

STRAIGHT HEMP

CERTIFICATE OF ANALYSIS

PRODUCT: Full Spectrum Hemp Oil PRODUCTION DATE: 12/31/2019
BATCH/LOT: A0057 EXPIRATION DATE: 12/2021
INGREDIENTS: Full Spectrum Hemp Extract, Organic Hemp Seed Oil
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	35.0 – 43.0 mg/g	36.5 mg/g ⁱⁱ
Total Tetrahydrocannabinol (THC) ⁱⁱⁱ	UPLC/UV	NMT 0.30%	0.21%
Terpene assay ^{iv}	HS-GC/MS	n/e	1,970 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 5 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
Glyphosate	LC-MS/MS	Below MRL	PASS


David Cole
Director of Quality

1/31/20
Date

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

ⁱⁱ Corresponds to 33.9mg/ml

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

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

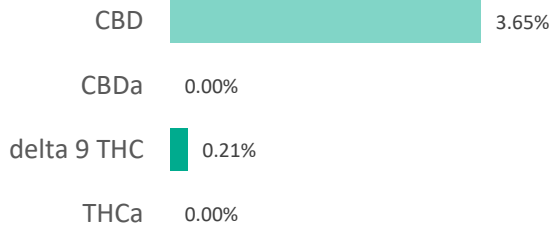
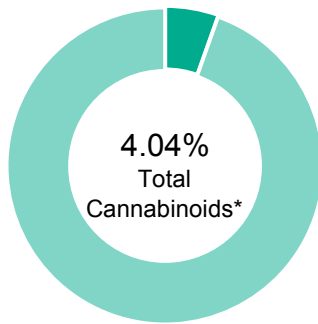
^v Microbiological limits based on USP, WHO, and/or NSF/ANSI.

^{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} The 11 solvents tested for are not used in the production process: Propane, Butane, Pentane, Ethanol, Acetone, Isopropyl Alcohol, Hexane, Benzene, Heptanes, Toluene, Xylenes

FSO - FULL SPECTRUM HEMP OIL

Batch ID:	A0057	Test ID:	5261427.0020
Reported:	9-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	0.21	2.1
Cannabidiolic acid (CBDA)	0.03	0.00	0.0
Cannabidiol (CBD)	0.02	3.65	36.5
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	0.03	0.3
Tetrahydrocannabivarinic Acid (THCVA)	0.02	0.00	0.0
Tetrahydrocannabivarin (THCV)	0.01	0.03	0.3
Cannabidivarinic Acid (CBDVA)	0.03	0.00	0.0
Cannabidivarin (CBDV)	0.01	0.07	0.7
Cannabichromenic Acid (CBCA)	0.01	0.00	0.0
Cannabichromene (CBC)	0.02	0.05	0.5
Total Cannabinoids		4.04	40.40
Total Potential THC**		0.21	2.10
Total Potential CBD**		3.65	36.50

% = % (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))

NOTES:

N/A

FINAL APPROVAL


 Karen Winternheimer
 9-Jan-2020
 2:20 PM
 PREPARED BY / DATE


 Greg Zimpfer
 9-Jan-2020
 7:32 PM
 APPROVED BY / DATE

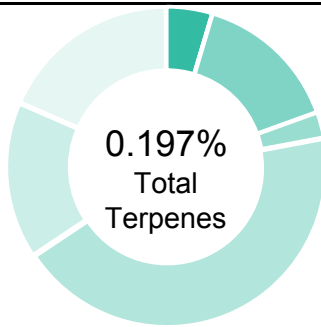
Testing results are based solely upon the sample submitted to Botanacor Laboratories, LLC, in the condition it was received. Botanacor Laboratories, LLC warrants that all analytical work is conducted professionally in accordance with all applicable standard laboratory practices using validated methods. 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:	A0057	Test ID:	6355116.0029
Reported:	9-Jan-2020	Method:	TM10
Type:	Concentrate		
Test:	Terpenes		

