CERTIFICATE OF ANALYSIS

PRODUCT NAME:	Tincture - Mint
PRODUCT STRENGTH:	450 mg
LOT NUMBER:	191216B
BEST BY DATE:	06/21
HEMP EXTRACT LOT NUMBER:	111919

Physical Atttributes

Test	Method	Specification	Results
Color	SOP-100	Golden to Amber	PASS
Odor	SOP-100	Characteristic - Olive and hemp, minty	PASS
Appearance	SOP-100	Golden to Amber oil in brown glass bottle with dropper	PASS
Primary Package Eval.	SOP-132	Container clean and free of filth. Container caps tight and shrink bands intact	PASS
Secondary Package Eval.	SOP-132	Labeling Compliance Checked, Cartons sturdy and clean. Sufficient cushion material exists. Box taped and secure.	PASS

Review of Third-Party Analysis

Panel	Method	Specification	Results	Pass/Fail
Potency - Total CBD	SOP-111	427.5-562.2 mg CBD LOQ*: 10 PPM† (0.001%)	454.2 mg	PASS
Potency - D9-THC	SOP-111	None Detected LOQ: 10 PPM (0.001%)	ND	PASS
FL Compliant Pesticide Panel	SOP-111	Florida State Hemp Program Rule 5B-57.014: Action Limits for Pesticides	ND	PASS
Microbial - Stec E.Coli	SOP-111	Complies with USP 61/62	<LOD	PASS
Microbial - Salmonella	SOP-111	Complies with USP 61/62	<LOD	PASS
Microbial - Aspergillus	SOP-111	Complies with USP 61/62	<LOD	PASS
CA Compliant Heavy Metal Panel	SOP-111	Arsenic (As): ≤1.5 PPM Cadmium (Cd): ≤0.5 PPM Mercury (Hg): ≤1.0 PPM Lead (Pb): ≤0.5 PPM	<LOD	PASS

* Level of Quantitation, † Parts Per Million

Quality Certified by: Darcie Moran 1/17/2020

Darcie Moran — Date

Director of Quality Assurance

CERTIFICATE OF ANALYSIS
ISO/IEC 17025:2017 ACCREDITATION #103104

Order #: 44694
Order Name: CTM450-191216B
Batch#: 4
Received: 12/20/2019
Completed: 01/10/2020

Sample

N/D	1.647%
D9-THC	Total CBD

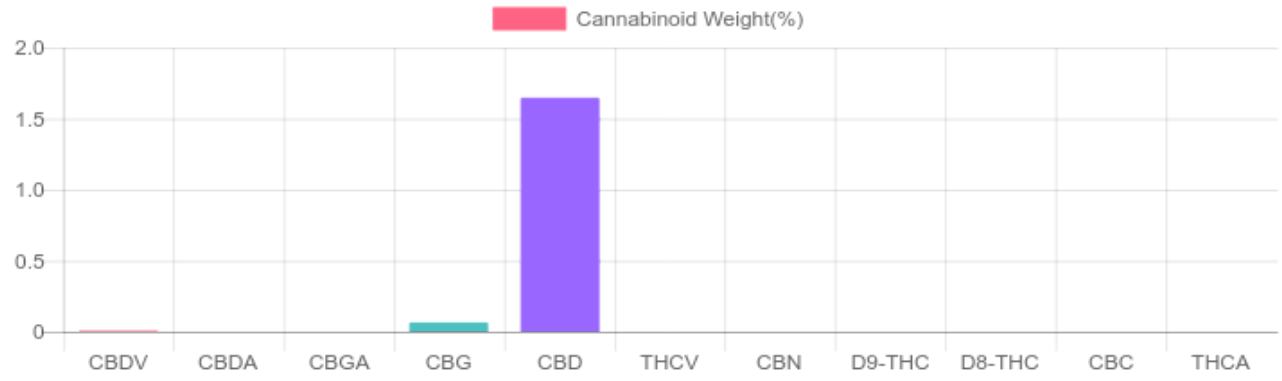
473.7 mg	454.2 mg
Cannabinoids per bottle	CBD per bottle

