

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 Attributes

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%)	<u>454.2 mg</u>	PASS
Potency - D9-THC	SOP-111	None Detected LOQ: 10 PPM (0.001%)	<u>ND</u>	PASS
FL Compliant Pesticide Panel	SOP-111	Florida State Hemp Program Rule 5B-57.014: Action Limits for Pesticides	<u>ND</u>	PASS
Microbial - Stec E.Coli	SOP-111	Complies with USP 61/62	<u><LOD</u>	PASS
Microbial - Salmonella	SOP-111	Complies with USP 61/62	<u><LOD</u>	PASS
Microbial - Aspergillus	SOP-111	Complies with USP 61/62	<u><LOD</u>	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	<u><LOD</u>	PASS

* Level of Quantitation, † Parts Per Million

Quality Certified by: Darcie Moran 1/17/2020
 Darcie Moran Date
 Director of Quality Assurance

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ISO/IEC 17025:2017 ACCREDITATION #103104



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



Sample



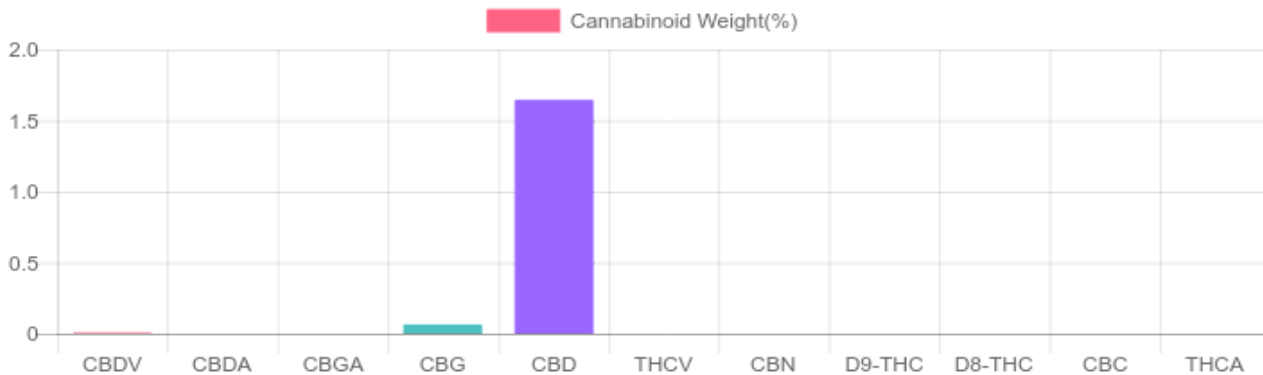
<p>N/D D9-THC</p>	<p>1.647% Total CBD</p>
<p>473.7 mg Cannabinoids per bottle</p>	<p>454.2 mg CBD per bottle</p>

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

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



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

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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

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
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

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
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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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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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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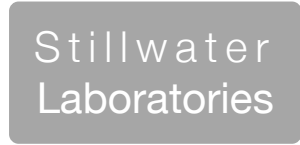


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total cannabinoids **88.5%**
 CBD decarb total 84.61%
 Δ9-THC ND

