JOY ORGANICS

CERTIFICATE OF ANALYSIS

PRODUCT NAME:	Joy Organics CBD 2 oz Salve
PRODUCT STRENGTH:	1000 mg
LOT NUMBER:	1142020-1
BEST BY DATE:	10/16/2020
HEMP EXTRACT LOT	112619

Click on the links to view third-party reports

Physical Atttributes

Test	Method	Specification	Results
Color	SOP-100	Light off white to yellow opaque, hint of green	PASS
Odor	SOP-100	Lavender, eucalyptus, hint of beeswax and coconut	PASS
Appearance	SOP-100	Firm, semi-waxy salve in container with screw lid	PASS
Primary Package Eval.	SOP-132	Container clean and free of filth. Container caps tight and pressure seal 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	995-1025 mg CBD LOQ**: 10 PPM† (0.001%)	968mg	PASS
Potency - D9-THC	SOP-111	None Detected LOQ: 10 PPM (0.001%)	ND	PASS
Compliant Pesticide Panel	SOP-111	WIP-100008 : Product specification for Topicals Oregon Action limits apply	ND	PASS
Microbial - Stec E.Coli	SOP-111	Complies with USP 61/62	Below LOD	PASS
Microbial - Salmonella	SOP-111	Complies with USP 61/62	Below LOD	PASS
Microbial - Yeast and Mold	SOP-111	Complies with USP 61/62	Below 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	Below LOQ	PASS

* *Level of Quantitation, † Parts Per Million

Quality Certified by: Darcie Moran 05/01/2020

Darcie Moran — Date

Manager of Quality Assurance

119 W. Oak St. Fort Collins, CO 80524
Tel: (833) 569-7223 www.joyorganics.com

Hemp Balm 2oz 1142020-1

Certificate of Analysis

total cannabinoids	Δ9-THC	THCa	total THC
511 mg	0 mg	0 mg	0 mg
per fl oz	CBD	CBDa	total CBD
	484 mg	1 mg	485 mg

ISO/IEC 17025 2017 ACCREDITED Certificate #4961.01

Stillwater Laboratories

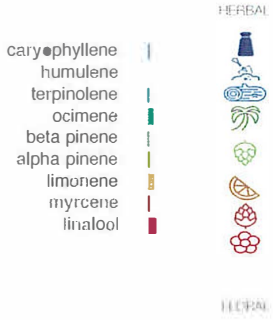
https://portal.a2la.org/scopepdf/4961-01.pdf

Sample Handling

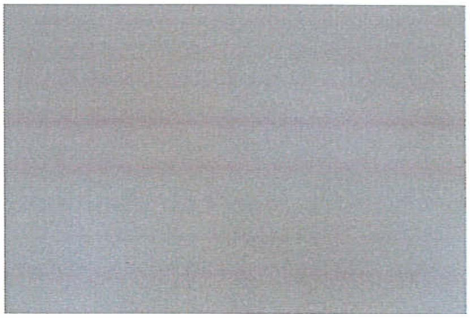
test ID		sample wt	56.8 g
type	topical	order	7171
lab ID	0DZ64	sample date	4/30/2020
unit	fl oz	unit weight	27.0 g

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-7.5.1.1	ICPMS2030



topical



Potency

	per fl oz		estimated error
tetrahydrocannabolic acid (THCa)	0%	0 mg	± 0.44 mg
Δ9-tetrahydrocannabinol (Δ9 THC)	0%	0 mg	± 0.44 mg
Δ8-tetrahydrocannabinol (Δ8 THC)	0%	0 mg	± 0.44 mg
tetrahydrocannabivarin (THCv)	0%	0 mg	± 0.44 mg
cannabidiolic acid (CBDa)	0%	1 mg	± 0.54 mg
cannabidiol (CBD)	1.79%	484 mg	± 8.07 mg
cannabidivarin (CBDv)	0%	1 mg	± 0.53 mg
cannabigerolic acid (CBGa)	.02%	5 mg	± 0.91 mg
cannabigerol (CBG)	.08%	21 mg	± 1.72 mg
cannabinol (CBN)	0%	0 mg	± 0.44 mg
cannabichromene (CBC)	0%	0 mg	± 0.44 mg

