

CERTIFICATE OF ANALYSIS

PRODUCT NAME: *Joy Organics Full Spectrum CBD Tincture - Tropical
PRODUCT STRENGTH: 2250 CBD mg / bottle
TINCTURE BATCH: 22088A
BEST BY DATE: 9/17/2023
HEMP EXTRACT LOT: D0211-002

Click on the links to view third-party reports

Physical Attributes

Test	Method	Specification	Results
Color	Joy Internal	Golden to Amber.	PASS
Odor	Joy Internal	Characteristic - Olive, Hemp and Tropical.	PASS
Appearance	Joy Internal	Golden to Amber oil in brown glass bottle with dropper.	PASS
Primary Package Eval.	Joy Internal	Container clean and free of filth. Container caps tight and shrink bands intact.	PASS
Secondary Package Eval.	Joy Internal	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	HPLC-UV DAD	LOQ*: ≥ product strength mg / bottle	2653.4 mg	PASS
Potency - D9-THC	HPLC-UV DAD	LOQ: <0.3% total THC (Full spectrum)	0.22%	PASS
Expanded Pesticide Panel	HPLC-QQQ	LOQ: Complies with CDPHE 6 CCR 1010-21 Industrial Hemp Extract	ND	PASS
Microbial Escherichia coli (STEC)	PCR	Complies with CDPHE 6 CCR 1010-21 - LOQ 1 CFU/25 gram	Absent	PASS
Microbial Salmonella	PCR	Complies with CDPHE 6 CCR 1010-21 - LOQ 1 CFU/25 gram	Absent	PASS
Microbial Yeast and Mold	Culture Plating	Complies with CDPHE 6 CCR 1010-21 - LOQ 10 ² CFU/gram	Below LOQ	PASS
Microbial Total Coliforms*	Culture Plating	Complies with CDPHE 6 CCR 1010-21 - LOQ 10 ² CFU/gram	Below LOQ	PASS
Microbial Total Aerobic Count*	Culture Plating	Complies with CDPHE 6 CCR 1010-21 - LOQ 10 ³ CFU/gram	Below LOQ	PASS
Heavy Metals Panel	ICP-MS	Arsenic (As): ≤1.5 ppm Cadmium (Cd): ≤0.5 ppm Lead (Pb): ≤0.5 ppm Mercury (Hg): ≤1.5 ppm	Below LOQ	PASS
Mycotoxins	ICP-MS	Total Aflatoxins <20 ppb† Aflatoxin B1 <20 ppb Ochratoxin <20 ppb	Below LOQ	PASS
Residual Solvents	GC-HS-MSD	LOQ: Complies with CDPHE 6 CCR 1010-21 Industrial Hemp Extract	Below LOQ	PASS

* Level of Quantitation, † Parts Per Million ‡ Part Per Billion CFU/g=Colony Forming Units per Gram
 *Nothing Less Than
 10²=100 CFU
 10³=1,000 CFU

Quality Certified Cody Elbrader 03/29/2022
 Cody Elbrader Date
 Quality Assurance Technician

D0211-002

Batch ID or Lot Number: FMCT2250	Test: Potency	Reported: 21Feb2022	USDA License: N/A
Matrix: Concentrate	Test ID: T000193665	Started: 18Feb2022	Sampler ID: N/A
	Method(s): TM14 (HPLC-DAD): Potency – Standard Cannabinoid Analysis (Colorado Panel)	Received: 17Feb2022	Status: N/A

Cannabinoids

	LOD (%)	LOQ (%)	Result (%)	Result (mg/g)	Notes
Cannabichromene (CBC)	0.016	0.051	ND	ND	
Cannabichromenic Acid (CBCA)	0.014	0.047	ND	ND	
Cannabidiol (CBD)	0.037	0.136	9.310	93.10	
Cannabidiolic Acid (CBDA)	0.038	0.139	ND	ND	
Cannabidivarin (CBDV)	0.009	0.032	0.052	0.52	
Cannabidivarinic Acid (CBDVA)	0.016	0.058	ND	ND	
Cannabigerol (CBG)	0.009	0.029	0.669	6.69	
Cannabigerolic Acid (CBGA)	0.038	0.122	ND	ND	
Cannabinol (CBN)	0.012	0.038	0.027*	0.27*	
Cannabinolic Acid (CBNA)	0.026	0.083	ND	ND	
Delta 8-Tetrahydrocannabinol (Delta 8-THC)	0.045	0.145	ND	ND	
Delta 9-Tetrahydrocannabinol (Delta 9-THC)	0.041	0.132	0.222	2.22	
Delta 9-Tetrahydrocannabinolic Acid (THCA-A)	0.036	0.117	ND	ND	
Tetrahydrocannabivarin (THCV)	0.008	0.026	ND	ND	
Tetrahydrocannabivarinic Acid (THCVA)	0.032	0.103	ND	ND	
Total Cannabinoids			10.280	102.80	
Total Potential THC**			0.222	2.22	
Total Potential CBD**			9.310	93.10	

Final Approval


Hannah Wright
21Feb2022
01:47:00 PM MST

PREPARED BY / DATE



Ryan Weems
21Feb2022
01:49:00 PM MST

APPROVED BY / DATE


<https://results.botanacor.com/api/v1/coas/uuid/28160413-69ba-4afa-8bb8-18a662d2a66a>
Definitions

% = % (w/w) = Percent (weight of analyte / weight of product). ND = None Detected (defined by dynamic range of the method).
Total Potential Delta 9-THC or CBD is calculated to take into account the loss of a carboxyl group during decarboxylation step, using the following formulas: Total Potential Delta 9-THC = Delta 9-THC + (Delta 9-THCa *(0.877)) and Total CBD = CBD + (CBDA *(0.877)).