TERPENE PROFILE




Compound	%(w/w)	mg/g
(-)-alpha-Bisabolol	0.036	0.36
Camphene	0.000	0
delta-3-Carene	0.000	0
beta-Caryophyllene	0.085	0.85
(-)-Caryophyllene Oxide	0.000	0
p-Cymene	0.000	0
Eucalyptol	0.001	0.01
Geraniol	0.000	0
alpha-Humulene	0.031	0.31
(-)-Isopulegol	0.000	0
d-Limonene	0.029	0.29
Linalool	0.005	0.05
beta-Myrcene	0.009	0.09
cis-Nerolidol	0.000	0
trans-Nerolidol	0.000	0
Ocimene	0.000	0
beta-Ocimene	0.001	0.01
alpha-Pinene	0.000	0
(-)-beta-Pinene	0.000	0
alpha-Terpinene	0.000	0
gamma-Terpinene	0.000	0
Terpinolene	0.000	0
	0.197%	1.97

PREDOMINANT TERPENES

alpha-Pinene	0.000%
(-)-beta-Pinene	0.000%
beta-Myrcene	0.009%
delta-3-Carene	0.000%
alpha-Terpinene	0.000%
d-Limonene	0.029%
Linalool	0.005%
beta-Caryophyllene	0.085%
alpha-Humulene	0.031%
(-)-alpha-Bisabolol	0.036%

 NOTES:
 0

FINAL APPROVAL

 Daniel Weidensaul 9-Jan-2020 4:33 PM	 Greg Zimpfer 9-Jan-2020 8:25 PM
--	--

PREPARED BY / DATE

APPROVED BY / DATE

Testing results are based solely upon the sample submitted to Botanacor Laboratories, LLC. 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:	A0057	Test ID:	T000049554
Reported:	16-Jan-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	0.07
Cadmium	0.05	<0.05
Lead	0.05	<0.05
Mercury	0.05	<0.05

FINAL APPROVAL


PREPARED BY / DATE

Sam Smith
16-Jan-2020
12:29 PM


APPROVED BY / DATE

Greg Zimpfer
16-Jan-2020
2:02 PM

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.

FSO - FULL SPECTRUM HEMP OIL

Batch ID:	A0057	Test ID:	4606367.009
Reported:	9-Jan-2020	Method:	TM04
Type:	Concentrate		
Test:	Residual Solvents		

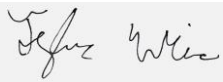
RESIDUAL SOLVENTS

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
9-Jan-2020
4:50 PMGreg Zimpfer
9-Jan-2020
8:18 PM

PREPARED BY / DATE

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:	A0057	Test ID:	7968183.0010
Reported:	11-Jan-2020	Method:	TM17
Type:	Concentrate		
Test:	Pesticides		


PESTICIDE RESIDUE

Compound	Dynamic Range (ppb)	Result (ppb)	Compound	Dynamic Range (ppb)	Result (ppb)
Acephate	52 - 2399	ND*	Malathion	52 - 2399	ND*
Acetamiprid	52 - 2399	ND*	Metalaxyl	311 - 2399	ND*
Avermectin	311 - 2399	ND*	Methiocarb	52 - 2399	ND*
Azoxystrobin	52 - 2399	ND*	Methomyl	52 - 2399	ND*
Bifenazate	52 - 2399	ND*	MGK 264 1	52 - 2399	ND*
Boscalid	311 - 2399	ND*	MGK 264 2	311 - 2399	ND*
Carbaryl	52 - 2399	ND*	Myclobutanil	311 - 2399	ND*
Carbofuran	52 - 2399	ND*	Naled	311 - 2399	ND*
Chlorantraniliprole	52 - 2399	ND*	Oxamyl	52 - 2399	ND*
Chlorpyrifos	311 - 2399	ND*	Paclobutrazol	52 - 2399	ND*
Clofentezine	52 - 2399	ND*	Permethrin	311 - 2399	ND*
Diazinon	52 - 2399	ND*	Phosmet	52 - 2399	ND*
Dichlorvos	311 - 2399	ND*	Prophos	311 - 2399	ND*
Dimethoate	52 - 2399	ND*	Propoxur	311 - 2399	ND*
E-Fenpyroximate	311 - 2399	ND*	Pyridaben	311 - 2399	ND*
Etofenprox	311 - 2399	ND*	Spinosad A	52 - 2399	ND*
Etoxazole	311 - 2399	ND*	Spinosad D	311 - 2399	ND*
Fenoxycarb	52 - 2399	ND*	Spiromesifen	52 - 2399	ND*
Fipronil	311 - 2399	ND*	Spirotetramat	311 - 2399	ND*
Flonicamid	52 - 2399	ND*	Spiroxamine 1	52 - 2399	ND*
Fludioxonil	311 - 2399	ND*	Spiroxamine 2	52 - 2399	ND*
Hexythiazox	311 - 2399	ND*	Tebuconazole	52 - 2399	ND*
Imazalil	311 - 2399	ND*	Thiacloprid	52 - 2399	ND*
Imidacloprid	52 - 2399	ND*	Thiamethoxam	52 - 2399	ND*
Kresoxim-methyl	52 - 2399	ND*	Trifloxystrobin	311 - 2399	ND*

