

# CERTIFICATE OF ANALYSIS

**PRODUCT NAME:** Joy Organics CBD Cream  
**PRODUCT STRENGTH:** 250 mg / bottle  
**BATCH:** 43473/36  
**BEST BY DATE:** 2; B: 4245  
**HEMP EXTRACT LOT:** EQ845/223

*\*Click on the links to view third-party reports\**

### Physical Attributes

Test	Method	Specification	Results
Color	Joy Internal	off white to light cream	PASS
Odor	Joy Internal	Neutral with light hemp/CBD oil scent	PASS
Appearance	Joy Internal	Medium viscosity skin cream in white container with clear cap	PASS
Primary Package Eval.	Joy Internal	Container clean and free of filth. Container caps tight and tamper evident label 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
<b>Potency - Total CBD</b>	HPLC-UV DAD	LOQ*: $\geq 250$ mg / bottle	<b>270.31 mg</b>	PASS
<b>Potency - D9-THC</b>	HPLC-UV DAD	LOQ: $<0.01\%$ THC (Broad Spectrum)	<b>Below LOQ</b>	PASS
<b>Expanded Pesticide Panel</b>	HPLC-QQQ	LOQ: Complies with CDPHE 6 CCR 1010-21 Industrial Hemp Extract	<b>Below LOQ</b>	PASS
<b>Microbial</b> Escherichia coli (STEC)	PCR	Complies with CDPHE 6 CCR 1010-21 - LOQ 1 **CFU/25	<b>Absent</b>	PASS
<b>Microbial</b> Salmonella	PCR	Complies with CDPHE 6 CCR 1010-21 - LOQ 1 CFU/25 gram	<b>Absent</b>	PASS
<b>Microbial</b> Yeast and Mold	Culture Plating	Complies with CDPHE 6 CCR 1010-21 - LOQ $10^2$ CFU/gram	<b>Below LOQ</b>	PASS
<b>Microbial</b> Total Coliforms*	Culture Plating	Complies with CDPHE 6 CCR 1010-21 - LOQ $10^2$ CFU/gram	<b>Below LOQ</b>	PASS
<b>Microbial</b> Total Aerobic Count*	Culture Plating	Complies with CDPHE 6 CCR 1010-21 - LOQ $10^3$ CFU/gram	<b>Below LOQ</b>	PASS
<b>Heavy Metals</b>	ICP-MS	Arsenic (As): $\leq 1.5$ ppm† Cadmium (Cd): $\leq 0.5$ ppm Lead (Pb): $\leq 0.5$ ppm Mercury (Hg): $\leq 1.5$ ppm	<b>Below LOQ</b>	PASS
<b>Mycotoxins</b>	ICP-MS	Total Aflatoxins $<20$ ppb†† Afltoxin B1 $< 5$ ppb Ochratoxin $< 5$ ppb	<b>Below LOQ</b>	PASS
<b>Residual Solvents</b>	GC-HS-MSD	LOQ: Complies with CDPHE 6 CCR 1010-21 Industrial Hemp Extract	<b>Below LOQ</b>	PASS

\*Level of Quantification  
 \*\*Colony Forming Units per Gram  
 † Parts Per Million †† Part Per Billion

Values expressed in scientific notation.  
 Examples:  
 $10^2=100$   
 $10^3=1,000$

Quality Certified Kayla Kolber 10/05/2021  
 Kayla Kolber Date  
 Quality Assurance Technician

**HPC250**

Batch ID or Lot Number: **21251-14**      Test: **Potency**      Reported: **9/30/21**

Matrix: Concentrate      Test ID: T000164698      Started: 9/29/21      USDA License: N/A

Status: N/A      Method: TM14 (HPLC-DAD): Potency - Broad Spectrum Analysis, 0.01% THC (Colorado Panel)      Received: 09/22/2021 @ 10:36 AM      Sampler ID: N/A

