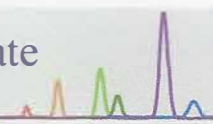


# Test Certificate



Certificate ID: **62880**

Received: **8/27/19**

Scan QR Code for authenticity

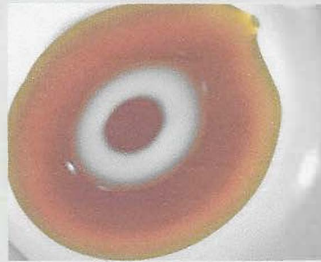
Client Sample ID: **MMB 82319**

Lot Number: **MMB82319**

Matrix: **Concentrates/Extracts - Alcohol**



Signature:  Date: **9/4/2019**



The data contained within this report was collected in accordance with the requirements of ISO/IEC 17025:2017. 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: **LCH**

Test Date: **8/27/2019**

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.

**62880-CN**

ID	Weight %	Concentration (mg/g)	
D9-THC	3.14	31.37	
THCV	0.39	3.92	
CBD	62.90	629.00	
CBDV	0.65	6.46	
CBG	1.17	11.69	
CBC	3.22	32.19	
CBN	ND	0.42	
THCA	ND	ND	
CBDA	0.60	5.96	
CBGA	ND	ND	
D8-THC	ND	ND	
exo-THC	ND	ND	
<b>Total</b>	<b>72.10</b>	<b>721.01</b>	<b>0% Cannabinoids (wt%) 62.9%</b>
Max THC	3.14	31.37	
Max CBD	63.42	634.22	

**Ratio of Total CBD to THC 20.2:1**

**Limit of Quantitation (LOQ) = 0.12 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:  $\text{Max THC} = (0.877 \times \text{THCA}) + \text{THC}$ . 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 half of LOQ.

**EA: Elemental Analysis [WI-10-13]**

Analyst: JFD

Test Date: 8/30/2019

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.

**62880-EA**

Symbol	Metal	Conc. <sup>1</sup>	MDL	Limits <sup>2</sup>	Status
Al	Aluminum	3,449 ug/kg	5 ug/kg	-	
As	Arsenic	11 ug/kg	4 ug/kg	200 ug/kg	PASS
Cd	Cadmium	4 ug/kg	1 ug/kg	200 ug/kg	PASS
Ca	Calcium	30,107 ug/kg	500 ug/kg	-	
Cr	Chromium	ND	5 ug/kg	300 ug/kg	PASS
Co	Cobalt	ND	10 ug/kg	300 ug/kg	PASS
Cu	Copper	ND	500 ug/kg	3000 ug/kg	PASS
Fe	Iron	958 ug/kg	5 ug/kg	-	
Pb	Lead	16 ug/kg	2 ug/kg	500 ug/kg	PASS
Mg	Magnesium	54,829 ug/kg	500 ug/kg	-	
Mn	Manganese	1,213 ug/kg	500 ug/kg	-	
Hg	Mercury	ND	2 ug/kg	100 ug/kg	PASS
Mo	Molybdenum	ND	50 ug/kg	1000 ug/kg	PASS
Ni	Nickel	ND	50 ug/kg	500 ug/kg	PASS
P	Phosphorus	289,906 ug/kg	500 ug/kg	-	
K	Potassium	2,112,847 ug/kg	5 ug/kg	-	
Se	Selenium	17 ug/kg	10 ug/kg	-	
Ag	Silver	ND	10 ug/kg	700 ug/kg	PASS
S	Sulfur	3,832 ug/kg	5 ug/kg	-	
Sn	Tin	ND	5000 ug/kg	6000 ug/kg	PASS
Zn	Zinc	1,355 ug/kg	5 ug/kg	-	

1) ND = None detected to the Method Detection Limit (MDL)

2) USP recommended maximum daily limits for inhalational drug product.

**MB1: Microbiological Contaminants [WI-10-09]**

Analyst: SJE

Test Date: 8/30/2019

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.

**62880-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	<10	CFU/g	100 CFU/g	PASS
EB	Total Bile Tolerant Gram Negative Count	<10	CFU/g	100 CFU/g	PASS
YM	Total Yeast & Mold	<100	CFU/g	1,000 CFU/g	PASS

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

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

Analyst: LabAdmin

Test Date: 8/31/2019

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.

**62880-MB2**

Test ID	Analysis	Results	Units	Limits*	Status
62880-ECPT	E. coli (O157)	Negative	NA	Non Detected	PASS
62880-SPT	Salmonella	Negative	NA	Non Detected	PASS

Note: All recorded pathogenic bacteria tests passed.