Terpenes

	%	estimated error		%	estimated error		%	estimated error
ß-myrcene	0.003%	± 0.0018%	camphene	0.000%	± 0.0017%	guaiol	0.000%	± 0.0016%
ß-caryophyllene	0.001%	± 0.0017%	Δ3-carene	0.001%	± 0.0017%	ß-bisabolol	0.000%	± 0.0016%
alpha-pinene	0.011%	± 0.0022%	a-terpenine	0.000%	± 0.0016%	eucalyptol	0.211%	± 0.0063%
ß-pinene	0.001%	± 0.0017%	para-cymene	0.000%	± 0.0016%			
D-limonene	0.041%	± 0.0032%	g-terpenine	0.003%	± 0.0018%			
linalool	0.057%	± 0.0036%	(-)-isopulegol	0.000%	± 0.0016%			
ocimene	0.034%	± 0.0053%	geraniol	0.001%	± 0.0017%			
terpinolene	0.000%	± 0.0017%	cis-nerolidol	0.000%	± 0.0016%			
alpha-humulene	0.000%	± 0.0016%	trans-nerolidol	0.000%	± 0.0016%			

total terpenes

0.37%

Solvents

	MT limit	0DZ64	LOQ
propane	5,000	0 ppm	<10ppm
butanes	5,000	0 ppm	<10ppm
pentanes	5,000	0 ppm	<10ppm
hexanes	290	0 ppm	<10ppm
cyclohexane	3,880	0 ppm	<10ppm
heptanes	5,000	0 ppm	<10ppm
methanol	3,000	18 ppm	<10ppm
isopropanol	5,000	0 ppm	<10ppm
acetone	5,000	0 ppm	<10ppm
ethyl acetate	5,000	0 ppm	<10ppm
benzene	2	0 ppm	<0.2ppm
toluene	890	0 ppm	<10ppm
xylenes	2,170	0 ppm	<10ppm
chloroform	2	0 ppm	<0.2ppm
dichloromethane	600	0 ppm	<10ppm

Toxic Metals

	MT limit	0DZ64	LOQ
arsenic	2 ppm	**0.0 ppm**	<10ppb
cadmium	4.1 ppm	**0.0 ppm**	<10ppb
lead	1.2 ppm	**0.0 ppm**	<10ppb
mercury	0.4 ppm	**0.0 ppm**	<10ppb

Comments

Extraction using MSP-7.5.1.2b.concentrate.
Assumed density 0.95.

Pesticides (MT)

	MT limit	0DZ64	LOQ
abamectin		0.00 ppm	<10ppb
acequinocyl		0.00 ppm	<10ppb
bifenazate		0.00 ppm	<10ppb
bifenthrin		0.00 ppm	<10ppb
chlormequat cl.		0.00 ppm	<10ppb
cyfluthrin		0.00 ppm	<80ppb
diaminozide		0.00 ppm	<10ppb
etoxazole		0.00 ppm	<10ppb
fenoxycarb		0.00 ppm	<10ppb
imazalil		0.00 ppm	<10ppb
imidacloprid		0.00 ppm	<10ppb
myclobutanil		0.00 ppm	<10ppb
paclobutrazol		0.00 ppm	<10ppb
pyrethrins		0.00 ppm	<10ppb
spinosad		0.00 ppm	<10ppb
spiromesifen		0.00 ppm	<10ppb
spirotetramat		0.00 ppm	<10ppb
trifloxystrobin		0.00 ppm	<10ppb

Microbial

	MT limit	0DZ64	LOQ
E. coli	10 CFU	0 CFU	<10 CFU/g
Salmonella sp.	10 CFU	0 CFU	<10 CFU/g
molds	10000 CFU	0 CFU	<10k CFU/g
Aflatoxin B1,B2,G1,G2	20 ppb	0 ppb	<20 ppb
Ochratoxin A	20 ppb	0 ppb	<20 ppb

Pesticides (other)

	0DZ64	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	0.00 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] = $[\text{cannabinoid}]_{HPLC} \times \text{volume}_{dilution}/m_{dry}$. Terpene concentration is calcuated from the equation: [terpene] = (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:

Ron Brost

Ron Brost, PhD PEng (Chem)
Director
6073 US93N, Olney MT 59927
406-881-2019 rdb@stwlabs.com

B4G.112619

Certificate of Analysis

total cannabinoids **84.7%**

CBD decarb total 80.7%

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 — sample date 2/24/20 4:49 PM
order **6654** — labID **0BR66** — weight
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
tetrahydrocannabolic acid (THCa)	ND	± 0.02 %
Δ9-tetrahydrocannabinol (Δ9 THC)	ND	± 0.02 %
Δ8-tetrahydrocannabinol (Δ8 THC)	ND	± 0.02 %
tetrahydrocannabivarin (THCv)	ND	± 0.02 %
cannabidiolic acid (CBDa)	ND	± 0.02 %
cannabidiol (CBD)	80.7%	± 0.73 %
cannabidivarin (CBDv)	ND	± 0.02 %
cannabigerolic acid (CBGa)	ND	± 0.02 %
cannabigerol (CBG)	4.02%	± 0.16 %
cannabinol (CBN)	ND	± 0.02 %
cannabichromene (CBC)	ND	± 0.02 %

