

Certificate ID: **84789-219** Received: **7/24/20**
 Client Sample ID: **1oz Oil - 1000mg - FS - Mint**
 Lot Number: **SHW05-05**
 Matrix: **Tincture/Infused Oil - MCT Oil**

Scan QR Code for authenticity



Authorization: Chris Hudalla, Chief Science Officer	Signature: <i>Christopher Hudalla</i>	Date: 8/3/2020
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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: JFD

Test Date: 8/1/2020

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.

84789-CN

ID	Weight %	Concentration (mg/mL)			
D9-THC	0.0291	0.271			
THCV	ND	ND			
CBD	4.13	38.4			
CBDV	0.0191	0.178			
CBG	ND	ND			
CBC	0.0244	0.227			
CBN	ND	ND			
THCA	ND	ND			
CBDA	<LOQ	<LOQ			
CBGA	ND	ND			
D8-THC	ND	ND			
exo-THC	ND	ND			
Total	4.21	39.2	0%	Cannabinoids (wt%)	4.1%
Max THC	0.0291	0.271			
Max CBD	4.14	38.5			

Limit of Quantitation (LOQ) = 0.0113 wt%

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 LOQ.

TP: Terpenes Profile [WI-10-27]

Analyst: CA

Test Date: 7/28/2020

Client sample analysis was performed using full evaporative technique (FET) headspace sample delivery and gas chromatographic (GC) compound separation. A combination of flame ionization detection (FID) and/or mass spectrometric (MS) detection with mass spectral confirmation against the National Institute of Standards and Technology (NIST) Mass Spectral Database, Revision 2017 were used. Chromatographic and/or mass spectral data were processed by quantitatively comparing the analytical peak areas against calibration curves prepared from certified reference standards.

84789-TP

Compound	CAS	Conc. (wt%)	Conc. (ppm)	Qualitative Profile
alpha-pinene	80-56-8	0.0453	453	
camphene	79-92-5	0.0014	13.7	
sabinene*	3387-41-5	0.0262	262	
beta-myrcene	123-35-3	0.0472	472	
beta-pinene	127-91-3	0.0600	600	
alpha-phellandrene	99-83-2	0.0031	30.6	
delta-3-carene	13466-78-9	<RL	<RL	
alpha-terpinene	99-86-5	0.0056	56.3	
alpha-ocimene	502-99-8	0.0033	32.7	
D-limonene	138-86-3	0.517	5,170	
p-cymene	99-87-6	0.0224	224	
cis-beta-ocimene	3338-55-4	0.0061	60.7	
eucalyptol	470-82-6	0.224	2,240	
gamma-terpinene	99-85-4	0.0117	117	
terpinolene	586-62-9	0.0049	48.6	
linalool	78-70-6	0.0052	51.6	
L-fenchone*	7787-20-4	0.0008	8.46	
isopulegol	89-79-2	0.0097	97.1	
menthol*	89-78-1	0.365	3,650	
geraniol	106-24-1	0.0007	7.23	
beta-caryophyllene	87-44-5	0.0450	450	
alpha-humulene	6753-98-6	0.0030	30.2	
cis-nerolidol	3790-78-1	ND	ND	
trans-nerolidol	40716-66-3	ND	ND	
guaial	489-86-1	<RL	<RL	
caryophyllene oxide	1139-30-6	0.0011	10.9	
alpha-bisabolol	23089-26-1	0.0009	8.80	

wt% 0.00 0.50 1.00

Total Terpene: 1.4 wt%

* Certified reference standard not available for this compound. Concentration is estimated using the response factor from alpha-pinene. ND = None Detected. RL = Reporting Limit of 5 ppm.

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

Analyst: CA

Test Date: 7/30/2020

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.

