

CERTIFICATE OF ANALYSIS

PRODUCT NAME: Joy Organics CBD Dog Chews
PRODUCT STRENGTH: 2 mg / chew
BATCH: 22018C
BEST BY DATE: 11/2023
Bulk LOT: 3004364

Click on the links to view third-party reports

Physical Attributes

Test	Method	Specification	Results
Color	Joy Internal	Brown	PASS
Odor	Joy Internal	Beef and grains, with some yeast	PASS
Appearance	Joy Internal	Squat cylindrical dog treats a plastic amber container	PASS
Primary Package Eval.	Joy Internal	Container clean and free of filth. Container caps tight and pressure seal is 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*: ≥ 2 mg / chew	2.1 mg	PASS
Potency - D9-THC	HPLC-UV DAD	LOQ: <0.01% (broad spectrum)	<0.01%	PASS
Pesticide Panel	LCMS-MS	Not Tested	N/A	N/A
Microbial Escherichia coli (STEC)	qPCR	Complies with USP 61/62	Absent	PASS
Microbial Salmonella	qPCR	Complies with USP 61/62	Absent	PASS
Microbial Yeast and Mold	Culture Plating	Complies with USP 61/62	Below LOQ	PASS
Microbial Total Coliforms	Culture Plating	Complies with USP 61/62	Below LOQ	PASS
Microbial Total Aerobic Count	Culture Plating	Complies with USP 61/62	3.7 x 10³	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	LCMS-MS	Total Aflatoxins <20 ppb†† Aflatoxin B1 < 20 ppb Ochratoxin < 20 ppb	Below LOQ	PASS
Residual Solvents	GC-MS	Not Tested	N/A	N/A

*Level of Quantification
† Parts Per Million †† Part Per Billion

Quality Certified Keegan Schlittler 01/25/2022
 Keegan Schlittler Date
 Quality Assurance Manager



Certificate of Analysis

Sample: DE11119027-004

Harvest/Lot ID: N/A

Batch#: N/A

Seed to Sale# 1A4000B00010D25000000882

Batch Date: N/A

Sample Size Received: 48 gram

Total Weight/Volume: N/A

Retail Product Size: N/A gram

Ordered : 11/18/21

sampled : 11/18/21

Completed: 11/27/21

Sampling Method: SOP-024

PASSED

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Nov 27, 2021 | Folium Biosciences

License # 405R-00011

615 Wooten Rd Suite 110

Colorado Springs, CO, 80915, US

PRODUCT IMAGE

SAFETY RESULTS

MISC.



Pesticides



Heavy Metals
PASSED



Microbials
PASSED



Mycotoxins
PASSED



Residuals Solvents



Filtration



Water Activity



Moisture



Homogeneity



Terpenes
NOT TESTED

CANNABINOID RESULTS



Total THC
0.003%



Total CBD
0.05%



Total Cannabinoids
0.054%

CBGA	CBDA	THC	THC-A	THC-O	THC-P	THC-V	THC-A	THC-B	THC-C	THC-D	THC-E	THC-F	THC-G	THC-H	THC-I	THC-J	THC-K	THC-L	THC-M	THC-N	THC-O	THC-P	THC-Q	THC-R	THC-S	THC-T	THC-U	THC-V	THC-W	THC-X	THC-Y	THC-Z
0.000	0.000	0.003	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Cannabinoid Profile Test

Analyzed by
1253

Weight
4.3297g

Extraction date :
11/22/21 05:11:03

Extracted By :
1642

Analysis Method -SOP-020 (R15)

Reviewed On - 11/23/21 15:07:42

Batch Date : 11/22/21 10:45:53

Analytical Batch -DE002697POT

Instrument Used : Agilent 1100 "Falcor" Running On : 11/22/21 19:00:41

Reagent	Dilution	Consums. ID	Consums. ID
101121.19	40	07051275	923CA-923AK
111921.861		1119999	5079-525C6-525E
102221.01		8G045	
102221.804		R1K834782	
111121.805		296076054	
112221.802		12311-108CC-108	

Folium Biosciences cannabinoid analysis utilizing High Performance Liquid Chromatography with DAD detection (HPLC-DAD) Method SOP-022 (R13) for reporting. Lower limit of linearity for all cannabinoids is 1.00%.



