



Certificate ID: **101688**

Received: **1/27/22**

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Jonathan Moody

Client Sample ID: **Wave Hemp Tincture (Peppermint)**

5 Bellevue Avenue

Lot Number: **2**

Gloucester, MA 01930

Matrix: **Tincture/Infused Oil - MCT Oil**

Attn: Jonathan Moody



Authorization: Chris Hudalla, Chief Science Officer	Signature: 	Date: 2/4/2022
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The data contained within this report was collected in accordance with the requirements of ISO/IEC17025:2017. 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.

CN: Cannabinoid Profile & Potency [WI-10-17 & WI-10-17-01]

Analyst: SD

Test Date: 1/29/2022

The client sample was analyzed for plant-based cannabinoids by Liquid Chromatography (LC). The collected data was compared to data collected for certified reference standards at known concentrations.

101688-CN

ID	Weight %	Concentration (mg/mL)			
Δ9-THC	0.125	1.14			
THCV	ND	ND			
CBD	6.34	58.2			
CBDV	0.0372	0.341			
CBG	0.0605	0.555			
CBC	0.196	1.80			
CBN	<LOQ	<LOQ			
THCA	ND	ND			
CBDA	ND	ND			
CBGA	ND	ND			
Δ8-THC	ND	ND			
exo-THC	ND	ND			
Total	6.76	62.1	0%	Cannabinoids (wt%)	6.34%
Max THC	0.125	1.14		Limit of Quantitation (LOQ) =	0.0114 wt%
Max CBD	6.34	58.2		Limit of Detection (LOD) =	0.0038 wt%

Ratio of Total CBD to THC 50.9:1

Max THC (and Max CBD) are calculated values for total cannabinoids after heating, assuming complete decarboxylation of the acid to the neutral form. It is calculated based on the weight loss of the acid group during decarboxylation: MAX THC = (0.877 x THCA) + THC. This calculation does not include other cannabinoid isomers (eg. D8-THC and exo-THC). ND=None detected above the limits of detection (LOD), which is one third of Limit of Quantification (LOQ). For values reported as "<LOQ", the estimated value is included in the calculated Total.

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

Analyst: AEH

Test Date: 1/31/2022

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.

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Symbol	Metal	Conc. ¹ (µg/kg)	RL	Use Limits ² (µg/kg)	Status
As	Arsenic	ND	50.0	1,500	PASS
Cd	Cadmium	ND	50.0	500	PASS
Hg	Mercury	ND	50.0	1,500	PASS
Pb	Lead	ND	50.0	1,000	PASS

1) ND = None detected above the indicated Reporting Limit (RL)

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: BKB

Test Date: 1/31/2022

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.

101688-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

Recommended limits established by the American Herbal Pharmacopoeia (AHP) monograph for Cannabis Inflorescence [2013], for consumable botanical products, including processed and unprocessed cannabis materials, and solvent-based extracts. Note: All recorded Microbiological tests are within the established limits.

VC: Analysis of Volatile Organic Compounds [WI-10-28]

Analyst: CJS

Test Date: 2/1/2022

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.

101688-VC

Compound	CAS	Amount ¹	Limit ²	RL	Status
Propane	74-98-6	ND	1,000 ppm	4	PASS
Isobutane	75-28-5	ND	1,000 ppm	4	PASS
Butane	106-97-8	ND	1,000 ppm	4	PASS
Methanol	67-56-1	ND	3,000 ppm	100	PASS
Pentane	109-66-0	ND	5,000 ppm	100	PASS
Ethanol	64-17-5	741 ppm	5,000 ppm	100	PASS
Acetone	67-64-1	ND	5,000 ppm	100	PASS
Isopropanol	67-63-0	ND	5,000 ppm	100	PASS
Acetonitrile	75-05-8	ND	410 ppm	100	PASS
Hexane	110-54-3	ND	290 ppm	100	PASS
Heptane	142-82-5	ND	5,000 ppm	100	PASS

1) ND = Not detected at a level greater than the Reporting Limit (RL).

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

(*) For ethanol, as many formulations contain flavorings based on ethanol extracts of natural products, no status has been assigned.

END OF REPORT