



Certificate ID: **43422-99**

Received: **11/15/18**

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Hemp Essentials

6427 Hwy 146, STE 4

Crestwood, KY 40014

Attn: Nicole Ayers

Client Sample ID: **15F-18**

Lot Number: **151802**

Matrix: **Tincture - Hemp Oil**

Authorization:

Chris Hudalla, Chief Science Officer

Signature:



Date:

1/8/2019



The data contained within this report was collected in accordance with the requirements of ISO/IEC17025:2005. I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the test article listed in this report. Reports may not be reproduced except in their entirety.

HM: Heavy Metal Analysis [WI-10-13]

Analyst: *JFD*

Test Date: *12/6/2018*

This test method was performed in accordance with the requirements of ISO/IEC 17025. These results relate only to the test article listed in this report. Reports may not be reproduced except in their entirety.

43422-HM

Symbol	Metal	Conc. ¹	Units	MDL	Use Limits ²		Units	Status
					All	Ingestion		
As	Arsenic	ND	µg/kg	4	200	1500	µg/kg	PASS
Cd	Cadmium	ND	µg/kg	1	200	500	µg/kg	PASS
Hg	Mercury	ND	µg/kg	2	100	1500	µg/kg	PASS
Pb	Lead	6	µg/kg	2	500	1000	µg/kg	PASS

1) ND = None detected to Lowest Limits of Detection (LLD)

2) MA Dept. of Public Health: Protocol for MMJ and MIPS, Exhibit 4(a) for all products.

3) USP exposure limits based on daily oral dosing of 1g of concentrate for a 110 lb person.

MB1: Microbiological Contaminants [WI-10-09]

Analyst: Amanda

Test Date: 11/16/2018

This test method was performed in accordance with the requirements of ISO/IEC 17025. These results relate only to the test article listed in this report. Reports may not be reproduced except in their entirety.

43422-MB1

Symbol	Analysis	Results	Units	Limits*	Status
AC	Total Aerobic Bacterial Count	<100	CFU/g	100,000 CFU/g	PASS
CC	Total Coliform Bacterial Count	<100	CFU/g	1,000 CFU/g	PASS
EB	Total Bile Tolerant Gram Negative Count	<100	CFU/g	1,000 CFU/g	PASS
YM	Total Yeast & Mold	<100	CFU/g	10,000 CFU/g	PASS

Note: All recorded Microbiological tests are within the established limits.

MB2: Pathogenic Bacterial Contaminants [WI-10-10]

Analyst: LabAdmin

Test Date: 11/17/2018

This test method was performed in accordance with the requirements of ISO/IEC 17025. These results relate only to the test article listed in this report. Reports may not be reproduced except in their entirety.

43422-MB2

Test ID	Analysis	Results	Units	Limits*	Status
43422-ECPT	E. coli (O157)	Negative	NA	Non Detected	PASS
43422-SPT	Salmonella	Negative	NA	Non Detected	PASS

Note: All recorded pathogenic bacteria tests passed.

MY: Mycotoxin Testing [WI-10-05]

Analyst: CJB

Test Date: 12/1/2018

This test method was performed in accordance with the requirements of ISO/IEC 17025. These results relate only to the test article listed in this report. Reports may not be reproduced except in their entirety.

43422-MY

Test ID	Date	Results	MDL	Limits	Status*
Total Aflatoxin	12/1/2018	< MDL	3 ppb	< 20 ppb	PASS
Total Ochratoxin	12/1/2018	< MDL	2 ppb	< 20 ppb	PASS

PST: Pesticide Analysis [WI-10-11]

Analyst: CJH

Test Date: 12/20/2018

The client sample was analyzed for pesticides using Liquid Chromatography with Mass Spectrometric detection (LC/MS/MS). The method used for sample prep was based on the European method for pesticide analysis (EN 15662).

43422-PST

Analyte	CAS	Result	Units	LLD	Limits (ppb)	Status
Abamectin	71751-41-2	ND	ppb	0.20	300	PASS
Abamectin B1b	65195-56-4	ND	ppb	0.20	300	*
Azoxystrobin	131860-33-8	ND	ppb	0.10	40000	PASS
Bifenazate	149877-41-8	ND	ppb	0.10	5000	PASS
Bifenthrin	82657-04-3	ND	ppb	0.20	500	PASS
Cyfluthrin	68359-37-5	ND	ppb	0.50	1000	PASS
Daminozide	1596-84-5	ND	ppb	10.00	10	*
Etoxazole	153233-91-1	ND	ppb	0.10	1500	PASS
Fenoxycarb	72490-01-8	ND	ppb	0.10	10	PASS
Imazalil	35554-44-0	ND	ppb	0.10	10	PASS
Imidacloprid	138261-41-3	ND	ppb	0.10	3000	PASS
Myclobutanil	88671-89-0	ND	ppb	0.10	9000	PASS
Paclobutrazol	76738-62-0	ND	ppb	0.10	10	PASS
Piperonyl butoxide	51-03-6	ND	ppb	0.10	8000	PASS
Pyrethrin	8003-34-7	ND	ppb	0.1	1000	PASS
Spinosad	168316-95-8	ND	ppb	0.1	3000	PASS
Spiromesifen	283594-90-1	ND	ppb	0.10	12000	*
Spirotetramat	203313-25-1	ND	ppb	0.10	13000	PASS
Trifloxystrobin	141517-21-7	ND	ppb	0.10	30000	PASS

* Testing limits for ingestion established by the State of California: CCR, Title 16, Division 42, Chapter 5, Section 5313. ND indicates "none detected" above the lower limit of detection (LLD). Analytes marked with (*) indicate analytes for which no recovery was observed for a pre-spiked matrix sample.

The client sample was analyzed by Head-Space Gas Chromatography (HS-GC). The collected data was compared to data collected for certified reference standards at known concentrations.

43422-VC

Compound	CAS	Amount ¹	Limit ²	Status
Propane	74-98-6	ND	1,000 ppm	PASS
Isobutane	75-28-5	ND	1,000 ppm	PASS
Butane	106-97-8	ND	1,000 ppm	PASS
Methanol	67-56-1	8 ppm	3,000 ppm	PASS
Pentane	109-66-0	6 ppm	5,000 ppm	PASS
Ethanol	64-17-5	48 ppm	5,000 ppm	PASS
Acetone	67-64-1	16 ppm	5,000 ppm	PASS
Isopropanol	67-63-0	13 ppm	5,000 ppm	PASS
Acetonitrile	75-05-8	9 ppm	410 ppm	PASS
Hexane	110-54-3	ND	290 ppm	PASS
Heptane	142-82-5	ND	5,000 ppm	PASS

1) ND = None detected above 5 ppm.

2) In ppm, based on USP recommended limits for residual solvents, adopted by the Massachusetts Department of Public Health on 3/31/16. Butane/Propane limits are based on limits established for state of Colorado.

END OF REPORT