Certificate of Analysis

PASSED

Folium Biosciences

615 Wooten Rd Suite 110
Colorado Springs, CO, 80915, US
Telephone: 719-574-2159
Email: cshua.beach@foliumbiosciences.com
License #: 405R-00011

Sample : DE11119027-004
Harvest/LOT ID: N/A

Batch# : N/A
Sampled : 11/18/21
Ordered : 11/18/21

Sample Size Received : 46 gram
Total Weight/Volume : N/A
Completed : 11/27/21 Expires: 11/27/22
Sample Method : SOP-024

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Microbials

PASSED



Mycotoxins

PASSED

Analyte	LOD	Result
TOTAL YEAST AND MOLD		not present in 1 gram
SHIGA TOXIN PRODUCING ESCHERICHIA COLI STEC		not present in 1 gram
SALMONELLA SPECIES		not present in 1 gram
TOTAL AEROBIC		250
TOTAL COLIFORM		0

Analysis Method -SOP-061 (R2); SOP-062 (R2); SOP-063 (R1)
Analytical Batch -DE002698MIC Batch Date : 11/22/21 11:06:40
Instrument Used : Microbial - Full Panel
Running On : 11/23/21 16:37:25

Analyzed by	Weight	Extraction date	Extracted By
5	27.74g	11/23/21 04:11:19	6

Reagent	Reagent	Reagent	Dilution	Consums. ID	Consums. ID
111221 R70	110221 R05	111221 01	1	16564-106C6-106H	0
111221 R01	081821 08	112221 22		88988-021C4-021A	NT10-2212
111771 R08	050521 02	102821 R06		210316-361-B	20/08/20
101271 R07	100419 03	110321 R06		210622-697	01854
101251 R06	102921 21	111821 R05		210622-698	00103
101241 R04	102721 01	022921 53		12765-113CC-115	CH_2055133

Microbials are analyzed for Enterobacteriaceae, total aerobic count, and coliforms using Plate Count Agar (PCA) methods and plating methods. Total aerobic count and coliforms are determined by plating the sample back into the appropriate agar.

Analyte	LOD	Units	Result	Action Level
AFLATOXIN G2	0.303	ppb	ND	20
AFLATOXIN G1	0.180	ppb	ND	20
AFLATOXIN B2	0.0504	ppb	ND	20
AFLATOXIN B1	1.327	ppb	ND	20
OCHRATOXIN A+	0.0491	ppb	ND	20
AFLATOXINS		ppb	0	20

Analysis Method -SOP-060 (R5)
Analytical Batch -DE002694MYC | Reviewed On - 11/23/21 14:27:00
Instrument Used : Sciex 8500 Qtrap - Mycotoxins
Running On :
Batch Date : 11/22/21 08:28:54

Analyzed by	Weight	Extraction date	Extracted By
1696	0.1703g	11/22/21 02:11:33	1696

Analysis Method -SOP-024 (R2) and Ochratoxin A method using ICP-MS via SOP-050 (R5). Total Mycotoxins (Aflatoxin B1, B2, G1, G2) must be < 20ppb/kg. Ochratoxin A must be < 5ppb/kg.



Heavy Metals

PASSED

Reagent	Dilution	Consums. ID
082721 14	50	04620-0495
102121 03		12111-108CC-108
071620 04		92304-923AK
132221 01		

Metal	LOD	Unit	Result	Action Level
ARSENIC	0.0020	ppm	0.051	1.5
CADMIUM	0.0016	ppm	0.038	0.5
MERCURY	0.0035	ppm	ND	1
LEAD	0.0101	ppm	0.048	1

Analyzed by	Weight	Extraction date	Extracted By
7	0.2202g	11/23/21 12:11:31	1696

Analysis Method -SOP-050 (R5)
Analytical Batch -DE002701HEA | Reviewed On - 11/24/21 10:27:56
Instrument Used : Shimadzu 2030 ICP-MS
Running On : 11/23/21 17:16:56
Batch Date : 11/23/21 09:38:17

Heavy Metals screening is performed using ICP-MS (Inductively Coupled Plasma - Mass Spectrometry) which can screen to below single digit ppm concentration for regulated heavy metals using method SOP-050 (R5). Sample preparation for Heavy Metals Analysis via SOP-050 (R5).

Prepared for:

JOY ORGANICS
CHEW


Batch ID or Lot Number: 22018A	Test: Microbial Contaminants	Reported: 1/24/22	Location: 5042 Technology Parkway Ste. 50 FT. COLLINS, CO 80528
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Matrix: Finished Product	Test ID: T000188023	Started: 1/20/22	USDA License: N/A
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Status: N/A	Methods: TM25 (qPCR) TM24, TM26, TM27(Culture Plating): Microbial (Colorado Panel)	Received: 01/19/2022 @ 11:43 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	3.7x10 ³ CFU/g	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	
E. coli (STEC)	TM-25, PCR	1 CFU/25 g	NA	NA	Absent	
Salmonella	TM-25, PCR	1 CFU/25 g	NA	NA	Absent	

 Brett Hudson
1/24/2022
3:57:00 PM

 Jackson Osaghae-Nosa
1/24/2022
4:33:00 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

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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