JOY ORGANICS

CERTIFICATE OF ANALYSIS

PRODUCT NAME:	Organic CBD Tincture - Natural
PRODUCT STRENGTH:	900mg
TINCTURE BATCH:	230220F
BEST BY DATE:	2/20/2025
HEMP EXTRACT LOT:	230202F

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	**1066mg**	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

2/22/2023 — 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

900mg CBD Tincture- Natural

Batch ID or Lot Number:	Test:	Reported:	USDA License:
230220F	**Potency**	**10Feb2023**	N/A
Matrix:	Test ID:	Started:	Sampler ID:
Concentrate	T000235005	09Feb2023	N/A
	Method(s): TM14 (HPLC-DAD): Potency – Standard Cannabinoid Analysis	Received: 08Feb2023	Status: Active

Cannabinoids

	LOD (%)	**LOQ** (%)	**Result** (%)	**Result** (mg/g)	**Notes**
Cannabichromene (CBC)	0.007	0.021	<LOQ	<LOQ	
Cannabichromenic Acid (CBCA)	0.007	0.019	ND	ND	
Cannabidiol (CBD)	0.017	0.057	3.864	38.64	
Cannabidiolic Acid (CBDA)	0.018	0.058	ND	ND	
Cannabidivarin (CBDV)	0.004	0.013	0.019	0.19	
Cannabidivarinic Acid (CBDVA)	0.007	0.024	ND	ND	
Cannabigerol (CBG)	0.004	0.012	0.246	2.46	
Cannabigerolic Acid (CBGA)	0.017	0.049	ND	ND	
Cannabinol (CBN)	0.005	0.015	ND	ND	
Cannabinolic Acid (CBNA)	0.012	0.034	ND	ND	
Delta 8-Tetrahydrocannabinol (Delta 8-THC)	0.020	0.059	ND	ND	
Delta 9-Tetrahydrocannabinol (Delta 9-THC)	0.019	0.053	ND	ND	
Delta 9-Tetrahydrocannabinolic Acid (THCA-A)	0.016	0.047	ND	ND	
Tetrahydrocannabivarin (THCV)	0.004	0.011	<LOQ	<LOQ	
Tetrahydrocannabivarinic Acid (THCVA)	0.014	0.042	ND	ND	
Total Cannabinoids			**4.129**	**41.29**	
Total Potential THC			ND	ND	
Total Potential CBD			3.864	38.64	

Final Approval

Karen Winternheimer
10Feb2023
08:49:00 AM MST

PREPARED BY / DATE

Sam Smith
10Feb2023
09:17:00 AM MST

APPROVED BY / DATE

https://results.botanacor.com/api/v1/coas/uuid/e4bb28cc-85f7-4980-8078-ea62742dbc32

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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CERTIFICATE OF ANALYSIS

900mg CBD Tincture- Natural

Batch ID or Lot Number:	Test:	Reported:	USDA License:
230220F	**Pesticides**	**10Feb2023**	NA
Matrix:	Test ID:	Started:	Sampler ID:
Concentrate	T000235006	08Feb2023	NA
	Method(s):	Received:	Status:
	TM17 (LC-QQ LC MS/MS)	08Feb2023	NA

Pesticides

	Dynamic Range (ppb)	**Result** (ppb)
Abamectin	358 - 2647	ND
Acephate	42 - 2759	ND
Acetamiprid	43 - 2753	ND
Azoxystrobin	44 - 2729	ND
Bifenazate	43 - 2722	ND
Boscalid	45 - 2744	ND
Carbaryl	43 - 2719	ND
Carbofuran	44 - 2734	ND
Chlorantraniliprole	43 - 2726	ND
Chlorpyrifos	53 - 2824	ND
Clofentezine	275 - 2769	ND
Diazinon	292 - 2733	ND
Dichlorvos	275 - 2786	ND
Dimethoate	41 - 2737	ND
E-Fenpyroximate	293 - 2797	ND
Etofenprox	41 - 2790	ND
Etoxazole	309 - 2762	ND
Fenoxycarb	47 - 2690	ND
Fipronil	56 - 2762	ND
Flonicamid	43 - 2825	ND
Fludioxonil	318 - 2756	ND
Hexythiazox	45 - 2799	ND
Imazalil	288 - 2739	ND
Imidacloprid	41 - 2755	ND
Kresoxim-methyl	23 - 2807	ND

	Dynamic Range (ppb)	**Result** (ppb)
Malathion	280 - 2717	ND
Metalaxyl	46 - 2718	ND
Methiocarb	41 - 2688	ND
Methomyl	43 - 2762	ND
MGK 264 1	154 - 1645	ND
MGK 264 2	116 - 1140	ND
Myclobutanil	45 - 2763	ND
Naled	43 - 2762	ND
Oxamyl	41 - 2766	ND
Paclobutrazol	40 - 2726	ND
Permethrin	313 - 2795	ND
Phosmet	44 - 2709	ND
Prophos	312 - 2672	ND
Propoxur	41 - 2724	ND
Pyridaben	313 - 2786	ND
Spinosad A	35 - 2253	ND
Spinosad D	52 - 508	ND
Spiromesifen	292 - 2770	ND
Spirotetramat	274 - 2731	ND
Spiroxamine 1	16 - 1206	ND
Spiroxamine 2	21 - 1539	ND
Tebuconazole	277 - 2724	ND
Thiacloprid	44 - 2774	ND
Thiamethoxam	42 - 2785	ND
Trifloxystrobin	44 - 2758	ND