1 bottle = 30 ml per bottle x density (0.919) x Cannabinoid concentration

Cannabinoids Test

SHIMADZU INTEGRATED UPLC-PDA
GSL SOP 400 **PREPARED:** 12/23/2019 11:57:57 **UPLOADED:** 12/23/2019 18:05:46

Cannabinoids	LOQ	weight(%)	mg/g	mg/bottle
D9-THC	10 PPM	N/D	N/D	N/D
THCA	10 PPM	N/D	N/D	N/D
CBD	10 PPM	**1.647%**	**16.474**	**454.2**
CBDA	20 PPM	N/D	N/D	N/D
CBDV	20 PPM	**0.006%**	**0.057**	**1.6**
CBC	10 PPM	N/D	N/D	N/D
CBN	10 PPM	N/D	N/D	N/D
CBG	10 PPM	**0.065%**	**0.650**	**17.9**
CBGA	20 PPM	N/D	N/D	N/D
D8-THC	10 PPM	N/D	N/D	N/D
THCV	10 PPM	N/D	N/D	N/D
TOTAL D9-THC		**N/D**	**N/D**	**N/D**
TOTAL CBD*		**1.647%**	**16.474**	**454.2**
TOTAL CANNABINOIDS		**1.718%**	**17.181**	**473.7**



Reporting Limit 10 ppm
*Total CBD = CBD + CBDA x 0.877
N/D - Not Detected, B/LOQ - Below Limit of Quantification

Dr. Andrew Hall, Ph.D.,Chief Scientific Officer

Ben Witten, MS, MT., Lab Director

Green Scientific Labs
info@greenscientificlabs.com
1-833 TEST CBD

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CERTIFICATE OF ANALYSIS
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Order #: 44694
Order Name: CTM450-191216B
Batch#: 4
Received: 12/20/2019
Completed: 01/10/2020

PESTICIDE ANALYSIS:

GSL SOP 401 **PREPARED:** 12/23/2019 15:47:09 **UPLOADED:** 12/26/2019 12:52:04

GCMS-MS - Shimadzu GCMS-TQ8040

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
CHLORFENAPYR	0.010	N/D	0.003	0.001
COUMAPHOS	0.010	N/D	0.003	0.001
CYFLUTHRIN	0.010	N/D	0.003	0.001
CYPERMETHRIN	0.500	N/D	0.003	0.001
FIPRONIL	0.010	N/D	0.003	0.001
FLUDIOXONIL	0.020	N/D	0.003	0.001
PENTACHLORONITROBENZENE	0.030	N/D	0.003	0.001

LCMS-MS - Shimadzu LCMS-8060

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
ABAMECTIN B1A	0.020	N/D	0.005	0.001
ACEPHATE	0.020	N/D	0.001	0.001
ACEQUINOCYL	0.020	N/D	0.001	0.001
ACETAMIPRID	10.000	N/D	0.005	0.001
ALDICARB	0.010	N/D	0.005	0.001
AZOXYSTROBIN	0.100	N/D	0.001	0.001
BIFENAZATE	0.010	N/D	0.005	0.001
CHLORPYRIFOS	0.020	N/D	0.001	0.001
CLOFENTEZINE	0.040	N/D	0.001	0.001
DAMINOZIDE	0.010	N/D	0.005	0.001
DIAZANON	0.010	N/D	0.001	0.001
DICHLORVOS	0.020	N/D	0.005	0.001
DIMETHOATE	0.010	N/D	0.001	0.001
DIMETHOMORPH	0.010	N/D	0.005	0.001
ETHOPROPHOS	0.010	N/D	0.001	0.001
ETOFENPROX	0.010	N/D	0.001	0.001
ETOXAZOLE	0.010	N/D	0.010	0.005
FENHEXAMID	0.080	N/D	0.005	0.001
FENOXYCARB	0.010	N/D	0.005	0.001
FENPYROXIMATE	0.100	N/D	0.001	0.001
FLONICAMID	0.100	N/D	0.025	0.010
HEXYTHIAZOX	0.100	N/D	0.005	0.001
IMAZALIL	0.010	N/D	0.005	0.001
IMIDACLOPRID	0.020	N/D	0.005	0.001
KRESOXIM-METHYL	0.020	N/D	0.010	0.005
MALATHION	0.010	N/D	0.005	0.001
METALAXYL	0.010	N/D	0.001	0.001
METHIOCARB	0.010	N/D	0.005	0.001
METHOMYL	0.010	N/D	0.001	0.001
MEVINPHOS	0.010	N/D	0.001	0.001
MYCLOBUTANIL	0.020	N/D	0.005	0.001
NALED	0.010	N/D	0.005	0.001
OXAMYL	0.026	N/D	0.001	0.001
PACLOBUTRAZOL	0.010	N/D	0.005	0.001
PERMETHRINS	0.020	N/D	0.005	0.001
PHOSMET	0.020	N/D	0.005	0.001
PIPERONYL BUTOXIDE	3.000	N/D	0.001	0.001
PRALLETHRIN	0.020	N/D	0.005	0.005
PROPICONAZOLE	0.020	N/D	0.010	0.005
PROPOXUR	0.020	N/D	0.001	0.001
PYRETHRINS (PYRETHRIN I)	0.500	N/D	0.005	0.005
PYRIDABEN	0.020	N/D	0.005	0.001
SPINETORAM	0.040	N/D	0.001	0.001
SPINOSAD (SPINOSYN A)	0.020	N/D	0.001	0.001
SPINOSAD (SPINOSYN D)	0.020	N/D	0.001	0.001
SPIROMESIFEN	0.030	N/D	0.005	0.001
SPIROTETRAMAT	0.020	N/D	0.001	0.001
SPIROXAMINE	0.010	N/D	0.001	0.001
TEBUCONAZOLE	0.010	N/D	0.005	0.001
THIACLOPRID	0.010	N/D	0.001	0.001
THIAMETHOXAM	0.010	N/D	0.001	0.001
TRIFLOXYSTROBIN	0.020	N/D	0.001	0.001

