


# STRAIGHT HEMP

## CERTIFICATE OF ANALYSIS

PRODUCT: CBD Balm  
BATCH/LOT: B0045

PRODUCTION DATE: 2/14/2020  
BEST BY/EXP DATE: 2/2022

TEST	METHOD	SPECIFICATION	RESULTS
Strength & Composition			
Identity	Organoleptic	Conforming	PASS
Identity	UPLC/UV	Chemical Fingerprint	PASS
Total Cannabidiol (CBD) <sup>i</sup>	UPLC/UV	17.8 – 21.2 mg/g	19.28 mg/g
Total Tetrahydrocannabinol (THC) <sup>ii</sup>	UPLC/UV	NMT 0.30%	0.05%
Terpene assay <sup>iii</sup>	HS-GC/MS	n/e	47.83 mg/g
Microbiological <sup>iv</sup>			
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
Heavy Metals <sup>v</sup>			
Arsenic (As)	ICP/MS	NMT 2 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
Residual Solvents			
Multi-residue panel	GC-HS-MSD	Below CCR Limits <sup>vi</sup>	PASS
Pesticides			
Multi-residue panel	UPLC-MS/MS	Below CCR Limits <sup>vii</sup>	PASS

  
David Cole  
Director of Quality

  
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. Complies with 1 CCR 212-3

<sup>vi</sup> 11 solvent panel: Propane, Butanes, Methanol, Pentane, Ethanol, Acetone, Isopropyl Alcohol, Hexane, Benzene, Heptanes, Toluene, Xylenes. Individual limits: 1 CCR 212-3

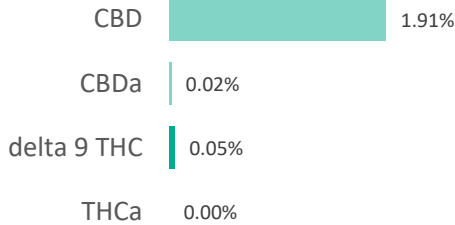
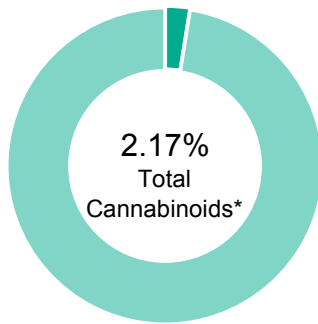
<sup>vii</sup> 18 residue panel: Individual limits: 1 CCR 212-3

NMT = Not More Than

MRL = Method Reporting Limit

**HHS - CBD Balm**

<b>Batch ID:</b>	B0045	<b>Test ID:</b>	1659696.0047
<b>Reported:</b>	21-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)	0.02	ND	ND
Delta 9-Tetrahydrocannabinol (Delta 9THC)	0.01	0.05	0.5
Cannabidiolic acid (CBDA)	0.02	0.02	0.2
Cannabidiol (CBD)	0.01	1.91	19.1
Delta 8-Tetrahydrocannabinol (Delta 8THC)	0.01	ND	ND
Cannabinolic Acid (CBNA)	0.03	ND	ND
Cannabinol (CBN)	0.01	ND	ND
Cannabigerolic acid (CBGA)	0.02	ND	ND
Cannabigerol (CBG)	0.01	0.14	1.4
Tetrahydrocannabivarinic Acid (THCVA)	0.02	ND	ND
Tetrahydrocannabivarin (THCV)	0.01	ND	ND
Cannabidivarinic Acid (CBDVA)	0.02	ND	ND
Cannabidivarin (CBDV)	0.01	0.02	0.2
Cannabichromenic Acid (CBCA)	0.02	ND	ND
Cannabichromene (CBC)	0.02	0.03	0.3
<b>Total Cannabinoids</b>		<b>2.17</b>	<b>21.70</b>
Total Potential THC**		0.05	0.50
Total Potential CBD**		1.93	19.28

**NOTES:**

N/A

% = % (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.

$$\text{Total THC} = \text{THC} + (\text{THCa} * (0.877))$$


$$\text{and Total CBD} = \text{CBD} + (\text{CBDa} * (0.877))$$

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

**FINAL APPROVAL**


Tyler Wiese  
21-Feb-2020  
3:38 PM

PREPARED BY / DATE



Greg Zimpfer  
21-Feb-2020  
5:15 PM

APPROVED BY / DATE

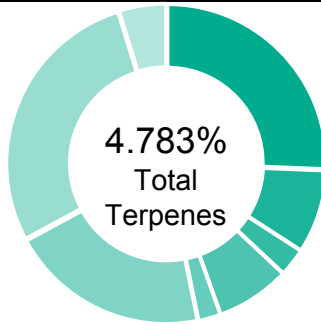
Testing results are based solely upon the sample submitted to Botanacor Laboratories, LLC, in the condition it was received. Botanacor Laboratories, LLC warrants that all analytical work is conducted professionally in accordance with all applicable standard laboratory practices using validated methods. Data was generated using an unbroken chain of comparison to NIST traceable Reference Standards and Certified Reference Materials. This report may not be reproduced, except in full, without the written approval of Botanacor Laboratories, LLC. ISO/IEC 17025:2005 Accredited A2LA Certificate Number 4329.02



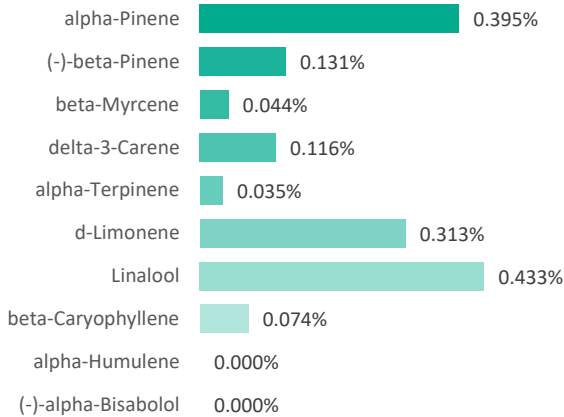
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**HHS - CBD Balm**



