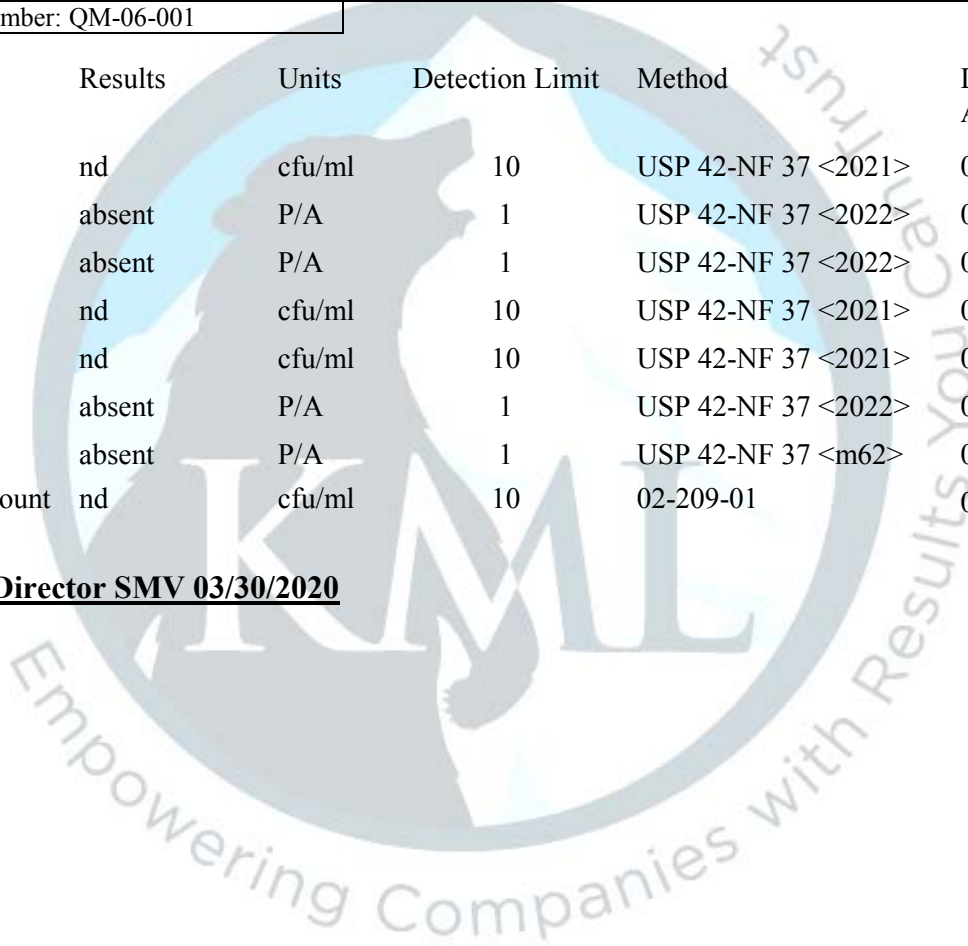
Invoice Number: 20.0397
 PO Number:
 Received Date: 03/25/2020
 Number of Samples: 01
 Project Name: Routine Testing

Microbiology Report:

Lab #: Control 03252020	Additional ID: Negative Control Purposes	Plated Date: 03/25/2020
Sample Name: Control 03252020		
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>	03/28/2020
<i>E. coli</i>	absent	P/A	1	USP 42-NF 37 <2022>	03/28/2020
<i>Staph aureus</i>	absent	P/A	1	USP 42-NF 37 <2022>	03/28/2020
Yeast	nd	cfu/ml	10	USP 42-NF 37 <2021>	03/30/2020
Mold	nd	cfu/ml	10	USP 42-NF 37 <2021>	03/30/2020
Salmonella	absent	P/A	1	USP 42-NF 37 <2022>	03/29/2020
<i>Pseudo. aeruginosa</i>	absent	P/A	1	USP 42-NF 37 <m62>	03/28/2020
Enterobacteriaceae Count	nd	cfu/ml	10	02-209-01	03/26/2020

Approved By: QA Director SMV 03/30/2020



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