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.



Cert #4329.02

CDPHE Certified


2816041369ba4afa8bb818a662d2a66a.1

D0211-002

Batch ID or Lot Number: FMCT2250	Test: Pesticides	Reported: 22Feb2022	USDA License: NA
Matrix: Concentrate	Test ID: T000193666	Started: 21Feb2022	Sampler ID: NA
	Method(s): TM17 (LC-QQ LC MS/MS)	Received: 17Feb2022	Status: NA

Pesticides	Dynamic Range (ppb)	Result (ppb)	Pesticides	Dynamic Range (ppb)	Result (ppb)
Abamectin	296 - 2788	ND	Malathion	301 - 2748	ND
Acephate	23 - 2806	ND	Metalaxyl	45 - 2822	ND
Acetamiprid	38 - 2786	ND	Methiocarb	46 - 2867	ND
Azoxystrobin	71 - 2736	ND	Methomyl	35 - 2773	ND
Bifenazate	42 - 2786	ND	MGK 264 1	150 - 1593	ND
Boscalid	83 - 2759	ND	MGK 264 2	122 - 1146	ND
Carbaryl	41 - 2722	ND	Myclobutanil	42 - 2783	ND
Carbofuran	42 - 2747	ND	Naled	44 - 2758	ND
Chlorantraniliprole	63 - 2876	ND	Oxamyl	36 - 2727	ND
Chlorpyrifos	42 - 2815	ND	Pacllobutrazol	41 - 2656	ND
Clofentezine	284 - 2744	ND	Permethrin	268 - 2785	ND
Diazinon	290 - 2796	ND	Phosmet	39 - 2784	ND
Dichlorvos	292 - 2852	ND	Prophos	299 - 2812	ND
Dimethoate	39 - 2802	ND	Propoxur	42 - 2710	ND
E-Fenpyroximate	326 - 2886	ND	Pyridaben	296 - 2756	ND
Etofenprox	42 - 2746	ND	Spinosad A	31 - 2280	ND
Etoxazole	296 - 2812	ND	Spinosad D	50 - 513	ND
Fenoxycarb	45 - 2741	ND	Spiromesifen	375 - 2753	ND
Fipronil	44 - 2798	ND	Spirotetramat	296 - 2874	ND
Flonicamid	40 - 2839	ND	Spiroxamine 1	13 - 1216	ND
Fludioxonil	316 - 2809	ND	Spiroxamine 2	18 - 1608	ND
Hexythiazox	62 - 2744	ND	Tebuconazole	290 - 2717	ND
Imazalil	276 - 2758	ND	Thiacloprid	40 - 2788	ND
Imidacloprid	44 - 2808	ND	Thiamethoxam	40 - 2807	ND
Kresoxim-methyl	81 - 2757	ND	Trifloxystrobin	39 - 2788	ND

Final Approval


 Sam Smith
 22Feb2022
 12:13:00 PM MST

PREPARED BY / DATE


 Daniel Weidensaul
 22Feb2022
 12:19:00 PM MST

APPROVED BY / DATE



<https://results.botanacor.com/api/v1/coas/uuid/4e8f2d64-3da0-4724-8709-f2c1fcbd606e>

Definitions
 ND = None Detected (defined by dynamic range of the method)
 Dynamic Range = Limit of Quantitation (LOQ) through Upper Limit of Method Range
 ppb = Parts Per Billion

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Cert #4329.02
 4e8f2d643da047248709f2c1fcbd606e.2

Prepared for:

JOY ORGANICS
OFTT2250


Batch ID or Lot Number: 22088A	Test: Microbial Contaminants	Reported: 3/28/22	Location: 5042 Technology Parkway Ste. 50 FT. COLLINS, CO 80528
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Matrix: Finished Product	Test ID: T000199884	Started: 3/25/22	USDA License: N/A
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Status: N/A	Methods: TM25 (qPCR) TM24, TM26, TM27(Culture Plating): Microbial	Received: 03/25/2022 @ 10:27 AM	Sampler ID: N/A
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MICROBIAL CONTAMINANTS DETERMINATION

Contaminant	Method	LOD	LLOQ	ULOQ	Result	Notes
Total Aerobic Count*	TM-26, Culture Plating	10 ² CFU/g	10 ³ CFU/g	1.5x10 ⁵ CFU/g	None Detected	Free from visual mold, mildew, and foreign matter
Total Coliforms*	TM-27, Culture Plating	10 ¹ CFU/g	10 ² CFU/g	1.5x10 ⁴ CFU/g	None Detected	
Total Yeast and Mold*	TM-24, Culture Plating	10 ¹ CFU/g	10 ² CFU/g	1.5x10 ⁴ CFU/g	None Detected	
STEC	TM-25, PCR	10 ⁰ CFU/25 g	NA	NA	Absent	
Salmonella	TM-25, PCR	10 ⁰ CFU/25 g	NA	NA	Absent	


