JOY ORGANICS

CERTIFICATE OF ANALYSIS

PRODUCT NAME: Organic Delta 9 THC Tincture (Citrus)
PRODUCT STRENGTH: 900mg CBD + 75mg THC per bottle
TINCTURE BATCH: 230501A
BEST BY DATE: 5/1/2025
HEMP EXTRACT LOT: 606

Physical Atttributes

Test	Method	Specification	Results
Color	Joy Internal	Golden to Amber	PASS
Odor	Joy Internal	Characteristic - Coconut and hemp, citrus	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	*NLT (product strength) mg / bottle	**1198mg**	PASS
Potency - D9-THC	HPLC-UV DAD	LOQ: 10 ppm (.001-0.3%) (product strength) mg / bottle	**77mg**	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	**Below LOQ**	PASS
Microbial Salmonella	PCR	Complies with CDPHE 6 CCR 1010-21 - LOQ 1 CFU/25 gram	**Below LOQ**	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	**ND**	PASS
Mycotoxins	ICP-MS	Total Aflatoxins <20 ppb† Afltoxin B1 < 5 ppb Ochratoxin < 5ppb	**ND**	PASS
Residual Solvents	GC-HS-MSD	LOQ: Complies with CDPHE 6 CCR 1010-21 Industrial Hemp Extract	**ND**	PASS

* *Level of Quantitation, † Parts Per Million † Part Per Billion CFU/g=Colony Forming Units per Gram
*nothing Less Than
10^2=100 CFU
10^3=1,000 CFU

Quality Certified — Name — 5/3/2023 Date

2519 S Shields St. #1042, Fort Collins, CO 80526
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CERTIFICATE OF ANALYSIS

Organic Full Spectrum Tincture- Citrus

Batch ID or Lot Number:230501A	Test, Test ID and Methods: Various	Matrix: Concentrate	Page 1 of 5
Reported: **28Mar2023**	Started: 27Mar2023	Received: 24Mar2023	

Cannabinoids - Colorado Compliance

Test ID: T000239188
Methods: TM14 (HPLC-DAD): Potency – Standard

Cannabinoid Analysis	**LOD** (%)	**LOQ** (%)	**Result** (%)	**Result** (mg/g)	**Notes**
Cannabichromene (CBC)	0.007	0.020	0.028	0.28	
Cannabichromenic Acid (CBCA)	0.006	0.019	ND	ND	
Cannabidiol (CBD)	0.020	0.054	4.032	40.32	
Cannabidiolic Acid (CBDA)	0.020	0.056	ND	ND	
Cannabidivarin (CBDV)	0.005	0.013	0.018	0.18	
Cannabidivarinic Acid (CBDVA)	0.009	0.023	ND	ND	
Cannabigerol (CBG)	0.004	0.012	0.041	0.41	
Cannabigerolic Acid (CBGA)	0.017	0.049	ND	ND	
Cannabinol (CBN)	0.005	0.015	0.026	0.26	
Cannabinolic Acid (CBNA)	0.011	0.033	ND	ND	
Delta 8-Tetrahydrocannabinol (Delta 8-THC)	0.020	0.058	ND	ND	
Delta 9-Tetrahydrocannabinol (Delta 9-THC)	0.018	0.053	0.262	2.62	
Delta 9-Tetrahydrocannabinolic Acid (THCA-A)	0.016	0.047	ND	ND	
Tetrahydrocannabivarin (THCV)	0.004	0.011	ND	ND	
Tetrahydrocannabivarinic Acid (THCVA)	0.014	0.041	ND	ND	
Total Cannabinoids			**4.407**	**44.07**	
Total Potential THC			0.262	2.62	
Total Potential CBD			4.032	40.32	

Final Approval

Samantha Smith
Sam Smith
28Mar2023
08:52:00 AM MDT
PREPARED BY / DATE

K Winternheimer
Karen Winternheimer
28Mar2023
08:56:00 AM MDT
APPROVED BY / DATE

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Organic Full Spectrum Tincture- Citrus