**MY: Mycotoxin Testing [WI-10-05]**

Analyst: AKR

Test Date: 8/30/2019

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.

**62880-MY**

Test ID	Date	Results	MDL	Limits	Status*
Total Aflatoxin	8/30/2019	< MDL	2 ppb	< 20 ppb	PASS
Total Ochratoxin	8/30/2019	< MDL	3 ppb	< 20 ppb	PASS

**PST: Pesticide Analysis [W1-10-11]**

Analyst: RAS

Test Date: 9/3/2019

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).

**62880-PST**

Analyte	CAS	Result	Units	LLD	Limits (ppb)	Status
Abamectin B1a	65495-55-3	ND	ppb	0.20	300	*
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
Pacllobutrazol	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

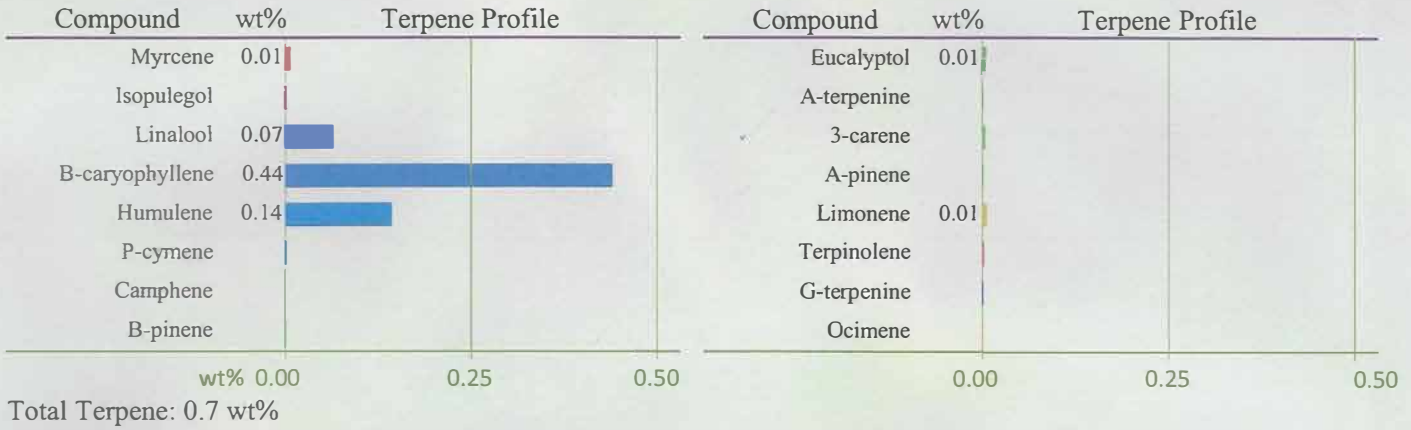
\* Testing limits for ingestion established by the State of California: CCR, Title 16, Division 42, Chapter 5, Section 5313. ND indicates "none detected" above the lower limit of detection (LLD). Analytes marked with (\*) indicate analytes for which no recovery was observed for a pre-spiked matrix sample.

**TP: Terpenes Profile [WI-10-08]**

Analyst: SJE

Test Date: 8/28/2019

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. All values are semiquantitative estimates based on recorded peak areas relative to terpene calibration data.

**62880-TP****VC: Analysis of Volatile Organic Compounds [WI-10-07]**

Analyst: SJE

Test Date: 8/27/2019

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.

**62880-VC**

Compound	CAS	Amount <sup>1</sup>	Limit <sup>2</sup>	RL	Status
Propane	74-98-6	ND	1,000 ppm	10	PASS
Isobutane	75-28-5	8 ppm	1,000 ppm	10	PASS
Butane	106-97-8	15 ppm	1,000 ppm	10	PASS
Methanol	67-56-1	ND	3,000 ppm	5	PASS
Pentane	109-66-0	ND	5,000 ppm	10	PASS
Ethanol	64-17-5	164 ppm	5,000 ppm	5	*
Acetone	67-64-1	16 ppm	5,000 ppm	5	PASS
Isopropanol	67-63-0	ND	5,000 ppm	5	PASS
Acetonitrile	75-05-8	6 ppm	410 ppm	5	PASS
Hexane	110-54-3	ND	290 ppm	10	PASS
Heptane	142-82-5	ND	5,000 ppm	5	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**