

CERTIFICATE OF ANALYSIS

PRODUCT NAME: *Joy Organic Full Spectrum CBD Tincture - Key Lime
PRODUCT STRENGTH: 1350 mg per bottle
TINCTURE BATCH: 22073A
BEST BY DATE: 09/09/2023
HEMP EXTRACT LOT: CO728-001

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 - Coconut and Hemp, Lime	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	1,436.2 mg	PASS
Potency - D9-THC	HPLC-UV DAD	LOQ: <0.3% total THC (Full spectrum)	0.155%	PASS
Expanded Pesticide Panel	HPLC-QQQ	LOQ: Complies with CDPHE 6 CCR 1010-21 Industrial Hemp Extract	Below LOQ	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	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 < 5 ppb Ochratoxin < 5 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 Quantification
 **Colony Forming Units per Gram
 † Parts Per Million †† Part Per Billion

Values expressed in scientific notation.
 Examples:
 10²=100
 10³=1,000

Quality Certified

Cody Elbrader

03/15/2022

Cody Elbrader

Date

Quality Assurance Technician

27284


 Batch ID or Lot Number: **C0728-001** Test: **Potency** Reported: **8/17/21**


Matrix: Solution Test ID: T000155485 Started: 8/12/21 USDA License: N/A

Status: N/A Method: TM14 (HPLC-DAD): Potency - Standard Cannabinoid Analysis (Colorado Panel) Received: 08/05/2021 @ 12:37 PM Sampler ID: N/A

CANNABINOID PROFILE

Compound	LOD (mg/mL)	LOQ (mg/mL)	Result (mg/mL)	Result (mg/g)	Notes
Delta 9-Tetrahydrocannabinolic acid (THCA-A)	0.139	0.462	ND	ND	Density = 0.945g/mL
Delta 9-Tetrahydrocannabinol (Delta 9THC)	0.157	0.521	1.462	1.55	
Cannabidiolic acid (CBDA)	0.232	0.552	ND	ND	
Cannabidiol (CBD)	0.226	0.538	47.872	50.66	
Delta 8-Tetrahydrocannabinol (Delta 8THC)	0.173	0.574	ND	ND	
Cannabinolic Acid (CBNA)	0.099	0.329	ND	ND	
Cannabinol (CBN)	0.045	0.150	0.147*	0.16*	
Cannabigerolic acid (CBGA)	0.145	0.482	ND	ND	
Cannabigerol (CBG)	0.035	0.115	3.828	4.05	
Tetrahydrocannabivarinic Acid (THCVA)	0.123	0.407	ND	ND	
Tetrahydrocannabivarin (THCV)	0.032	0.105	ND	ND	
Cannabidivarinic Acid (CBDVA)	0.097	0.230	ND	ND	
Cannabidivarin (CBDV)	0.053	0.127	0.280	0.30	
Cannabichromenic Acid (CBCA)	0.056	0.186	ND	ND	
Cannabichromene (CBC)	0.061	0.203	ND	ND	
Total Cannabinoids			53.589	56.71	
Total Potential THC**			1.462	1.55	
Total Potential CBD**			47.872	50.66	


 Daniel Weidensaul
 17-Aug-2021
 01:50 PM


 Taylor Brevik
 17-Aug-21
 1:56 PM

PREPARED BY / DATE

APPROVED BY / DATE

Definitions

% = % (w/w) = Percent (Weight of Analyte / Weight of Product)

* Indicates a value below the Limit of Quantitation (LOQ) and above the Limit of Detection (LOD).

** Total Potential THC/CBD is calculated using the following formulas to take into account the loss of a carboxyl group during decarboxylation step.

Total THC = THC + (THCa *(0.877)) and

Total CBD = CBD + (CBDA *(0.877))

Total Cannabinoids result reflects the absolute sum of all cannabinoids detected.

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.



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Certificate #4329.02

27284

Batch ID or Lot Number: **C0728-001** Test: **Pesticides** Reported: **8/11/21**

Matrix: Concentrate Test ID: T000155486 Started: 8/10/21 USDA License: N/A

Status: N/A Method: TM17(LC-QQQ LC MS/MS): Received: 08/05/2021 @ 12:37 PM Sampler ID: N/A