Batch ID or Lot Number: 230501A	Test, Test ID and Methods: Various	Matrix: Concentrate	Page 2 of 5
Reported: **28Mar2023**	Started: 27Mar2023	Received: 24Mar2023	

Pesticides

Test ID: T000239189
Methods: TM17

(LC-QQ LC MS/MS)	**Dynamic Range** (ppb)	**Result** (ppb)		**Dynamic Range** (ppb)	**Result** (ppb)
Abamectin	374 - 2672	ND	Malathion	279 - 2740	ND
Acephate	18 - 2844	ND	Metalaxyl	44 - 2755	ND
Acetamiprid	40 - 2758	ND	Methiocarb	40 - 2669	ND
Azoxystrobin	45 - 2727	ND	Methomyl	42 - 2802	ND
Bifenazate	41 - 2784	ND	MGK 264 1	175 - 1559	ND
Boscalid	66 - 2638	ND	MGK 264 2	119 - 1122	ND
Carbaryl	43 - 2727	ND	Myclobutanil	47 - 2696	ND
Carbofuran	42 - 2705	ND	Naled	50 - 2695	ND
Chlorantraniliprole	42 - 2649	ND	Oxamyl	44 - 2792	ND
Chlorpyrifos	55 - 2672	ND	Paclobutrazol	49 - 2706	ND
Clofentezine	293 - 2709	ND	Permethrin	261 - 2620	ND
Diazinon	289 - 2767	ND	Phosmet	40 - 2745	ND
Dichlorvos	274 - 2725	ND	Prophos	296 - 2692	ND
Dimethoate	40 - 2753	ND	Propoxur	40 - 2711	ND
E-Fenpyroximate	287 - 2726	ND	Pyridaben	311 - 2711	ND
Etofenprox	48 - 2703	ND	Spinosad A	34 - 2208	ND
Etoxazole	306 - 2700	ND	Spinosad D	54 - 492	ND
Fenoxycarb	43 - 2757	ND	Spiromesifen	284 - 2702	ND
Fipronil	39 - 2784	ND	Spirotetramat	276 - 2790	ND
Flonicamid	42 - 2787	ND	Spiroxamine 1	19 - 1142	ND
Fludioxonil	333 - 2624	ND	Spiroxamine 2	24 - 1509	ND
Hexythiazox	45 - 2742	ND	Tebuconazole	274 - 2734	ND
Imazalil	289 - 2748	ND	Thiacloprid	43 - 2751	ND
Imidacloprid	40 - 2751	ND	Thiamethoxam	44 - 2778	ND
Kresoxim-methyl	43 - 2817	ND	Trifloxystrobin	40 - 2722	ND

Final Approval

Karen Winternheimer
30Mar2023
12:35:00 PM MDT
PREPARED BY / DATE

Sam Smith
30Mar2023
12:51:00 PM MDT
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CERTIFICATE OF ANALYSIS

Organic Full Spectrum Tincture- Citrus

Batch ID or Lot Number: 230501A	Test, Test ID and Methods: Various	Matrix: Concentrate	Page 3 of 5
Reported: **28Mar2023**	Started: 27Mar2023	Received: 24Mar2023	

Residual Solvents - Colorado Compliance

Test ID: T000239192
Methods: TM04 (GC-MS): Residual Solvents

	Dynamic Range (ppm)	**Result** (ppm)	**Notes**
Propane	108 - 2166	ND	
Butanes (Isobutane, n-Butane)	221 - 4430	ND	
Methanol	65 - 1306	ND	
Pentane	109 - 2173	ND	
Ethanol	106 - 2110	ND	
Acetone	105 - 2107	ND	
Isopropyl Alcohol	108 - 2159	ND	
Hexane	6 - 126	ND	
Ethyl Acetate	106 - 2124	ND	
Benzene	0.2 - 4.4	ND	
Heptanes	107 - 2141	ND	
Toluene	19 - 373	ND	
Xylenes (m,p,o-Xylenes)	132 - 2646	ND	

