JOY ORGANICS

CERTIFICATE OF ANALYSIS

PRODUCT NAME:	Organic CBD Tincture - Natural
PRODUCT STRENGTH:	450mg
TINCTURE BATCH:	230324A
BEST BY DATE:	3/24/2025
HEMP EXTRACT LOT:	2303031

Physical Atttributes

Test	Method	Specification	Results
Color	Joy Internal	Golden to Amber	PASS
Odor	Joy Internal	Characteristic - Olive and Hemp	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	**517mg**	PASS
Potency - D9-THC	HPLC-UV DAD	LOQ: 10 ppm (.001-0.3%)	**ND**	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	**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

4/6/2023 — Date

2519 S Shields St. #1042, Fort Collins, CO 80526
Tel: (833) 569-7223 www.joyorganics.com

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Official Compliance: Colorado

CERTIFICATE OF ANALYSIS

450mg Broad Spectrum Unflavored Tincture

Batch ID or Lot Number: **230324A**	Test: **Potency**	Reported: **09Mar2023**	USDA License: N/A
Matrix: Concentrate	Test ID: T000237775	Started: 08Mar2023	Sampler ID: N/A
	Method(s): TM14 (HPLC-DAD): Potency – Standard Cannabinoid Analysis	Received: 07Mar2023	Status: Active

Cannabinoids

	LOD (%)	LOQ (%)	Result (%)	Result (mg/g)	Notes
Cannabichromene (CBC)	0.007	0.021	ND	ND	
Cannabichromenic Acid (CBCA)	0.007	0.020	ND	ND	
Cannabidiol (CBD)	0.021	0.060	1.876	18.76	
Cannabidiolic Acid (CBDA)	0.021	0.062	ND	ND	
Cannabidivarin (CBDV)	0.005	0.014	<LOQ	<LOQ	
Cannabidivarinic Acid (CBDVA)	0.009	0.026	ND	ND	
Cannabigerol (CBG)	0.004	0.012	0.145	1.45	
Cannabigerolic Acid (CBGA)	0.017	0.051	ND	ND	
Cannabinol (CBN)	0.005	0.016	ND	ND	
Cannabinolic Acid (CBNA)	0.012	0.035	ND	ND	
Delta 8-Tetrahydrocannabinol (Delta 8-THC)	0.021	0.060	ND	ND	
Delta 9-Tetrahydrocannabinol (Delta 9-THC)	0.019	0.055	ND	ND	
Delta 9-Tetrahydrocannabinolic Acid (THCA-A)	0.017	0.049	ND	ND	
Tetrahydrocannabivarin (THCV)	0.004	0.011	ND	ND	
Tetrahydrocannabivarinic Acid (THCVA)	0.015	0.043	ND	ND	
Total Cannabinoids			**2.021**	**20.21**	
Total Potential THC			ND	ND	
Total Potential CBD			1.876	18.76	

Final Approval

K. Winternheimer

Karen Winternheimer
09Mar2023
12:05:00 PM MST

PREPARED BY / DATE

Samantha Smith

Sam Smith
09Mar2023
12:07:00 PM MST

APPROVED BY / DATE

https://results.botanacor.com/api/v1/coas/uuid/fd7f89cf-49f0-4fde-8f7b-6d4ac27c0ddd

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)).

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Cert #4329.02

Certified Test Laboratory

CDPHE Certified

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CERTIFICATE OF ANALYSIS

450mg Broad Spectrum Unflavored Tincture

Batch ID or Lot Number:	Test:	Reported:	USDA License:
230324A	**Residual Solvents**	**09Mar2023**	N/A
Matrix:	Test ID:	Started:	Sampler ID:
Concentrate	T000237779	08Mar2023	N/A
	Method(s):	Received:	Status:
	TM04 (GC-MS): Residual Solvents	07Mar2023	Active

Residual Solvents

	Dynamic Range (ppm)	**Result** (ppm)	**Notes**
Propane	109 - 2177	ND	
Butanes (Isobutane, n-Butane)	225 - 4504	ND	
Methanol	67 - 1333	ND	
Pentane	111 - 2222	ND	
Ethanol	114 - 2275	ND	
Acetone	111 - 2215	ND	
Isopropyl Alcohol	114 - 2270	ND	
Hexane	7 - 133	ND	
Ethyl Acetate	110 - 2195	ND	
Benzene	0.2 - 4.3	ND	
Heptanes	109 - 2175	ND	
Toluene	20 - 396	ND	
Xylenes (m,p,o-Xylenes)	144 - 2881	ND	

Final Approval

K Winternheimer

Karen Winternheimer
09Mar2023
12:38:00 PM MST

PREPARED BY / DATE

Samantha Smith

Sam Smith
09Mar2023
12:40:00 PM MST

APPROVED BY / DATE

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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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USDA License:

450mg Broad Spectrum Unflavored Tincture

Batch ID or Lot Number:	Test:	Reported:	
230324A	**Pesticides**	**10Mar2023**	NA
Matrix:	Test ID:	Started:	Sampler ID:
Concentrate	T000237776	09Mar2023	NA
	Method(s):	Received:	Status:
	TM17 (LC-QQ LC MS/MS)	07Mar2023	NA