<b>Batch ID:</b>	B0045	<b>Test ID:</b>	5172163.0041
<b>Reported:</b>	25-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	1.455	14.55
delta-3-Carene	0.116	1.16
beta-Caryophyllene	0.074	0.74
(-)-Caryophyllene Oxide	0.000	0
p-Cymene	0.103	1.03
Eucalyptol	1.518	15.18
Geraniol	0.000	0
alpha-Humulene	0.000	0
(-)-Isopulegol	0.000	0
d-Limonene	0.313	3.13
Linalool	0.433	4.33
beta-Myrcene	0.044	0.44
cis-Nerolidol	0.000	0
trans-Nerolidol	0.000	0
Ocimene	0.010	0.1
beta-Ocimene	0.000	0
alpha-Pinene	0.395	3.95
(-)-beta-Pinene	0.131	1.31
alpha-Terpinene	0.035	0.35
gamma-Terpinene	0.125	1.25
Terpinolene	0.031	0.31
<b>Total</b>	<b>4.783%</b>	<b>47.83</b>

**PREDOMINANT TERPENES**

 NOTES:  
 0

**FINAL APPROVAL**

 Daniel Weidensaul 25-Feb-2020 5:33 PM	 Greg Zimpfer 25-Feb-2020 6:17 PM
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APPROVED BY / DATE

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## HHS - CBD Balm

<b>Batch ID:</b>	B0045	<b>Test ID:</b>	T000061788
<b>Reported:</b>	22-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  
22-Feb-2020  
1:32 PM



Mike Branvold  
22-Feb-2020  
5:41 PM

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APPROVED BY / DATE

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Certificate #4329.03

## HHS - CBD Balm

<b>Batch ID:</b>	B0045	<b>Test ID:</b>	T000061790
<b>Reported:</b>	2-Mar-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  
2-Mar-2020  
10:06 AM

PREPARED BY / DATE

 Greg Zimpfer  
2-Mar-2020  
12:03 PM

APPROVED BY / DATE

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**HHS - CBD Balm**

<b>Batch ID:</b>	B0045	<b>Test ID:</b>	1089781.017
<b>Reported:</b>	24-Feb-2020	<b>Method:</b>	TM04
<b>Type:</b>	Topical		
<b>Test:</b>	Residual Solvents		

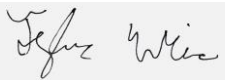

**RESIDUAL SOLVENTS**

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**

 Tyler Wiese 24-Feb-2020 6:17 PM	 Greg Zimpfer 24-Feb-2020 6:46 PM
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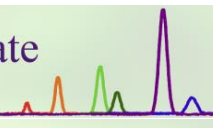
PREPARED BY / DATE

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Certificate #4329.02



Certificate ID: **78363**  
 Received: **2/27/20**  
 Client Sample ID: **HHS - CBD BALM**  
 Lot Number: **B0045**  
 Matrix: **Topicals - Salve**



**Natural Dynamics dba Straight Hemp**  
**5135 W 58th Ave, Ste 5**  
**Arvada, CO 80002**  
**Attn: Dale Cole**

Authorization: Jon Podgorni, Lead Research Chemist	Signature: 	Date: 3/3/2020
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The data contained within this report was collected in accordance with the requirements of ISO/IEC17025:2017. I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the test article listed in this report. Reports may not be reproduced except in their entirety.

**PST: Pesticide Analysis [WI-10-11]**

*Analyst: CJR*

*Test Date: 3/3/2020*

The client sample was analyzed for pesticides using Liquid Chromatography with Mass Spectrometric detection (LC/MS/MS). The method used for sample prep was based on the European method for pesticide analysis (EN 15662).

**78363-PST**

Analyte	CAS	Result	Units	LLD	Limits (ppb)	Status
Abamectin	71751-41-2	ND	ppb	0.2	300	PASS
Azoxystrobin	131860-33-8	ND	ppb	0.10	40000	PASS
Bifenazate	149877-41-8	ND	ppb	0.10	5000	PASS
Bifenthrin	82657-04-3	ND	ppb	0.20	500	PASS
Cyfluthrin	68359-37-5	ND	ppb	0.50	1000	PASS
Daminozide	1596-84-5	ND	ppb	10.00	10	*
Etoxazole	153233-91-1	ND	ppb	0.10	1500	PASS
Fenoxycarb	72490-01-8	ND	ppb	0.10	10	PASS
Imazalil	35554-44-0	ND	ppb	0.10	10	PASS
Imidacloprid	138261-41-3	ND	ppb	0.10	3000	PASS
Myclobutanil	88671-89-0	ND	ppb	0.10	9000	PASS
Paclobutrazol	76738-62-0	ND	ppb	0.10	10	PASS
Piperonyl butoxide	51-03-6	37	ppb	0.10	8000	PASS
Pyrethrin	8003-34-7	ND	ppb	0.1	1000	PASS
Spinosad	168316-95-8	ND	ppb	0.1	3000	PASS
Spiromesifen	283594-90-1	ND	ppb	0.10	12000	PASS
Spirotetramat	203313-25-1	ND	ppb	0.10	13000	PASS
Trifloxystrobin	141517-21-7	ND	ppb	0.10	30000	PASS

\* Testing limits for ingestion established by the State of California: CCR, Title 16, Division 42, Chapter 5, Section 5313. ND indicates "none detected" above the lower limit of detection (LLD). Analytes marked with (\*) indicate analytes for which no recovery was observed for a pre-spiked matrix sample.

## END OF REPORT