**CANNABINOID PROFILE**

Compound	LOD (%)	LOQ (%)	Result (%)	Result (mg/g)	Notes
Delta 9-Tetrahydrocannabinolic acid (THCA-A)	0.002	0.008	ND	ND	N/A
Delta 9-Tetrahydrocannabinol (Delta 9THC)	0.003	0.009	ND	ND	
Cannabidiolic acid (CBDA)	0.015	0.052	ND	ND	
Cannabidiol (CBD)	0.015	0.051	1.000	10.00	
Delta 8-Tetrahydrocannabinol (Delta 8THC)	0.022	0.058	ND	ND	
Cannabinolic Acid (CBNA)	0.013	0.033	ND	ND	
Cannabinol (CBN)	0.006	0.015	ND	ND	
Cannabigerolic acid (CBGA)	0.019	0.048	ND	ND	
Cannabigerol (CBG)	0.004	0.012	0.090	0.90	
Tetrahydrocannabivarinic Acid (THCVA)	0.016	0.041	ND	ND	
Tetrahydrocannabivarin (THCV)	0.004	0.011	ND	ND	
Cannabidivarinic Acid (CBDVA)	0.006	0.022	ND	ND	
Cannabidivarin (CBDV)	0.004	0.012	ND	ND	
Cannabichromenic Acid (CBCA)	0.007	0.019	ND	ND	
Cannabichromene (CBC)	0.008	0.020	ND	ND	
<b>Total Cannabinoids</b>			<b>1.090</b>	<b>10.90</b>	
Total Potential THC**			ND	ND	
Total Potential CBD**			1.000	10.00	

*Daniel Weidensaul*  
 Daniel Weidensaul  
 30-Sep-2021  
 04:48 PM

*K Winternheimer*  
 Karen Winternheimer  
 30-Sep-21  
 4:50 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.



CDPHE Certified



Certificate #4329.02

**HPC250**

Batch ID or Lot Number: **21251-14**      Test: **Pesticides**      Reported: **9/29/21**

Matrix: Concentrate      Test ID: t000164699      Started: 9/28/21      USDA License: N/A

Status: N/A      Method: TM17(LC-QQQ LC MS/MS):      Received: 09/22/2021 @ 10:36 AM      Sampler ID: N/A

**PESTICIDE DETERMINATION**

Compound	LOQ (ppb)	Result (ppb)	Compound	LOQ (ppb)	Result (ppb)	Compound	LOQ (ppb)	Result (ppb)
Acephate	41	ND	Fenoxycarb	42	ND	Paclobutrazol	42	ND
Acetamiprid	40	ND	Fipronil	33	ND	Permethrin	287	ND
Avermectin	316	ND	Flonicamid	51	ND	Phosmet	43	ND
Azoxystrobin	43	ND	Fludioxonil	295	ND	Prophos	293	ND
Bifenazate	46	ND	Hexythiazox	47	ND	Propoxur	41	ND
Boscalid	54	ND	Imazalil	284	ND	Pyridaben	298	ND
Carbaryl	39	ND	Imidacloprid	42	ND	Spinosad A	35	ND
Carbofuran	41	ND	Kresoxim-methyl	150	ND	Spinosad D	54	ND
Chlorantraniliprole	53	ND	Malathion	299	ND	Spiromesifen	272	ND
Chlorpyrifos	500	ND	Metalaxyl	43	ND	Spirotetramat	305	ND
Clofentezine	285	ND	Methiocarb	42	ND	Spiroxamine 1	18	ND
Diazinon	290	ND	Methomyl	44	ND	Spiroxamine 2	24	ND
Dichlorvos	290	ND	MGK 264 1	160	ND	Tebuconazole	290	ND
Dimethoate	42	ND	MGK 264 2	136	ND	Thiacloprid	41	ND
E-Fenpyroximate	317	ND	Myclobutanil	40	ND	Thiamethoxam	43	ND
Etofenprox	44	ND	Naled	44	ND	Trifloxystrobin	43	ND
Etoxazole	307	ND	Oxamyl	1500	ND			

*Samantha Smith*  
 Sam Smith  
 9/29/2021  
 5:13:00 PM

*Courtney Richards*  
 Courtney Richards  
 9/29/2021  
 7:12:00 PM

PREPARED BY / DATE

APPROVED BY / DATE

**Definitions**

LOQ = Limit of Quantification  
 ppb = Parts per Billion

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**HPC250**


Batch ID or Lot Number: <b>21251-14</b>	Test: <b>Microbial Contaminants</b>	Reported: <b>9/25/21</b>
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Matrix: Finished Product	Test ID: T000164700	Started: 9/22/21	USDA License: N/A
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Status: N/A	Methods: TM25 (qPCR) TM24, TM26, TM27(Culture Plating): Microbial (Colorado Panel)	Received: 09/22/2021 @ 10:36 AM	Sampler ID: N/A
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**MICROBIAL CONTAMINANTS DETERMINATION**