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



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

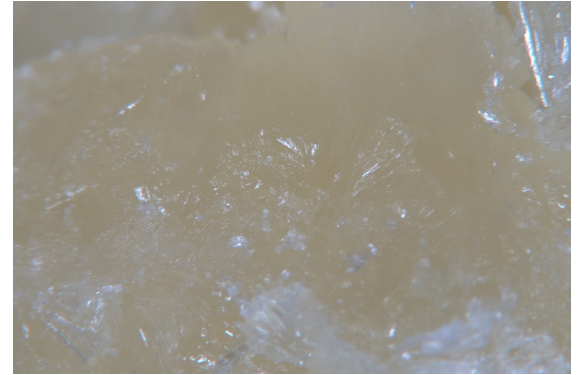
Sample Handling

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

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	Terpenes	%	estimated error	%	estimated error	%	estimated error		
tetrahydrocannabinolic acid (THCa)	ND	± 0.02 %	β-myrcene	0.004%	± 0.0018%	camphene	0.000%	± 0.0016 %	guaiol	0.000%	± 0.0016 %
Δ ⁹ -tetrahydrocannabinol (Δ ⁹ THC)	ND	± 0.02 %	β-caryophyllene	0.000%	± 0.0016%	Δ ³ -carene	0.000%	± 0.0016 %	β-bisabolol	0.000%	± 0.0016 %
Δ ⁸ -tetrahydrocannabinol (Δ ⁸ THC)	ND	± 0.02 %	alpha-pinene	0.003%	± 0.0017%	a-terpinene	0.000%	± 0.0016 %	eucalyptol	0.000%	± 0.0016 %
tetrahydrocannabivarin (THCv)	ND	± 0.02 %	β-pinene	0.008%	± 0.0019%	para-cymene	0.000%	± 0.0016 %			
cannabidiolic acid (CBDA)	.14%	± 0.04 %	D-limonene	0.000%	± 0.0016%	g-terpinene	0.000%	± 0.0016 %			
cannabidiol (CBD)	84.48%	± 0.75 %	linalool	0.000%	± 0.0016%	(-)-isopulegol	0.000%	± 0.0016 %			total terpenes
cannabidivarin (CBDv)	.33%	± 0.05 %	ocimene	0.000%	± 0.0033%	geraniol	0.000%	± 0.0016 %			0.01%
cannabigerolic acid (CBGA)	ND	± 0.02 %	terpinolene	0.000%	± 0.0016%	cis-nerolidol	0.000%	± 0.0016 %			
cannabigerol (CBG)	3.54%	± 0.15 %	alpha-humulene	0.000%	± 0.0016%	trans-nerolidol	0.000%	± 0.0016 %			
cannabinol (CBN)	ND	± 0.02 %									
cannabichromene (CBC)	ND	± 0.02 %									

Solvents	MT limit	9MD44	LOQ	Pesticides (MT)	MT limit	9MD44	LOQ	Pesticides (other)	9MD44	LOQ
propane	5,000	PASS	<10ppm	abamectin	2.50 ppm	PASS	<10ppb	acephate	0.00 ppm	<10ppb
butanes	5,000	PASS	<10ppm	acequinocyl	10.00 ppm	PASS	<10ppb	acetamiprid	0.00 ppm	<10ppb
pentanes	5,000	PASS	<10ppm	bifenazate	1.00 ppm	PASS	<10ppb	aldicarb	0.00 ppm	<10ppb
hexanes	290	PASS	<10ppm	bifenthrin	1.00 ppm	PASS	<10ppb	azoxystrobin	0.00 ppm	<10ppb
cyclohexane	3,880	PASS	<10ppm	chlormequat cl.	5.00 ppm	PASS	<10ppb	boscalid	0.00 ppm	<10ppb
heptanes	5,000	PASS	<10ppm	cyfluthrin	5.00 ppm	PASS	<80ppb	carbaryl	0.00 ppm	<10ppb
methanol	3,000	PASS	<10ppm	diaminozide	5.00 ppm	PASS	<10ppb	carbofuran	0.00 ppm	<10ppb
isopropanol	5,000	PASS	<10ppm	etoxazole	1.00 ppm	PASS	<10ppb	chloantraniliprole	0.00 ppm	<10ppb
acetone	5,000	PASS	<10ppm	fenoxycarb	1.00 ppm	PASS	<10ppb	chlorpyrifos	0.00 ppm	<10ppb
ethyl acetate	5,000	PASS	<10ppm	imazalil	1.00 ppm	PASS	<10ppb	clofentezine	0.00 ppm	<10ppb
benzene	2	PASS	<0.2ppm	imidacloprid	2.00 ppm	PASS	<10ppb	cypermethrin	0.00 ppm	<10ppb
toluene	890	PASS	<10ppm	myclobutanil	0.60 ppm	PASS	<10ppb	diazinon	0.00 ppm	<10ppb
xylene	2,170	PASS	<10ppm	paclobutrazol	2.00 ppm	PASS	<10ppb	dichlorvos	0.00 ppm	<10ppb
chloroform	2	PASS	<0.2ppm	pyrethrins	5.00 ppm	PASS	<10ppb	dimethoate	0.00 ppm	<10ppb
dichloromethane	600	PASS	<10ppm	spinosad	1.00 ppm	PASS	<10ppb	etofenprox	0.00 ppm	<10ppb
				spiromesifen	1.00 ppm	PASS	<10ppb	fenpyroximate	0.00 ppm	<10ppb
				spirotetramat	1.00 ppm	PASS	<10ppb	fipronil	0.00 ppm	<10ppb
				trifloxystrobin	1.00 ppm	PASS	<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

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

Microbial	MT limit	9MD44	LOQ
<i>E. coli</i>	10 CFU	PASS	<10 CFU/g
<i>Salmonella</i> 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

• All testing was completed onsite at 6073 US93N, Olney MT •• Potency (cannabinoid concentration) is calculated from the equation: [cannabinoid] = [cannabinoid]_{HPLC} x volume_{dilution} / m_{dry}. Terpene concentration is calculated from the equation: [terpene] = (terpene mass)_{GCMS} / m_{dry}. ••• Decarboxyted cannabinoid concentration is calculated from the equation XXX_{total} = 0.877 x XXX_a + 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_g² = Σ(∂f/∂i)²s_i² 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)
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