PESTICIDE DETERMINATION

Compound	LOQ (ppm)	Result (ppm)	Compound	LOQ (ppm)	Result (ppm)	Compound	LOQ (ppm)	Result (ppm)
Acephate	54	ND	Fenoxycarb	54	ND	Paclobutrazol	54	ND
Acetamiprid	54	ND	Fipronil	54	ND	Permethrin	324	ND
Avermectin	324	ND	Flonicamid	54	ND	Phosmet	54	ND
Azoxystrobin	54	ND	Fludioxonil	324	ND	Prophos	324	ND
Bifenazate	54	ND	Hexythiazox	54	ND	Propoxur	54	ND
Boscalid	54	ND	Imazalil	324	ND	Pyridaben	324	ND
Carbaryl	54	ND	Imidacloprid	54	ND	Spinosad A	54	ND
Carbofuran	54	ND	Kresoxim-methyl	150	ND	Spinosad D	324	ND
Chlorantraniliprole	54	ND	Malathion	324	ND	Spiromesifen	324	ND
Chlorpyrifos	500	ND	Metalaxyl	54	ND	Spirotetramat	324	ND
Clofentezine	324	ND	Methiocarb	54	ND	Spiroxamine 1	54	ND
Diazinon	324	ND	Methomyl	54	ND	Spiroxamine 2	54	ND
Dichlorvos	324	ND	MGK 264 1	324	ND	Tebuconazole	324	ND
Dimethoate	54	ND	MGK 264 2	324	ND	Thiacloprid	54	ND
E-Fenpyroximate	324	ND	Myclobutanil	54	ND	Thiamethoxam	54	ND
Etofenprox	54	ND	Naled	54	ND	Trifloxystrobin	54	ND
Etoxazole	324	ND	Oxamyl	1500	ND			



Taylor Brevik
 8/11/2021
 4:08:00 PM



Sam Smith
 8/11/2021
 4:11:00 PM

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Definitions

LOQ = Limit of Quantification
 ppb = Parts per Billion

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Certificate #4329.02

Prepared for:

JOY ORGANICS
OFTKL1350


Batch ID or Lot Number: 22073A	Test: Microbial Contaminants	Reported: 3/14/22	Location: 5042 Technology Parkway Ste. 50 FT. COLLINS, CO 80528
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Matrix: Finished Product	Test ID: T000197761	Started: 3/11/22	USDA License: N/A
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Status: N/A	Methods: TM25 (qPCR) TM24, TM26, TM27(Culture Plating): Microbial	Received: 03/11/2022 @ 11:17 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
 3/14/2022
 3:29:00 PM


 Eden Thompson-Wright
 3/14/2022
 4:22:00 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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Batch ID or Lot Number: C0728-001	Test: Metals	Reported: 8/13/21	
Matrix: Unit Co	Test ID: T000155488	Started: 8/12/21	USDA License: N/A
Status: N/A	Method: TM19 (ICP-MS); Heavy Metals (Colorado Panel)	Received: 08/05/2021 @ 12:37 PM	Sampler ID: N/A

HEAVY METALS DETERMINATION

Compound	Dynamic Range (ppb)	Result (ppb)	Notes
Arsenic	0.044 - 4.39	ND	
Cadmium	0.048 - 4.78	ND	
Mercury	0.044 - 4.38	ND	
Lead	0.044 - 4.38	ND	


 Sam Smith
 13-Aug-21
 1:11 PM

PREPARED BY / DATE


 Daniel Weidensaul
 13-Aug-21
 1:14 PM

APPROVED BY / DATE

Definitions

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

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27284

Batch ID or Lot Number: C0728-001	Test: Mycotoxins	Reported: 8/12/21	
Matrix: Concentrate	Test ID: T000155490	Started: 8/11/21	USDA License: N/A
Status: N/A	Method: TM18 (UHPLC-QQQ LCMS/MS): Mycotoxins (Colorado Panel)	Received: 08/05/2021 @ 12:37 PM	Sampler ID: N/A

MYCOTOXIN DETERMINATION

Compound	Dynamic Range (ppb)	Result (ppb)	Notes
Ochratoxin A	5.1 - 136.7	ND	N/A
Aflatoxin B1	1 - 35.4	ND	
Aflatoxin B2	1.1 - 34.6	ND	
Aflatoxin G1	1 - 34.7	ND	
Aflatoxin G2	1.1 - 33.5	ND	
Total Aflatoxins (B1, B2, G1, and G2)		ND	


 Taylor Brevik
 12-Aug-21
 2:47 PM


 Sam Smith
 12-Aug-21
 2:50 PM

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Definitions

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

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27284


Batch ID or Lot Number: C0728-001	Test: Residual Solvents	Reported: 8/12/21	
Matrix: N/A	Test ID: T000155489	Started: 8/11/21	USDA License: N/A
Status: N/A	Methods: TM04 (GC-MS): Residual Solvents (Colorado Panel)	Received: 08/05/2021 @ 12:37 PM	Sampler ID: N/A

RESIDUAL SOLVENTS DETERMINATION

Solvent	Dynamic Range (ppm)	Result (ppm)	Notes
Propane	84 - 1682	*ND	
Butanes (Isobutane, n-Butane)	158 - 3159	*ND	
Methanol	58 - 1170	*ND	
Pentane	86 - 1729	*ND	
Ethanol	92 - 1848	*ND	
Acetone	95 - 1902	*ND	
Isopropyl Alcohol	105 - 2100	*ND	
Hexane	6 - 117	*ND	
Ethyl Acetate	97 - 1931	*ND	
Benzene	0 - 4	*ND	
Heptanes	92 - 1835	*ND	
Toluene	17 - 349	*ND	
Xylenes (m,p,o-Xylenes)	129 - 2579	*ND	

 Karen Winternheimer
12-Aug-21
3:07 PM

PREPARED BY / DATE

 Ryan Weems
12-Aug-21
3:09 PM

APPROVED BY / DATE

Definitions

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

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