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

  
 Jackson Osaghae-Nosa  
 9/25/2021  
 1:53:00 PM

  
 Courtney Richards  
 9/25/2021  
 10:06:00 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: 10<sup>2</sup> = 100 CFU  
 10<sup>3</sup> = 1,000 CFU  
 10<sup>4</sup> = 10,000 CFU  
 10<sup>5</sup> = 100,000 CFU

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**HPC250**

Batch ID or Lot Number: <b>21251-14</b>	Test: <b>Metals</b>	Reported: <b>9/30/21</b>	
Matrix: Unit Co	Test ID: T000164701	Started: 9/29/21	USDA License: N/A
Status: N/A	Method: TM19 (ICP-MS); Heavy Metals (Colorado Panel)	Received: 09/22/2021 @ 10:36 AM	Sampler ID: N/A

**HEAVY METALS DETERMINATION**

Compound	Dynamic Range (ppm)	Result (ppm)	Notes
Arsenic	0.047 - 4.73	ND	
Cadmium	0.046 - 4.60	ND	
Mercury	0.044 - 4.38	ND	
Lead	0.048 - 4.76	ND	

 Ryan Weems  
30-Sep-21  
12:59 PM

PREPARED BY / DATE

 Sam Smith  
30-Sep-21  
1:02 PM

APPROVED BY / DATE

**Definitions**

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

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**HPC250**

Batch ID or Lot Number: **21251-14**      Test: **Mycotoxins**      Reported: **10/1/21**

Matrix: Concentrate      Test ID: T000164703      Started: 9/29/21      USDA License: N/A


Status: N/A      Method: TM18 (UHPLC-QQ LCMS/MS): Mycotoxins (Colorado Panel)      Received: 09/22/2021 @ 10:36 AM      Sampler ID: N/A

**MYCOTOXIN DETERMINATION**

Compound	Dynamic Range (ppb)	Result (ppb)	Notes
Ochratoxin A	1.7 - 125.9	ND	N/A
Aflatoxin B1	1 - 32.2	ND	
Aflatoxin B2	1.1 - 31.9	ND	
Aflatoxin G1	0.9 - 31.8	ND	
Aflatoxin G2	1.1 - 30.7	ND	
<b>Total Aflatoxins (B1, B2, G1, and G2)</b>		ND	

 Sam Smith  
 30-Sep-21  
 11:46 AM

PREPARED BY / DATE

 Courtney Richards  
 1-Oct-21  
 8:35 AM

APPROVED BY / DATE

**Definitions**

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

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**HPC250**

Batch ID or Lot Number: <b>21251-14</b>	Test: <b>Residual Solvents</b>	Reported: <b>10/1/21</b>	
Matrix: N/A	Test ID: T000164702	Started: 9/30/21	USDA License: N/A
Status: N/A	Methods: TM04 (GC-MS): Residual Solvents (Colorado Panel)	Received: 09/22/2021 @ 10:36 AM	Sampler ID: N/A

**RESIDUAL SOLVENTS DETERMINATION**

Solvent	Dynamic Range (ppm)	Result (ppm)	Notes
<b>Propane</b>	89 - 1787	*ND	
<b>Butanes</b> (Isobutane, n-Butane)	177 - 3539	*ND	
<b>Methanol</b>	67 - 1344	*ND	
<b>Pentane</b>	94 - 1889	*ND	
<b>Ethanol</b>	104 - 2085	*ND	
<b>Acetone</b>	106 - 2122	*ND	
<b>Isopropyl Alcohol</b>	114 - 2279	135	
<b>Hexane</b>	6 - 129	*ND	
<b>Ethyl Acetate</b>	108 - 2170	*ND	
<b>Benzene</b>	0 - 4	*ND	
<b>Heptanes</b>	101 - 2017	*ND	
<b>Toluene</b>	20 - 393	*ND	
<b>Xylenes</b> (m,p,o-Xylenes)	145 - 2895	*ND	

 Hannah Wright  
1-Oct-21  
10:29 AM

 Ryan Weems  
1-Oct-21  
10:31 AM

PREPARED BY / DATE

APPROVED BY / DATE

**Definitions**

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

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