Terpenes

	%	estimated error		%	estimated error		%	estimated error
ß-myrcene	0.001%	± 0.0017 %	camphene	0.002%	± 0.0017 %	guaiol	0.000%	± 0.0017 %
ß-caryophyllene	0.001%	± 0.0017 %	Δ3-carene	0.003%	± 0.0018 %	ß-bisabolol	0.002%	± 0.0017 %
alpha-pinene	0.005%	± 0.0018 %	a-terpenine	0.000%	± 0.0016 %	eucalyptol	0.005%	± 0.0018 %
ß-pinene	0.008%	± 0.0019 %	para-cymene	0.009%	± 0.0019 %			
D-limonene	0.009%	± 0.0019 %	g-terpenine	0.010%	± 0.0019 %			
linalool	0.008%	± 0.0019 %	(-)-isopulegol	0.000%	± 0.0016 %			
ocimene	0.002%	± 0.0034 %	geraniol	0.002%	± 0.0017 %			
terpinolene	0.003%	± 0.0018 %	cis-nerolidol	0.000%	± 0.0016 %			
alpha-humulene	0.007%	± 0.0019 %	trans-nerolidol	0.004%	± 0.0018 %			

total terpenes **0.08%**

Solvents

	MT limit	0BR66	LOQ
propane	5,000	0 ppm	<10ppm
butanes	5,000	0 ppm	<10ppm
pentanes	5,000	0 ppm	<10ppm
hexanes	290	0 ppm	<10ppm
cyclohexane	3,880	0 ppm	<10ppm
heptanes	5,000	0 ppm	<10ppm
methanol	3,000	0 ppm	<10ppm
isopropanol	5,000	0 ppm	<10ppm
acetone	5,000	0 ppm	<10ppm
ethyl acetate	5,000	0 ppm	<10ppm
benzene	2	0 ppm	<0.2ppm
toluene	890	0 ppm	<10ppm
xylenes	2,170	0 ppm	<10ppm
chloroform	2	0 ppm	<0.2ppm
dichloromethane	600	0 ppm	<10ppm

Toxic Metals

	MT limit	0BR66	LOQ
arsenic	2 ppm	0.0 ppm	<10ppb
cadmium	0.8 ppm	0.0 ppm	<10ppb
lead	1.2 ppm	0.0 ppm	<10ppb
mercury	0.4 ppm	0.0 ppm	<10ppb

Comments

Pesticides (MT)

	MT limit	0BR66	LOQ
abamectin	2.50 ppm	0.00 ppm	<10ppb
acequinocyl	10.00 ppm	0.00 ppm	<10ppb
bifenazate	1.00 ppm	0.00 ppm	<10ppb
bifenthrin	1.00 ppm	0.00 ppm	<10ppb
chlormequat cl.	5.00 ppm	0.00 ppm	<10ppb
cyfluthrin	5.00 ppm	0.00 ppm	<80ppb
diaminozide	5.00 ppm	0.00 ppm	<10ppb
etoxazole	1.00 ppm	0.00 ppm	<10ppb
fenoxycarb	1.00 ppm	0.00 ppm	<10ppb
imazalil	1.00 ppm	0.00 ppm	<10ppb
imidacloprid	2.00 ppm	0.00 ppm	<10ppb
myclobutanil	0.60 ppm	0.00 ppm	<10ppb
paclobutrazol	2.00 ppm	0.00 ppm	<10ppb
pyrethrins	5.00 ppm	0.00 ppm	<10ppb
spinosad	1.00 ppm	0.00 ppm	<10ppb
spiromesifen	1.00 ppm	0.00 ppm	<10ppb
spirotetramat	1.00 ppm	0.00 ppm	<10ppb
trifloxystrobin	1.00 ppm	0.00 ppm	<10ppb

Microbial

	MT limit	0BR66	LOQ
E. coli	10 CFU	0 CFU	<10 CFU/g
Salmonella sp.	10 CFU	0 CFU	<10 CFU/g
molds	10000 CFU	0 CFU	<10k CFU/g
Aflatoxin B1,B2,G1,G2	20 ppb	0 ppb	<20 ppb
Ochratoxin A	20 ppb	0 ppb	<20 ppb

Pesticides (other)

	0BR66	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	0.00 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] = $[\text{cannabinoid}]_{HPLC} \times \text{volume}_{dilution}/m_{dry}$. Terpene concentration is calcuated from the equation: [terpene] = $(\text{terpene mass})_{GCMS} / m_{dry}$. ••• Decarboxyted cannabinoid concentration is calculated from the equation $XXX_{total} = 0.877 \times XXXa + XXX$ •••• 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) $\pm t_{CL90} \times s_g$. Sampling error is not

Certified by:

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