



# STRAIGHT HEMP

## CERTIFICATE OF ANALYSIS

PRODUCT: CBD Balm  
BATCH/LOT: B0044

PRODUCTION DATE: 1/31/2020  
BEST BY/EXP DATE: 1/2022

TEST	METHOD	SPECIFICATION	RESULTS
<b>Strength &amp; Composition</b>			
Identity	Organoleptic	Conforming	PASS
Identity	UPLC/UV	Chemical Fingerprint	PASS
Total Cannabidiol (CBD) <sup>i</sup>	UPLC/UV	17.8 – 21.2 mg/g	18.7 mg/g
Total Tetrahydrocannabinol (THC) <sup>ii</sup>	UPLC/UV	NMT 0.30%	0.09%
Terpene assay <sup>iii</sup>	HS-GC/MS	n/e	33.16 mg/g
<b>Microbiological<sup>iv</sup></b>			
Total Plate Count	USP 42	NMT 1,000 cfu/g	PASS
Total Coliforms	USP 42	NMT 100 cfu/g	PASS
Total Yeast & Mold	USP 42	NMT 100 cfu/g	PASS
<i>E. coli</i>	USP 42	Absent	PASS
<i>Salmonella</i>	USP 42	Absent	PASS
<b>Heavy Metals<sup>v</sup></b>			
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
<b>Residual Solvents</b>			
Multi-residue panel <sup>vi</sup>	GC-HS-MSD	Below MRL	PASS
<b>Pesticides</b>			
Multi-residue panel <sup>vii</sup>	UPLC-MS/MS	Below MRL	PASS

  
David Cole  
Director of Quality

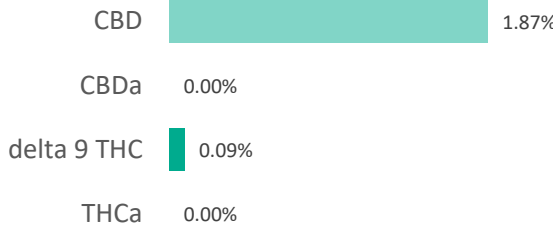
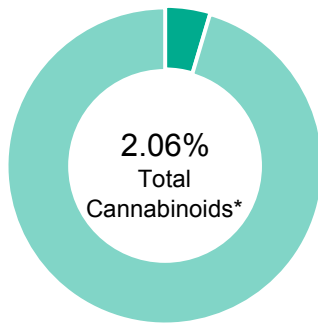
2/25/20  
Date

<sup>i</sup> Total CBD = CBD + (0.877\*CBDA) to account for loss of acid group during decarboxylation  
<sup>ii</sup> Total THC = THC + (0.877\*THCA) to account for loss of acid group during decarboxylation  
<sup>iii</sup> Sum of terpene assay (n=22)  
<sup>iv</sup> Microbiological limits based on USP, WHO, and/or NSF/ANSI  
<sup>v</sup> 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  
<sup>vi</sup> 11 Residue Panel: Propane, Butane, Pentane, Ethanol, Acetone, Isopropyl Alcohol, Hexane, Benzene, Heptanes, Toluene, Xylenes  
<sup>vii</sup> 50 Residue Panel

NMT = Not More Than  
MRL = Method Reporting Limit

**HHS - CBD BALM**

<b>Batch ID:</b>	B0044	<b>Test ID:</b>	4534956.0058
<b>Reported:</b>	10-Feb-2020	<b>Method:</b>	TM14
<b>Type:</b>	Concentrate		
<b>Test:</b>	Potency		

**CANNABINOID PROFILE**


Compound	LOQ (%)	Result (%)	Result (mg/g)
Delta 9-Tetrahydrocannabinolic acid (THCA-A)	0.01	0.00	0.0
Delta 9-Tetrahydrocannabinol (Delta 9THC)	0.01	0.09	0.9
Cannabidiolic acid (CBDA)	0.02	0.00	0.0
Cannabidiol (CBD)	0.01	1.87	18.7
Delta 8-Tetrahydrocannabinol (Delta 8THC)	0.01	0.00	0.0
Cannabinolic Acid (CBNA)	0.02	0.00	0.0
Cannabinol (CBN)	0.01	0.00	0.0
Cannabigerolic acid (CBGA)	0.01	0.00	0.0
Cannabigerol (CBG)	0.01	0.00	0.0
Tetrahydrocannabivarinic Acid (THCVA)	0.01	0.00	0.0
Tetrahydrocannabivarin (THCV)	0.01	0.00	0.0
Cannabidivarinic Acid (CBDVA)	0.02	0.00	0.0
Cannabidivarin (CBDV)	0.01	0.00	0.0
Cannabichromenic Acid (CBCA)	0.01	0.00	0.0
Cannabichromene (CBC)	0.01	0.10	1.0
<b>Total Cannabinoids</b>		<b>2.06</b>	<b>20.60</b>
Total Potential THC**		0.09	0.90
Total Potential CBD**		1.87	18.70