N/D = Not Detected, A/LOQ = Above LOQ Level, B/LOQ = Below LOQ Level, B/LOD = Below LOD Level

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1-833 TEST CBD

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Order #: 44694
Order Name: CTM450-191216B
Batch#: 4
Received: 12/20/2019
Completed: 01/10/2020

Microbial Analysis:

Microbial Analysis GSL SOP 406

Uploaded: 12/26/2019 13:07:03

PCR - Agilent AriaMX

Test	Test Method Used	Device Used	LOD	Allowable Criteria	Actual Result	Pass/Fail
STEC E.COLI*	USP 61/62†	ARIAMX PCR	2 COPIES OF DNA	PRESENCE / ABSENT	BELOW LOD	PASS
SALMONELLA*	USP 61/62†	ARIAMX PCR	5 COPIES OF DNA	PRESENCE / ABSENT	BELOW LOD	PASS
ASPERGILLUS	USP 61/62†	ARIAMX PCR	ASP_LOD***	PRESENCE / ABSENT	BELOW LOD	PASS

† USP 61 (enumeration of bacteria TAC, TYM, and ENT/Coliform), USP 62 (identifying specific species E.coli Aspergillus etc)
* STEC and Salmonella run as Multiplex
*** Flavus = 2 Copies of DNA / Fumigatis = 2 Copies of DNA Niger = 20 Copies of DNA / Terrus = 10 copies of DNA

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Order #: 44694
Order Name: CTM450-191216B
Batch#: 4
Received: 12/20/2019
Completed: 01/10/2020

Heavy Metals Analysis:

ICP-MS - Shimadzu ICPMS-2030
GSL SOP 403

Uploaded: 12/23/2019 20:16:47

Metal	Action Level (ppb)	Result (ppb)
ARSENIC (AS)	200	B/LOQ
CADMIUM (CD)	200	B/LOQ
MERCURY (HG)	100	B/LOQ
LEAD (PB)	500	B/LOQ

Lower Limit of Quantitation (LOQ) is 75 ppb

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BSO2G.111919

Certificate of Analysis

total cannabinoids
88.5%

CBD decarb total 84.61%
Δ9-THC ND

This Product Has Been Tested and Complies with 7USC1639o(1) Definition of Hemp

ISO/IEC 17025:2017
ACCREDITED
Certificate #4961.01

Stillwater Laboratories

https://portal.a2la.org/scopepdf/4961-01.pdf

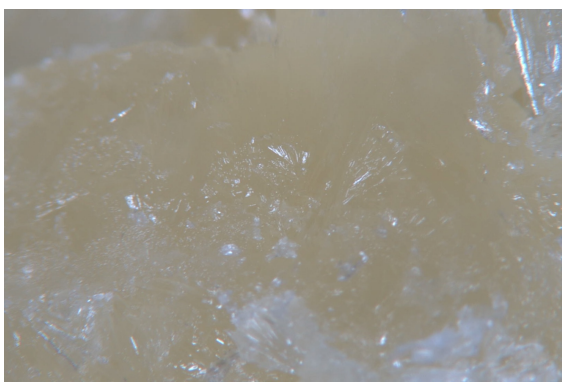
Sample Handling

test ID
order **6070**
source
sample date 12/4/19 2:46 PM
labID **9MD44**
weight 5.4 g