 Jackson Osaghae-Nosa
 3/28/2022
 4:16:00 PM


 Brianne Maillot
 3/28/2022
 4:34:00 PM

PREPARED BY / DATE

APPROVED BY / DATE

Definitions

LOD = Limit of Detection | LLOQ = Lower Limit of Quantitation | ULOQ = Upper Limit of Quantitation

 CFU/g = Colony Forming Units per Gram | STEC = Shiga Toxin-Producing *E. coli*

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

Examples: 10² = 100 CFU
 10³ = 1,000 CFU
 10⁴ = 10,000 CFU
 10⁵ = 100,000 CFU

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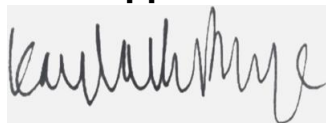
Certificate #4329.02

D0211-002

Batch ID or Lot Number: FMCT2250	Test: Heavy Metals	Reported: 21Feb2022	USDA License: NA
Matrix: Unit Co	Test ID: T000193668	Started: 18Feb2022	Sampler ID: NA
	Method(s): TM19 (ICP-MS): Heavy Metals	Received: 17Feb2022	Status: NA

Heavy Metals	Dynamic Range (ppm)	Result (ppm)	Notes
Arsenic	0.04 - 4.34	ND	
Cadmium	0.04 - 4.45	ND	
Mercury	0.04 - 4.49	ND	
Lead	0.04 - 4.01	ND	

Final Approval



Kayla Phye
22Feb2022
05:29:00 PM MST

PREPARED BY / DATE



Ryan Weems
22Feb2022
05:44:00 PM MST

APPROVED BY / DATE



<https://results.botanacor.com/api/v1/coas/uuid/79f18405-49db-4592-a7b6-6b1e0f6d7e03>

Definitions

ND = None Detected (defined by dynamic range of the method)
Dynamic Range = Limit of Quantitation (LOQ) through Upper Limit of Method Range

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Cert #4329.02


CDPHE Certified
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D0211-002


Batch ID or Lot Number: FMCT2250	Test: Mycotoxins	Reported: 2/21/22	
Matrix: Concentrate	Test ID: T000193670	Started: 2/18/22	USDA License: N/A
Status: N/A	Method: TM18 (UHPLC-QQQ LCMS/MS): Mycotoxins (Colorado Panel)	Received: 02/17/2022 @ 11:04 AM	Sampler ID: N/A

MYCOTOXIN DETERMINATION

Compound	Dynamic Range (ppb)	Result (ppb)	Notes
Ochratoxin A	3.4 - 136.7	ND	N/A
Aflatoxin B1	1.1 - 33.9	ND	
Aflatoxin B2	1.3 - 33.7	ND	
Aflatoxin G1	1.2 - 33.7	ND	
Aflatoxin G2	1.5 - 32.2	ND	
Total Aflatoxins (B1, B2, G1, and G2)		ND	


 Ryan Weems
 21-Feb-22
 12:35 PM

PREPARED BY / DATE


 Sam Smith
 21-Feb-22
 12:37 PM

APPROVED BY / DATE

Definitions

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

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.



CDPHE Certified


 ACCREDITED
 Certificate #4329.02

D0211-002

Batch ID or Lot Number: FMCT2250	Test: Residual Solvents	Reported: 21Feb2022	USDA License: N/A
Matrix: Concentrate	Test ID: T000193669	Started: 21Feb2022	Sampler ID: N/A
	Method(s): TM04 (GC-MS): Residual Solvents	Received: 17Feb2022	Status: N/A

Residual Solvents	Dynamic Range (ppm)	Result (ppm)	Notes
Propane	93 - 1861	ND	
Butanes (Isobutane, n-Butane)	189 - 3789	ND	
Methanol	66 - 1329	ND	
Pentane	100 - 1996	ND	
Ethanol	98 - 1960	ND	
Acetone	106 - 2123	ND	
Isopropyl Alcohol	108 - 2159	ND	
Hexane	7 - 132	ND	
Ethyl Acetate	106 - 2124	ND	
Benzene	0.2 - 4.3	ND	
Heptanes	106 - 2127	ND	
Toluene	19 - 379	ND	
Xylenes (m,p,o-Xylenes)	132 - 2647	ND	

Final Approval



Ryan Weems
22Feb2022
05:27:00 PM MST

PREPARED BY / DATE



Daniel Weidensaul
22Feb2022
05:33:00 PM MST

APPROVED BY / DATE



<https://results.botanacor.com/api/v1/coas/uuid/549f48bb-8c20-4826-9431-a8406b4135a0>

Definitions

ND = None Detected (defined by dynamic range of the method)
Dynamic Range = Limit of Quantitation (LOQ) through Upper Limit of Method Range

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