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

N/A

FINAL APPROVAL


Sam Smith
 11-Jan-2020
 7:14 AM
 PREPARED BY / DATE


Chris Jungling
 11-Jan-2020
 9:19 AM
 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.



Certificate of Analysis

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

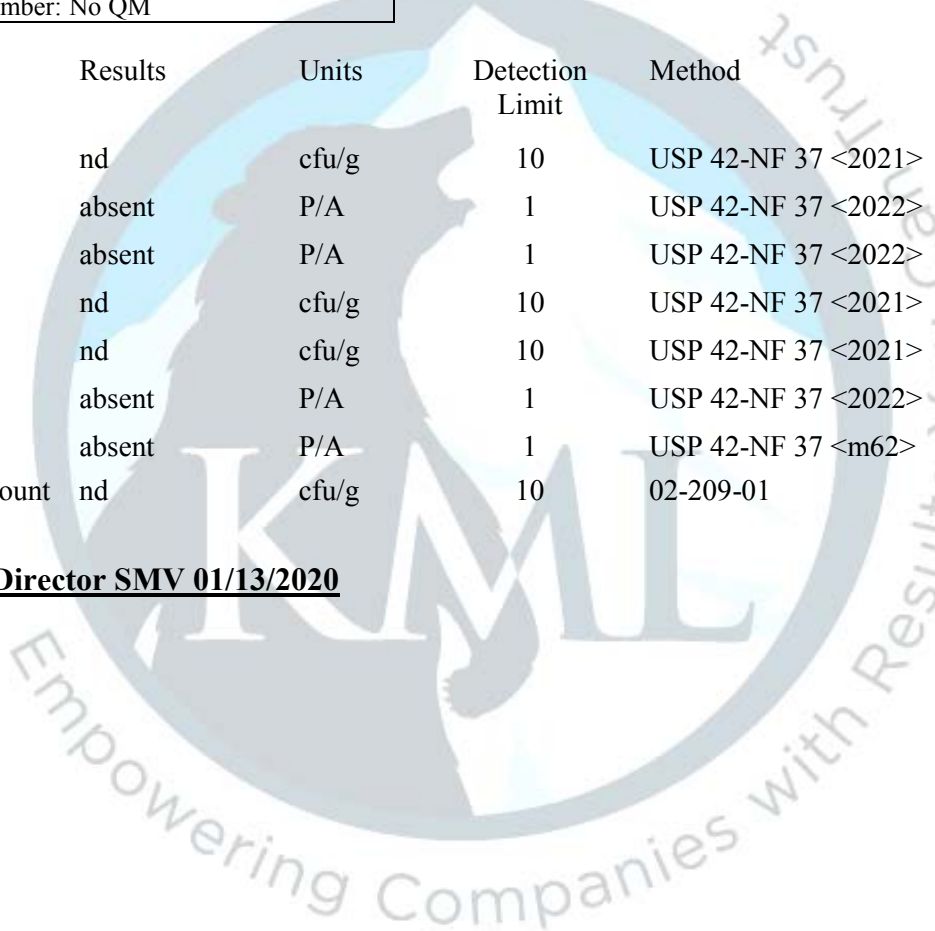
Invoice Number: 20.0036
 PO Number:
 Received Date: 1/8/2020
 Number of Samples: 01
 Project Name: Routine Testing