Methods

	method	equipment
weights	MSP-7.3.1.3	AUX120.1
potency	MSP-7.5.1.5	LC-2030
terpenes	MSP-7.5.1.7	QP2020/HS20
pesticides	MSP-7.5.1.8	LC-8060
mycotoxins	MSP-7.5.1.8	LC-8060
microbial	MSP-7.5.1.9	Hardy Diag
solvents	MSP-7.5.1.6	QP2020/HS20
metals	MSP-7.5.1.10	ICPMS2030

concentrate



Potency

	%	estimated error
tetrahydrocannabolic acid (THCa)	ND	± 0.02 %
Δ^9-tetrahydrocannabinol (Δ^9 THC)	ND	± 0.02 %
Δ^8-tetrahydrocannabinol (Δ^8 THC)	ND	± 0.02 %
tetrahydrocannabivarin (THCv)	ND	± 0.02 %
cannabidiolic acid (CBDa)	.14%	± 0.04 %
cannabidiol (CBD)	84.48%	± 0.75 %
cannabidivarin (CBDv)	.33%	± 0.05 %
cannabigerolic acid (CBGa)	ND	± 0.02 %
cannabigerol (CBG)	3.54%	± 0.15 %
cannabinol (CBN)	ND	± 0.02 %
cannabichromene (CBC)	ND	± 0.02 %

Terpenes

	%	estimated error		%	estimated error		%	estimated error
ß-myrcene	0.004%	± 0.0018 %	camphene	0.000%	± 0.0016 %	guaiol	0.000%	± 0.0016 %
ß-caryophyllene	0.000%	± 0.0016 %	Δ3-carene	0.000%	± 0.0016 %	ß-bisabolol	0.000%	± 0.0016 %
alpha-pinene	0.003%	± 0.0017 %	a-terpenine	0.000%	± 0.0016 %	eucalyptol	0.000%	± 0.0016 %
ß-pinene	0.008%	± 0.0019 %	para-cymene	0.000%	± 0.0016 %			
D-limonene	0.000%	± 0.0016 %	g-terpenine	0.000%	± 0.0016 %			
linalool	0.000%	± 0.0016 %	(-)-isopulegol	0.000%	± 0.0016 %			
ocimene	0.000%	± 0.0033 %	geraniol	0.000%	± 0.0016 %			
terpinolene	0.000%	± 0.0016 %	cis-nerolidol	0.000%	± 0.0016 %			
alpha-humulene	0.000%	± 0.0016 %	trans-nerolidol	0.000%	± 0.0016 %			

total terpenes
0.01%

Solvents

	MT limit	9MD44	LOQ
propane	5,000	PASS	<10ppm
butanes	5,000	PASS	<10ppm
pentanes	5,000	PASS	<10ppm
hexanes	290	PASS	<10ppm
cyclohexane	3,880	PASS	<10ppm
heptanes	5,000	PASS	<10ppm
methanol	3,000	PASS	<10ppm
isopropanol	5,000	PASS	<10ppm
acetone	5,000	PASS	<10ppm
ethyl acetate	5,000	PASS	<10ppm
benzene	2	PASS	<0.2ppm
toluene	890	PASS	<10ppm
xylenes	2,170	PASS	<10ppm
chloroform	2	PASS	<0.2ppm
dichloromethane	600	PASS	<10ppm

Toxic Metals

	MT limit	9MD44	LOQ
arsenic	2 ppm	PASS	<10ppb
cadmium	4.1 ppm	PASS	<10ppb
lead	1.2 ppm	PASS	<10ppb
mercury	0.4 ppm	PASS	<10ppb

Pesticides (MT)