% = % (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.


$$\text{Total THC} = \text{THC} + (\text{THCa} * (0.877)) \text{ and } \text{Total CBD} = \text{CBD} + (\text{CBDa} * (0.877))$$
**NOTES:**

N/A

**FINAL APPROVAL**


**Tyler Wiese**  
 10-Feb-2020  
 6:45 PM

PREPARED BY / DATE



**Greg Zimpfer**  
 10-Feb-2020  
 8:37 PM

APPROVED BY / DATE

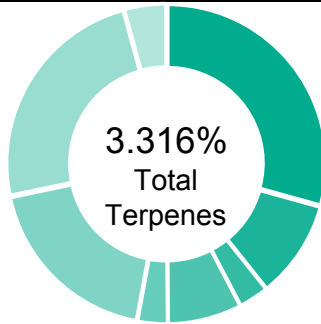
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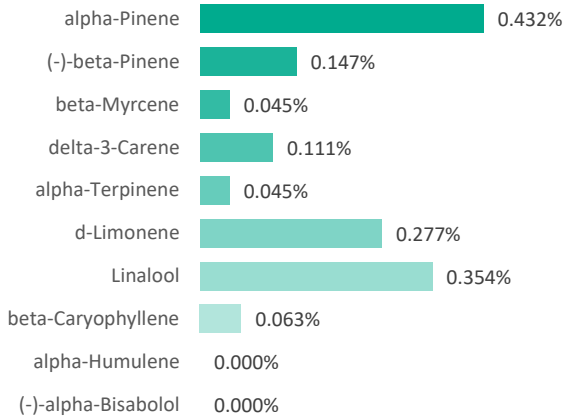
Certificate #4329.02

**HHS - CBD BALM**



<b>Batch ID:</b>	B0044	<b>Test ID:</b>	8440870.0043
<b>Reported:</b>	11-Feb-2020	<b>Method:</b>	TM10
<b>Type:</b>	Concentrate		
<b>Test:</b>	Terpenes		

**TERPENE PROFILE**


Compound	%(w/w)	mg/g
(-)-alpha-Bisabolol	0.000	0
Camphene	0.092	0.92
delta-3-Carene	0.111	1.11
beta-Caryophyllene	0.063	0.63
(-)-Caryophyllene Oxide	0.000	0
p-Cymene	0.090	0.9
Eucalyptol	1.509	15.09
Geraniol	0.000	0
alpha-Humulene	0.000	0
(-)-Isopulegol	0.000	0
d-Limonene	0.277	2.77
Linalool	0.354	3.54
beta-Myrcene	0.045	0.45
cis-Nerolidol	0.000	0
trans-Nerolidol	0.000	0
Ocimene	0.000	0
beta-Ocimene	0.000	0
alpha-Pinene	0.432	4.32
(-)-beta-Pinene	0.147	1.47
alpha-Terpinene	0.045	0.45
gamma-Terpinene	0.116	1.16
Terpinolene	0.035	0.35
	<b>3.316%</b>	<b>33.16</b>

**PREDOMINANT TERPENES**

 NOTES:  
 0

**FINAL APPROVAL**

 Daniel Weidensaul 11-Feb-2020 6:43 PM	 Greg Zimpfer 11-Feb-2020 7:30 PM
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PREPARED BY / DATE

APPROVED BY / DATE

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## HHS - CBD BALM

<b>Batch ID:</b>	B0044	<b>Test ID:</b>	T000058653
<b>Reported:</b>	9-Feb-2020	<b>Method:</b>	Topical - Test Methods: TM05, TM06
<b>Type:</b>	Topical		
<b>Test:</b>	Microbial Contaminants		

## MICROBIAL CONTAMINANTS

Contaminant	Result (CFU/g)*
<b>Total Aerobic Count**</b>	None Detected
<b>Total Coliforms**</b>	None Detected
<b>Total Yeast and Molds**</b>	None Detected
<b><i>E. coli</i></b>	None Detected
<b><i>Salmonella</i></b>	None Detected

\* CFU/g = Colony Forming Unit per Gram


\*\* Values recorded in scientific notation, a common microbial practice of expressing numbers that are too large to be conveniently written in decimal form.

