



# 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



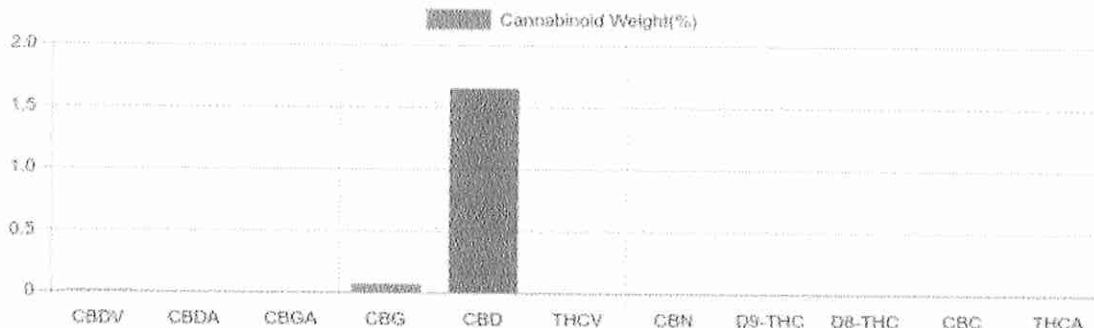
<b>N/D</b> D9-THC	<b>1.647%</b> Total CBD
<b>473.7 mg</b> Cannabinoids per bottle	<b>454.2 mg</b> CBD per bottle

### 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/LQO - 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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### 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	0.060	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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Ben Witten, MS, MT, Lab Director

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Order #: 44694  
 Order Name: CTM450-191216B  
 Batch#: J  
 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/CoForm), 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 / Terreus = 10 copies of DNA

  
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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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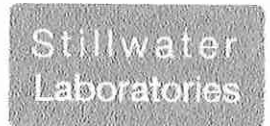


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total cannabinoids 88.5%  
 CBD decarb total 84.61%  
 Δ9-THC ND

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

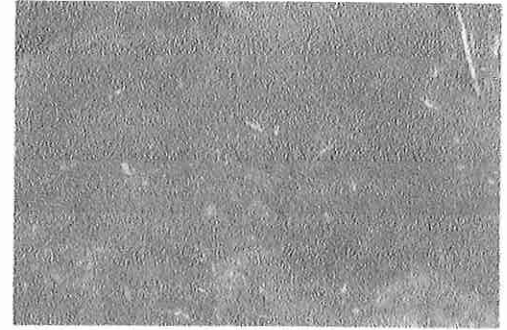
Methods

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

- caryophyllene
- humulene
- terpinolene
- ocimene
- beta pinene
- alpha pinene
- limonene
- myrcene
- linalool



concentrate



Potency

	%	estimated error
tetrahydrocannabinolic acid (THCA)	ND	± 0.02 %
Δ <sup>2</sup> -tetrahydrocannabinol (Δ <sup>2</sup> THC)	ND	± 0.02 %
Δ <sup>8</sup> -tetrahydrocannabinol (Δ <sup>8</sup> THC)	ND	± 0.02 %
tetrahydrocannabinol (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
B-myrcene	0.004%	± 0.0018 %	camphene	0.000%	± 0.0016 %	guaiol	0.000%	± 0.0016 %
B-caryophyllene	0.000%	± 0.0016 %	Δ <sup>3</sup> -carene	0.000%	± 0.0016 %	B-bisabolol	0.000%	± 0.0016 %
alpha-pinene	0.003%	± 0.0017 %	a-terpinene	0.000%	± 0.0016 %	eucalyptol	0.000%	± 0.0016 %
B-pinene	0.008%	± 0.0019 %	para-cymene	0.000%	± 0.0016 %			
D-limonene	0.000%	± 0.0016 %	g-terpinene	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

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
chloromequat 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

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
carboturan 0.00 ppm	<10ppb
chlorantraniliprole 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

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
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

Certified by:

Kyle Larson, MSc (Biology)  
 Deputy Director  
 6073 US93N, Olney MT 59927  
 406-851-2019 rdb@stlwb.com

\* All testing was completed onsite at 6073 US93N, Olney MT • Potency (cannabinoid concentration) is calculated from the equation: [cannabinoid] = [cannabinoid]<sub>HTC</sub> x volume<sub>HTC</sub> / m<sub>dry</sub>. Terpene concentration is calculated from the equation: [terpene] = (terpene mass)<sub>HTC</sub> / m<sub>dry</sub>. •• Decarboxylated cannabinoid concentration is calculated from the equation XXX<sub>HTC</sub> = 0.877 x XXX<sub>a</sub> + 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<sub>y</sub><sup>2</sup> = Σ (df/di)<sup>2</sup> S<sub>i</sub><sup>2</sup> where i is the contributor to error. The 95% confidence range is calculated from the equation: (concentration) ± t<sub>CL95</sub> x S<sub>y</sub>. Sampling error is not