Microbiology Report:

Lab #: 20-0216	Sample Lot: A0057	Sample Date: 1/6/2020
Sample Name: FSO-Full Spectrum Hemp Oil	Additional ID:	Plated Date: 01/08/2020
Qualifying Material Number: No QM		

Test Performed	Results	Units	Detection Limit	Method	Date Analyzed
Aerobic Plate Count	nd	cfu/g	10	USP 42-NF 37 <2021>	01/11/2020
<i>E. coli</i>	absent	P/A	1	USP 42-NF 37 <2022>	01/11/2020
<i>Staph aureus</i>	absent	P/A	1	USP 42-NF 37 <2022>	01/11/2020
Yeast	nd	cfu/g	10	USP 42-NF 37 <2021>	01/13/2020
Mold	nd	cfu/g	10	USP 42-NF 37 <2021>	01/13/2020
Salmonella	absent	P/A	1	USP 42-NF 37 <2022>	01/12/2020
<i>Pseudo. aeruginosa</i>	absent	P/A	1	USP 42-NF 37 <m62>	01/11/2020
Enterobacteriaceae Count	nd	cfu/g	10	02-209-01	01/09/2020

Approved By: QA Director SMV 01/13/2020



Confidential

Page 1 of 2

This Certificate/Report shall not be reproduced, except in full, without the prior written consent of KML Laboratories, Inc.

This report may include work not covered by KML's current ISO accreditation as indicated by ‡.

Note: On this date, this material met the specifications designated above, and is **not known if statistically representative of the lot evaluated on a routine basis**. This information is not intended to relieve the purchaser from its responsibility to determine the suitability of this material for purchaser's purposes, to comply with all laws and regulations regarding the safe use of this material. [nd = none detected above the listed detection limit](#)





Certificate of Analysis

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

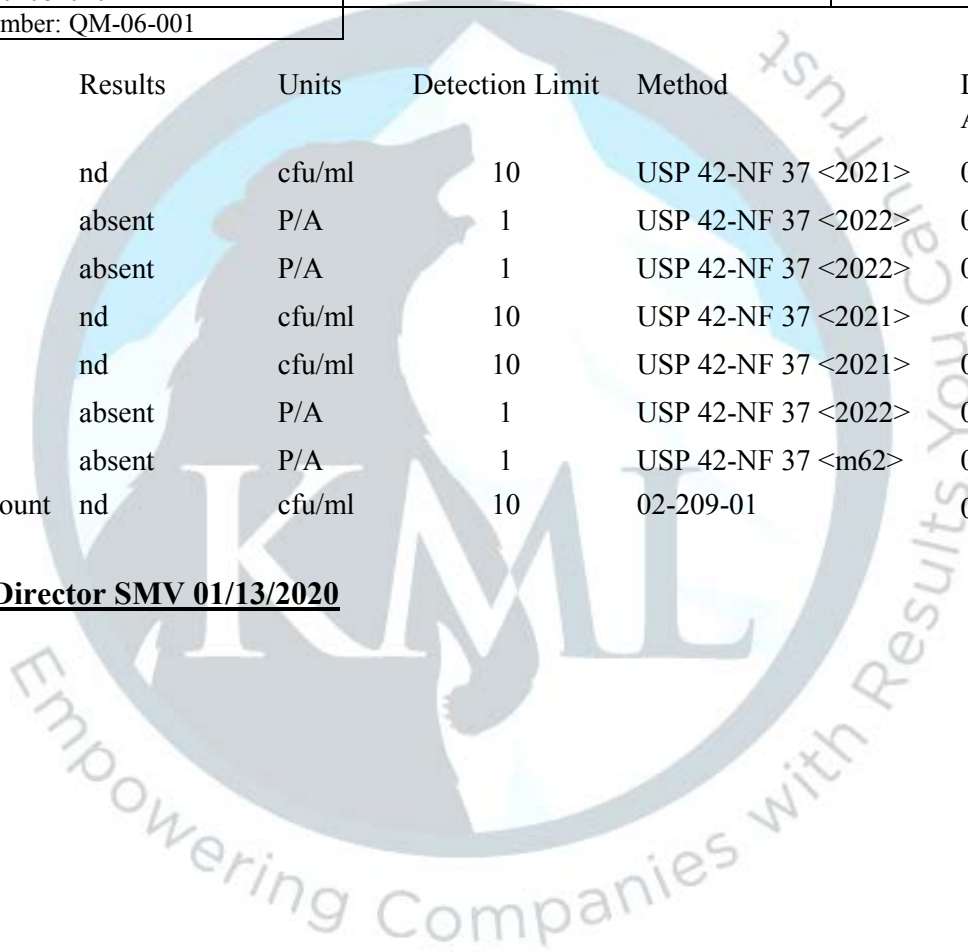
Invoice Number: 20.0036
 PO Number:
 Received Date: 1/8/2020
 Number of Samples: 01
 Project Name: Routine Testing