Final Approval

Karen Winternheimer
10Feb2023
06:26:00 AM MST

PREPARED BY / DATE

Sam Smith
10Feb2023
06:29:00 AM MST

APPROVED BY / DATE

https://results.botanacor.com/api/v1/coas/uuid/4fada679-bc8f-4e0b-9fa7-a0e79c523e30

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

Cert #4329.02

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CERTIFICATE OF ANALYSIS

900mg CBD Tincture- Natural

Batch ID or Lot Number:	Test:	Reported:	USDA License:
230220F	**Heavy Metals**	**15Feb2023**	NA
Matrix:	Test ID:	Started:	Sampler ID:
Unit Co	T000235008	10Feb2023	NA
	Method(s):	Received:	Status:
	TM19 (ICP-MS): Heavy Metals	08Feb2023	NA

Heavy Metals

	Dynamic Range (ppm)	**Result** (ppm)	**Notes**
Arsenic	0.06 - 5.87	ND	
Cadmium	0.06 - 5.98	ND	
Mercury	0.06 - 5.83	ND	
Lead	0.06 - 6.02	ND	

Final Approval

Sam Smith
15Feb2023
09:39:00 AM MST
PREPARED BY / DATE

Karen Winternheimer
15Feb2023
09:42:00 AM MST
APPROVED BY / DATE

https://results.botanacor.com/api/v1/coas/uuid/eb519af1-3e71-468f-b7ed-5e31ec7d6e5f

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

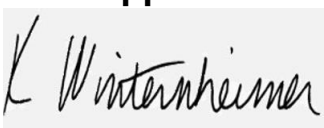
900mg CBD Tincture- Natural

Batch ID or Lot Number:	Test:	Reported:	USDA License:
230220F	**Residual Solvents**	**09Feb2023**	N/A
Matrix:	Test ID:	Started:	Sampler ID:
Concentrate	T000235009	08Feb2023	N/A
	Method(s):	Received:	Status:
	TM04 (GC-MS): Residual Solvents	08Feb2023	Active

Residual Solvents

	Dynamic Range (ppm)	**Result** (ppm)	**Notes**
Propane	105 - 2098	ND	
Butanes (Isobutane, n-Butane)	217 - 4346	ND	
Methanol	68 - 1351	ND	
Pentane	110 - 2196	ND	
Ethanol	113 - 2258	ND	
Acetone	109 - 2184	ND	
Isopropyl Alcohol	113 - 2268	ND	
Hexane	6 - 130	ND	
Ethyl Acetate	110 - 2207	ND	
Benzene	0.2 - 4.4	ND	
Heptanes	108 - 2165	ND	
Toluene	20 - 403	ND	
Xylenes (m,p,o-Xylenes)	152 - 3047	ND	

Final Approval



Karen Winternheimer
09Feb2023
07:32:00 AM MST

PREPARED BY / DATE

Sam Smith
09Feb2023
07:35:00 AM MST

APPROVED BY / DATE

https://results.botanacor.com/api/v1/coas/uuid/7521691a-e463-4625-88ca-1134035c1aa3

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

900mg CBD Tincture- Natural

Batch ID or Lot Number:	Test:	Reported:	USDA License:
230220F	**Mycotoxins**	**17Feb2023**	N/A
Matrix:	Test ID:	Started:	Sampler ID:
Concentrate	T000235010	16Feb2023	N/A
	Method(s): TM18 (UHPLC-QQQ LCMS/MS): Mycotoxins	Received: 08Feb2023	Status: Active

Mycotoxins

	Dynamic Range (ppb)	**Result** (ppb)	**Notes**
Ochratoxin A	2.11 - 136.71	ND	N/A
Aflatoxin B1	0.59 - 33.50	ND	
Aflatoxin B2	0.62 - 33.47	ND	
Aflatoxin G1	0.59 - 33.93	ND	
Aflatoxin G2	0.65 - 34.06	ND	
Total Aflatoxins (B1, B2, G1, and G2)		ND	

Final Approval

Samantha Smith

Sam Smith
17Feb2023
06:47:00 AM MST

PREPARED BY / DATE

K Winternheimer

Karen Winternheimer
17Feb2023
06:51:00 AM MST

APPROVED BY / DATE

https://results.botanacor.com/api/v1/coas/uuid/8adf24f2-34e6-44dd-8d1b-f89154be533c

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

900mg CBD Tincture- Natural

Batch ID or Lot Number:	Test:	Reported:	USDA License:
230220F	**Microbial Contaminants**	**13Feb2023**	N/A
Matrix:	Test ID:	Started:	Sampler ID:
Finished Product	T000235007	08Feb2023	N/A
	Method(s): TM25 (qPCR) TM24, TM26, TM27 (Culture Plating): Microbial (Colorado Panel)	Received: 08Feb2023	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

Brett Hudson
12Feb2023
11:55:00 AM MST

PREPARED BY / DATE

Eden Thompson-Wright
13Feb2023
04:24:00 PM MST

APPROVED BY / DATE

https://results.botanacor.com/api/v1/coas/uuid/1d1eef77-8e4c-498e-a420-9efc2ca5098f

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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