Examples:  $10^2 = 100$  CFU  
 $10^3 = 1,000$  CFU  
 $10^4 = 10,000$  CFU  
 $10^5 = 100,000$  CFU

## NOTES:

Free from visual mold, mildew, and foreign matter  
TYM: None Detected  
Total Aerobic: None Detected  
Coliforms: None Detected

## FINAL APPROVAL

  
Robert Belfon  
8-Feb-2020  
8:06 PM  
Mike Branvold  
9-Feb-2020  
6:51 AM

PREPARED BY / DATE

APPROVED BY / DATE

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Certificate #4329.03

**HHS - CBD BALM**

<b>Batch ID:</b>	B0044	<b>Test ID:</b>	T000058656
<b>Reported:</b>	19-Feb-2020	<b>Method:</b>	Arsenic = Arsenic EPA 6020A (mod), Cadmium = Cadmium EPA 6020A (mod), Lead = Lead EPA 6020A (mod), Mercury = Mercury EPA 6020A (mod)
<b>Type:</b>	Other		
<b>Test:</b>	Metals		


**HEAVY METALS**

Compound	Reporting Limit (ppm)	Result (ppm)
Arsenic	0.05	<0.05
Cadmium	0.05	<0.05
Lead	0.05	<0.05
Mercury	0.05	<0.05

**FINAL APPROVAL**

 Sam Smith  
19-Feb-2020  
9:41 AM

PREPARED BY / DATE

 Greg Zimpfer  
19-Feb-2020  
5:51 PM

APPROVED BY / DATE

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**HHS - CBD BALM**

<b>Batch ID:</b>	B0044	<b>Test ID:</b>	7212187.009
<b>Reported:</b>	10-Feb-2020	<b>Method:</b>	TM04
<b>Type:</b>	Topical		
<b>Test:</b>	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**

 Ryan Weems 10-Feb-2020 11:51 AM	 Greg Zimpfer 10-Feb-2020 2:19 PM
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PREPARED BY / DATE

APPROVED BY / DATE

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Certificate #4329.02



**HHS - CBD BALM**

<b>Batch ID:</b>	B0044	<b>Test ID:</b>	6243467.0036
<b>Reported:</b>	10-Feb-2020	<b>Method:</b>	TM17
<b>Type:</b>	Concentrate		
<b>Test:</b>	Pesticides		

**PESTICIDE RESIDUE**


Compound	Dynamic Range (ppb)	Result (ppb)	Compound	Dynamic Range (ppb)	Result (ppb)
Acephate	56 - 2579	ND*	Malathion	56 - 2579	ND*
Acetamiprid	56 - 2579	ND*	Metalaxyl	334 - 2579	ND*
Avermectin	334 - 2579	ND*	Methiocarb	56 - 2579	ND*
Azoxystrobin	56 - 2579	ND*	Methomyl	56 - 2579	ND*
Bifenazate	56 - 2579	NA	MGK 264 1	56 - 2579	ND*
Boscalid	334 - 2579	ND*	MGK 264 2	334 - 2579	ND*
Carbaryl	56 - 2579	ND*	Myclobutanil	334 - 2579	ND*
Carbofuran	56 - 2579	ND*	Naled	334 - 2579	ND*
Chlorantraniliprole	56 - 2579	ND*	Oxamyl	56 - 2579	ND*
Chlorpyrifos	334 - 2579	ND*	Paclobutrazol	56 - 2579	ND*
Clofentezine	56 - 2579	ND*	Permethrin	334 - 2579	ND*
Diazinon	56 - 2579	ND*	Phosmet	56 - 2579	ND*
Dichlorvos	334 - 2579	ND*	Prophos	334 - 2579	ND*
Dimethoate	56 - 2579	ND*	Propoxur	334 - 2579	ND*
E-Fenproximate	334 - 2579	ND*	Pyridaben	334 - 2579	ND*
Etofenprox	334 - 2579	ND*	Spinosad A	56 - 2579	ND*
Etoxazole	334 - 2579	ND*	Spinosad D	334 - 2579	ND*
Fenoxycarb	56 - 2579	ND*	Spiromesifen	56 - 2579	ND*
Fipronil	334 - 2579	ND*	Spirotetramat	334 - 2579	ND*
Flonicamid	56 - 2579	ND*	Spiroxamine 1	56 - 2579	ND*
Fludioxonil	334 - 2579	ND*	Spiroxamine 2	56 - 2579	ND*
Hexythiazox	334 - 2579	ND*	Tebuconazole	56 - 2579	ND*
Imazalil	334 - 2579	ND*	Thiacloprid	56 - 2579	ND*
Imidacloprid	56 - 2579	ND*	Thiamethoxam	56 - 2579	ND*
Kresoxim-methyl	56 - 2579	ND*	Trifloxystrobin	334 - 2579	ND*

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

N/A

**FINAL APPROVAL**

  
 Sam Smith  
 10-Feb-2020  
 12:03 PM  
 PREPARED BY / DATE

  
 Greg Zimpfer  
 10-Feb-2020  
 12:08 PM  
 APPROVED BY / DATE

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