Microbiology Report:

Lab #: Control 01082020	Additional ID: Negative Control Purposes	Plated Date: 01/08/2020
Sample Name: Control 01082020		
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>	01/11/2020
<i>E. coli</i>	absent	P/A	1	USP 42-NF 37 <2022>	01/11/2020
<i>Staph aureus</i>	absent	P/A	1	USP 42-NF 37 <2022>	01/11/2020
Yeast	nd	cfu/ml	10	USP 42-NF 37 <2021>	01/13/2020
Mold	nd	cfu/ml	10	USP 42-NF 37 <2021>	01/13/2020
Salmonella	absent	P/A	1	USP 42-NF 37 <2022>	01/12/2020
<i>Pseudo. aeruginosa</i>	absent	P/A	1	USP 42-NF 37 <m62>	01/11/2020
Enterobacteriaceae Count	nd	cfu/ml	10	02-209-01	01/09/2020

Approved By: QA Director SMV 01/13/2020



Confidential

This Certificate/Report shall not be reproduced, except in full, without the prior written consent of KML Laboratories, Inc.

This report may include work not covered by KML's current ISO accreditation as indicated by ‡.

Note: On this date, this material met the specifications designated above, and is **not known if statistically representative of the lot evaluated on a routine basis**. This information is not intended to relieve the purchaser from its responsibility to determine the suitability of this material for purchaser's purposes, to comply with all laws and regulations regarding the safe use of this material. [nd = none detected above the listed detection limit](#)



Sample Code:	V-20/007000	Received at:	AGQ USA	Client:	NATURAL DYNAMICS INC
Analysis Type:	ARE-US-7003 (Glyphosate)	Analysis Center:	AGQ USA	Address:	5135 W 58TH AVE, UNIT 5
Sample Type:	CBD OIL	Reception Date:	01/28/2020	Contract:	US20-0094
Start Date:	01/30/2020	Finalized Date:	01/31/2020	Third party:	----
Description:	FSO-FULL SPECTRUM HEMP OIL				

Sampling Date/Hour:	01/27/2020	Sampled By:	DAVID COLE
		Lot:	A0057

No positive results have been found in the analyzed sample.

As per AGQ Quality Assurance policies, samples are conserved under controlled conditions only for the required predetermined period of time before being discarded. For further information, please do not hesitate to contact us.



JUSTINE JANNONE

DATE ISSUED: 01/31/2020

OBSERVATIONS:

Sample Code: V-20/007000	Sample Type: CBD OIL
Description: FSO-FULL SPECTRUM HEMP OIL	Finalized Date: 01/31/2020

ANALYTICAL RESULTS

SOP: PE-681	Technique: LC-MS/MS	Units: mg/kg	Legislation:	Uncert: -	
Parameter	Result	LOQ	Parameter	Result	LOQ
Glyphosate	<0.010	0.010			

Note: The results in this report reflect the state in which the sample was received by the laboratory. Total or partial reproduction of this report is prohibited without express written consent. The uncertainties are calculated and can be available upon request. A: Accredited subcontract, N: Non-accredited subcontract.

Sample Code: V-20/007000
Description: FSO-FULL SPECTRUM HEMP OIL

Sample Type: CBD OIL
Finalized Date: 01/31/2020

TECHNICAL DEFINITIONS

Informational Text