Final Approval

Karen Winternheimer
30Mar2023
03:04:00 PM MDT
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Sam Smith
30Mar2023
03:07:00 PM MDT
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CERTIFICATE OF ANALYSIS

Organic Full Spectrum Tincture- Citrus

Batch ID or Lot Number:230501A	Test, Test ID and Methods: Various	Matrix: Concentrate	Page 4 of 5
Reported: **28Mar2023**	Started: 27Mar2023	Received: 24Mar2023	

Microbial Contaminants - Colorado Compliance

Test ID: T000239190
Methods: TM25 (qPCR) TM24, TM26, TM27 (Culture Plating): Microbial (Colorado Panel)

	Method	LOD	Quantitation Range	Result	Notes
STEC	TM25: PCR	10^0 CFU/25g	NA	Absent	Free from visual mold, mildew, and foreign matter
Salmonella	TM25: PCR	10^0 CFU/25g	NA	Absent	
Total Yeast and Mold*	TM24: Culture Plating	10^1 CFU/g	$1.0x10^2$ - $1.5x10^4$	None Detected	
Total Aerobic Count*	TM26: Culture Plating	10^2 CFU/g	$1.0x10^3$ - $1.5x10^5$	None Detected	
Total Coliforms*	TM27: Culture Plating	10^1 CFU/g	$1.0x10^2$ - $1.5x10^4$	None Detected	

Final Approval

Eden Thompson-Wright
01Apr2023
09:30:00 AM MDT
PREPARED BY / DATE

Brianne Maillot
02Apr2023
02:52:00 PM MDT
APPROVED BY / DATE

Mycotoxins - Colorado Compliance

Test ID: T000239193
Methods: TM18 (UHPLC-QQQ LCMS/MS): Mycotoxins

	Dynamic Range (ppb)	**Result** (ppb)	Notes
Ochratoxin A	2.52 - 132.57	ND	N/A
Aflatoxin B1	0.96 - 33.29	ND	
Aflatoxin B2	0.93 - 32.86	ND	
Aflatoxin G1	1.06 - 32.83	ND	
Aflatoxin G2	0.96 - 32.66	ND	
Total Aflatoxins (B1, B2, G1, and G2)		ND	

Final Approval

Sam Smith
05Apr2023
11:49:00 AM MDT
PREPARED BY / DATE

Karen Winternheimer
05Apr2023
11:51:00 AM MDT
APPROVED BY / DATE

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CERTIFICATE OF ANALYSIS

Organic Full Spectrum Tincture- Citrus

Batch ID or Lot Number:230501A	Test, Test ID and Methods: Various	Matrix: Concentrate	Page 5 of 5
Reported: **28Mar2023**	Started: 27Mar2023	Received: 24Mar2023	

Heavy Metals - Colorado Compliance

Test ID: T000239191
Methods: TM19 (ICP-MS): Heavy Metals

	Dynamic Range (ppm)	**Result** (ppm)	**Notes**
Arsenic	0.04 - 4.06	ND	
Cadmium	0.05 - 4.56	ND	
Mercury	0.04 - 4.27	ND	
Lead	0.05 - 4.52	ND	

Final Approval

Sam Smith
05Apr2023
03:03:00 PM MDT
PREPARED BY / DATE

Karen Winternheimer
05Apr2023
03:31:00 PM MDT
APPROVED BY / DATE

https://results.botanacor.com/api/v1/coas/uuid/88c26460-9cbd-4d5f-b7d9-be422325e044

Definitions
LOD = Limit of Detection, ULOQ = Upper Limit of Quantitation, LLOQ = Lower Limit of Quantitation, PPB = Parts per Billion, % = % (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)). Fail equates to a concentration level of Delta 9-THC, on a dry weight basis, higher than 0.3 percent + or – the measurement uncertainty. Total Potential THC 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)). ALOQ = Above Limit Of Quantitation (defined by dynamic range of the method), CFU/g = Colony Forming Units 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.

Cert #4329.02
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