84789-VC

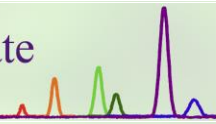
Compound	CAS	Amount ¹	Limit ²	RL	Status
Propane	74-98-6	ND	1,000 ppm	100	PASS
Isobutane	75-28-5	ND	1,000 ppm	100	PASS
Butane	106-97-8	ND	1,000 ppm	100	PASS
Methanol	67-56-1	ND	3,000 ppm	100	PASS
Pentane	109-66-0	ND	5,000 ppm	100	PASS
Ethanol	64-17-5	ND	5,000 ppm	100	PASS
Acetone	67-64-1	ND	5,000 ppm	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



Certificate ID: **78408-219** Received: **2/27/20**
 Client Sample ID: **Q2 2020 Full Spectrum Raw Material**
 Lot Number: **LE190789**
 Matrix: **Concentrates/Extracts - CO2**

Scan QR Code for authenticity



Authorization: Chris Hudalla, Chief Science Officer	Signature: <i>Christopher Hudalla</i>	Date: 8/3/2020
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CN: Cannabinoid Profile & Potency [WI-10-17 & WI-10-17-01]

Analyst: JDP

Test Date: 2/28/2020

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.

78408-CN

ID	Weight %	Concentration (mg/mL)			
D9-THC	0.211	1.95			
THCV	ND	ND			
CBD	26.7	246			
CBDV	0.0570	0.526			
CBG	ND	ND			
CBC	0.144	1.33			
CBN	ND	ND			
THCA	ND	ND			
CBDA	0.0151	0.139			
CBGA	ND	ND			
D8-THC	ND	ND			
exo-THC	ND	ND			
Total	27.1	250	0%	Cannabinoids (wt%)	26.7%
Max THC	0.211	1.95			
Max CBD	26.7	247			

Limit of Quantitation (LOQ) = 0.0114 wt%

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 LOQ.

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

Analyst: CJS

Test Date: 2/28/2020

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.

78408-HM

Symbol	Metal	Conc. ¹ (µg/kg)	RL	Use Limits ² (µg/kg)		Status
				All	Ingestion	
As	Arsenic	ND	50.0	200	1,500	PASS
Cd	Cadmium	ND	50.0	200	500	PASS
Hg	Mercury	ND	50.0	100	1,500	PASS
Pb	Lead	ND	50.0	500	1,000	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: MM

Test Date: 2/28/2020

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.

78408-MB1

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

PST: Pesticide Analysis [WI-10-11]*Analyst: CJR**Test Date: 3/3/2020*

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).

78408-PST

Analyte	CAS	Result	Units	LLD	Limits (ppb)	Status
Abamectin	71751-41-2	ND	ppb	0.2	300	PASS
Spinosad	168316-95-8	ND	ppb	0.1	3000	PASS
Pyrethrin	8003-34-7	ND	ppb	0.1	1000	PASS
Trifloxystrobin	141517-21-7	ND	ppb	0.10	30000	PASS
Spirotetramat	203313-25-1	ND	ppb	0.10	13000	PASS
Spiromesifen	283594-90-1	ND	ppb	0.10	12000	PASS
Piperonyl butoxide	51-03-6	ND	ppb	0.10	8000	PASS
Paclobotrazol	76738-62-0	ND	ppb	0.10	10	PASS
Myclobutanil	88671-89-0	ND	ppb	0.10	9000	PASS
Imidacloprid	138261-41-3	ND	ppb	0.10	3000	PASS
Imazalil	35554-44-0	ND	ppb	0.10	10	PASS
Fenoxycarb	72490-01-8	ND	ppb	0.10	10	PASS
Etoxazole	153233-91-1	ND	ppb	0.10	1500	PASS
Daminozide	1596-84-5	ND	ppb	10.00	10	*
Cyfluthrin	68359-37-5	ND	ppb	0.50	1000	PASS
Bifenthrin	82657-04-3	ND	ppb	0.20	500	PASS
Bifenazate	149877-41-8	ND	ppb	0.10	5000	PASS
Azoxystrobin	131860-33-8	ND	ppb	0.10	40000	PASS