Pesticides

	Dynamic Range (ppb)	**Result** (ppb)
Abamectin	287 - 2706	ND
Acephate	42 - 2791	ND
Acetamiprid	42 - 2774	ND
Azoxystrobin	43 - 2724	ND
Bifenazate	45 - 2727	ND
Boscalid	50 - 2758	ND
Carbaryl	41 - 2727	ND
Carbofuran	45 - 2722	ND
Chlorantraniliprole	43 - 2784	ND
Chlorpyrifos	47 - 2894	ND
Clofentezine	279 - 2736	ND
Diazinon	281 - 2750	ND
Dichlorvos	263 - 2763	ND
Dimethoate	44 - 2762	ND
E-Fenpyroximate	288 - 2879	ND
Etofenprox	47 - 2664	ND
Etoxazole	288 - 2838	ND
Fenoxycarb	45 - 2716	ND
Fipronil	47 - 2714	ND
Flonicamid	48 - 2864	ND
Fludioxonil	310 - 2748	ND
Hexythiazox	40 - 2838	ND
Imazalil	273 - 2749	ND
Imidacloprid	44 - 2758	ND
Kresoxim-methyl	43 - 2760	ND

	Dynamic Range (ppb)	**Result** (ppb)
Malathion	287 - 2728	ND
Metalaxyl	42 - 2738	ND
Methiocarb	43 - 2757	ND
Methomyl	43 - 2799	ND
MGK 264 1	168 - 1649	ND
MGK 264 2	118 - 1130	ND
Myclobutanil	36 - 2729	ND
Naled	49 - 2737	ND
Oxamyl	42 - 2801	ND
Paclobutrazol	45 - 2726	ND
Permethrin	292 - 2741	ND
Phosmet	45 - 2684	ND
Prophos	286 - 2754	ND
Propoxur	44 - 2733	ND
Pyridaben	299 - 2820	ND
Spinosad A	36 - 2225	ND
Spinosad D	50 - 520	ND
Spiromesifen	276 - 2878	ND
Spirotetramat	284 - 2742	ND
Spiroxamine 1	19 - 1180	ND
Spiroxamine 2	23 - 1563	ND
Tebuconazole	278 - 2722	ND
Thiacloprid	45 - 2785	ND
Thiamethoxam	42 - 2797	ND
Trifloxystrobin	46 - 2732	ND

Final Approval

Karen Winternheimer
10Mar2023
10:32:00 AM MST
PREPARED BY / DATE

Sam Smith
10Mar2023
10:35:00 AM MST
APPROVED BY / DATE

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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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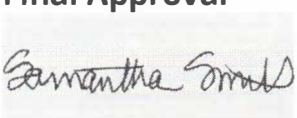
CERTIFICATE OF ANALYSIS

450mg Broad Spectrum Unflavored Tincture

Batch ID or Lot Number:	Test:	Reported:	USDA License:
2230324A	**Heavy Metals**	**09Mar2023**	NA
Matrix:	Test ID:	Started:	Sampler ID:
Unit Co	T000237778	08Mar2023	NA
	Method(s):	Received:	Status:
	TM19 (ICP-MS): Heavy Metals	07Mar2023	NA

Heavy Metals	**Dynamic Range** (ppm)	**Result** (ppm)	**Notes**
Arsenic	0.04 - 4.21	ND	
Cadmium	0.04 - 4.38	ND	
Mercury	0.04 - 4.37	ND	
Lead	0.04 - 4.42	ND	

Final Approval



Sam Smith
09Mar2023
09:56:00 AM MST

PREPARED BY / DATE

Karen Winternheimer
09Mar2023
10:09:00 AM MST

APPROVED BY / DATE

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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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Official Compliance: Colorado

CERTIFICATE OF ANALYSIS

450mg Broad Spectrum Unflavored Tincture

Batch ID or Lot Number:	Test:	Reported:	USDA License:
230324A	**Mycotoxins**	**09Mar2023**	N/A
Matrix:	Test ID:	Started:	Sampler ID:
Concentrate	T000237780	08Mar2023	N/A
	Method(s):	Received:	Status:
	TM18 (UHPLC-QQQ LCMS/MS): Mycotoxins	07Mar2023	Active

Mycotoxins

	Dynamic Range (ppb)	Result (ppb)	Notes
Ochratoxin A	2.35 - 137.94	ND	N/A
Aflatoxin B1	0.99 - 34.27	ND	
Aflatoxin B2	0.96 - 33.94	ND	
Aflatoxin G1	0.96 - 34.63	ND	
Aflatoxin G2	2.22 - 34.47	ND	
Total Aflatoxins (B1, B2, G1, and G2)		ND	

Final Approval

Samantha Smith
Sam Smith
09Mar2023
07:45:00 AM MST
PREPARED BY / DATE

K Winternheimer
Karen Winternheimer
09Mar2023
07:48:00 AM MST
APPROVED BY / DATE

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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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CERTIFICATE OF ANALYSIS

450mg Broad Spectrum Unflavored Tincture

Batch ID or Lot Number:	Test:	Reported:	USDA License:
230324A	**Microbial Contaminants**	**02Apr2023**	N/A
Matrix:	Test ID:	Started:	Sampler ID:
Finished Product	T000240106	29Mar2023	N/A
	Method(s): TM25 (qPCR) TM24, TM26, TM27 (Culture Plating): Microbial (Colorado Panel)	Received: 29Mar2023	Status: Active

Microbial Contaminants

	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

https://results.botanacor.com/api/v1/coas/uuid/52f47f6c-0bb2-430b-bcba-2ce39bf662ad

Definitions
* 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
CFU/g = Colony Forming Units per Gram, LOD = Limit of Detection
ULOQ = Upper Limit of Quantitation, LLOQ = Lower Limit of Quantitation
STEC = Shiga Toxin-Producing E. coli

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