	MT limit	9MD44	LOQ
abamectin	2.50 ppm	PASS	<10ppb
acequinocyl	10.00 ppm	PASS	<10ppb
bifenazate	1.00 ppm	PASS	<10ppb
bifenthrin	1.00 ppm	PASS	<10ppb
chlormequat cl.	5.00 ppm	PASS	<10ppb
cyfluthrin	5.00 ppm	PASS	<80ppb
diaminozide	5.00 ppm	PASS	<10ppb
etoxazole	1.00 ppm	PASS	<10ppb
fenoxycarb	1.00 ppm	PASS	<10ppb
imazalil	1.00 ppm	PASS	<10ppb
imidacloprid	2.00 ppm	PASS	<10ppb
myclobutanil	0.60 ppm	PASS	<10ppb
paclobutrazol	2.00 ppm	PASS	<10ppb
pyrethrins	5.00 ppm	PASS	<10ppb
spinosad	1.00 ppm	PASS	<10ppb
spiromesifen	1.00 ppm	PASS	<10ppb
spirotetramat	1.00 ppm	PASS	<10ppb
trifloxystrobin	1.00 ppm	PASS	<10ppb

Microbial

	MT limit	9MD44	LOQ
E. coli	10 CFU	PASS	<10 CFU/g
Salmonella sp.	10 CFU	PASS	<10 CFU/g
molds	10000 CFU	PASS	<10k CFU/g
Aflatoxin B1,B2,G1,G2	20 ppb	PASS	<20 ppb
Ochratoxin A	20 ppb	PASS	<20 ppb

Pesticides (other)

	9MD44	LOQ
acephate	0.00 ppm	<10ppb
acetamiprid	0.00 ppm	<10ppb
aldicarb	0.00 ppm	<10ppb
azoxystrobin	0.00 ppm	<10ppb
boscalid	0.00 ppm	<10ppb
carbaryl	0.00 ppm	<10ppb
carbofuran	0.00 ppm	<10ppb
chloantraniliprole	0.00 ppm	<10ppb
chlorpyrifos	0.00 ppm	<10ppb
clofentezine	0.00 ppm	<10ppb
cypermethrin	0.00 ppm	<10ppb
diazinon	0.00 ppm	<10ppb
dichlorvos	0.00 ppm	<10ppb
dimethoate	0.00 ppm	<10ppb
etofenprox	0.00 ppm	<10ppb
fenpyroximate	0.00 ppm	<10ppb
fipronil	0.00 ppm	<10ppb
flonicamid	0.00 ppm	<10ppb
fludioxonil	0.00 ppm	<10ppb
hexythiazox	0.00 ppm	<10ppb
kresoxym-methyl	0.00 ppm	<10ppb
malathion	0.00 ppm	<10ppb
metalaxyl	0.00 ppm	<10ppb
methiocarb	0.00 ppm	<10ppb
methomyl	0.00 ppm	<10ppb
oxamyl	0.00 ppm	<10ppb
permethrins	0.00 ppm	<10ppb
phosmet	0.00 ppm	<10ppb
piperonyl butoxide	0.00 ppm	<10ppb
prallethrin	0.00 ppm	<10ppb
propiconazole	0.00 ppm	<10ppb
pyridaben	0.00 ppm	<10ppb
spiroxamine	0.00 ppm	<10ppb
tebuconazole	0.01 ppm	<10ppb
thiacloprid	0.00 ppm	<10ppb
thiamethoxam	0.00 ppm	<10ppb

• All testing was completed onsite at 6073 US93N, Olney MT •• Potency (cannabinoid concentration) is calcuated from the equation: [cannabioid] = $[\text{cannabinoid}]_{HPLC}$ x $\text{volume}_{dilution}/m_{dry}$. Terpene concentration is calcuated from the equation: [terpene] = $(\text{terpene mass})_{GCMS}$ / m_{dry}. ••• Decarboxyted cannabinoid concentration is calculated from the equation XXX_{total} = 0.877 x XXXa + XXX •••• Standards are used to calibrate the resulting data and estimate error using a standard estimate of error method; this is combined with error from weighing and dilution using the propagation of error formula $s_g^2 = \sum(\partial f/\partial i)^2 s_i^2$ where i is the contributor to error. The 95% confidence range is calculated from the equation: (concentration) ± t_{CL90} x s_g. Sampling error is not

Certified by:

Kyle Larson, MSc (Biology)
Deputy Director
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406-881-2019 rdb@stwlabs.com