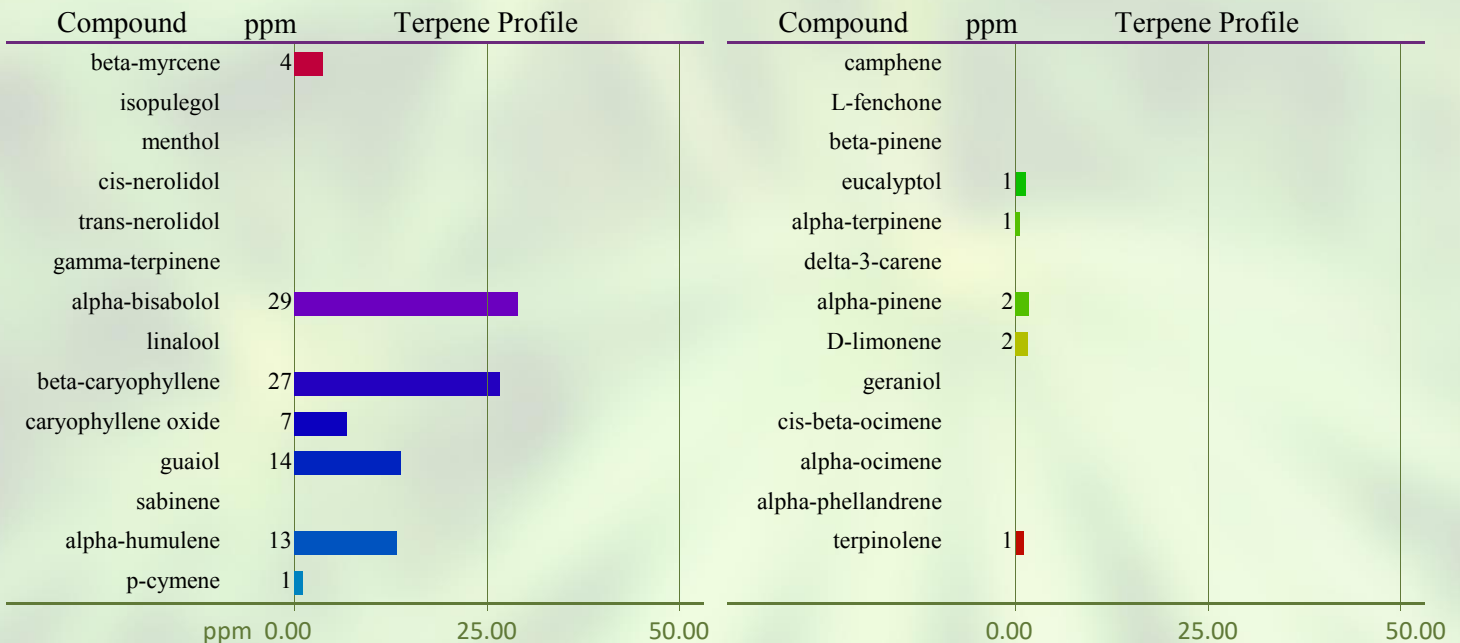
* Testing limits for ingestion established by the State of California: CCR, Title 16, Division 42, Chapter 5, Section 5313. ND indicates "none detected" above the lower limit of detection (LLD). Analytes marked with (*) indicate analytes for which no recovery was observed for a pre-spiked matrix sample.

TP: Terpenes Profile [WI-10-27]

Analyst: JR

Test Date: 2/29/2020

Client sample analysis was performed using full evaporative technique (FET) headspace sample delivery and gas chromatographic (GC) compound separation. A combination of flame ionization detection (FID) and/or mass spectrometric (MS) detection with mass spectral confirmation against the National Institute of Standards and Technology (NIST) Mass Spectral Database, Revision 2017 were used. Chromatographic and/or mass spectral data were processed by quantitatively comparing the analytical peak areas against calibration curves prepared from certified reference standards.

78408-TP

Total Terpene: <0.1 wt%

* Certified reference standard not available for this compound. Concentration is estimated using the response factor from alpha-pinene. ND = None Detected. RL = Reporting Limit of 5 ppm.

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

Analyst: JR

Test Date: 2/27/2020

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.

78408-VC

Compound	CAS	Amount ¹	Limit ²	RL	Status
Propane	74-98-6	ND	1,000 ppm	100	PASS
Isobutane	75-28-5	ND	1,000 ppm	100	PASS
Butane	106-97-8	ND	1,000 ppm	100	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	ND	5,000 ppm	100	*
Acetone	67-64-1	125 ppm	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