



Certificate ID: **63876**
 Client Sample ID: C
 Lot Number:
 Matrix: **Isolates - CBD**

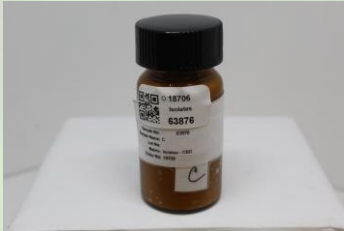
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Authorization: Jon Podgorni, Lead Research Chemist	Signature: 	Date: 9/17/2019
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The data contained within this report was collected in accordance with the requirements of ISO/IEC17025:2017. I attest 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: *LG*

Test Date: *9/13/2019*

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.

63876-CN

ID	Weight %	Concentration (mg/g)			
D9-THC	ND	ND			
THCV	ND	ND			
CBD	99.90	999.00			
CBDV	0.01	0.13			
CBG	ND	ND			
CBC	ND	ND			
CBN	ND	ND			
THCA	ND	ND			
CBDA	ND	ND			
CBGA	ND	ND			
D8-THC	ND	ND			
exo-THC	ND	ND			
Total	99.91	999.13	0%	Cannabinoids (wt%)	99.9%
Max THC	ND	ND			
Max CBD	99.90	999.00			

Limit of Quantitation (LOQ) = 0.005 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 half of LOQ.

EA: Elemental Analysis [WI-10-13]

Analyst: JFD

Test Date: 9/11/2019

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.

63876-EA

Symbol	Metal	Conc. ¹	MDL	Limits ²	Status
Al	Aluminum	1,771 ug/kg	5 ug/kg	-	
As	Arsenic	ND	4 ug/kg	200 ug/kg	PASS
Cd	Cadmium	ND	1 ug/kg	200 ug/kg	PASS
Ca	Calcium	840 ug/kg	500 ug/kg	-	
Cr	Chromium	133 ug/kg	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	1,713 ug/kg	5 ug/kg	-	
Pb	Lead	22 ug/kg	2 ug/kg	500 ug/kg	PASS
Mg	Magnesium	815 ug/kg	500 ug/kg	-	
Mn	Manganese	ND	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	178 ug/kg	50 ug/kg	500 ug/kg	PASS
P	Phosphorus	5,574 ug/kg	500 ug/kg	-	
K	Potassium	3,933 ug/kg	5 ug/kg	-	
Se	Selenium	ND	10 ug/kg	-	
Ag	Silver	ND	10 ug/kg	700 ug/kg	PASS
S	Sulfur	246 ug/kg	5 ug/kg	-	
Sn	Tin	ND	5000 ug/kg	6000 ug/kg	PASS
Zn	Zinc	ND	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: AEM

Test Date: 9/9/2019

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63876-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

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

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

Analyst: LabAdmin

Test Date: 9/10/2019

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.

63876-MB2

Test ID	Analysis	Results	Units	Limits*	Status
63876-ECPT	E. coli (O157)	Negative	NA	Non Detected	PASS
63876-SPT	Salmonella	Negative	NA	Non Detected	PASS

Note: All recorded pathogenic bacteria tests passed.

MY: Mycotoxin Testing [WI-10-05]

Analyst: AKR

Test Date: 9/10/2019

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.

63876-MY

Test ID	Date	Results	MDL	Limits	Status*
Total Aflatoxin	9/10/2019	< MDL	2 ppb	< 20 ppb	PASS
Total Ochratoxin	9/10/2019	< MDL	3 ppb	< 20 ppb	PASS

PST: Pesticide Analysis [WI-10-11]

Analyst: RAS

Test Date: 9/16/2019

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).

63876-PST

Analyte	CAS	Result	Units	LLD	Limits (ppb)	Status
Abamectin B1a	65495-55-3	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	PASS
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-10-27]

Analyst: CMA

Test Date: 9/11/2019

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.

63876-TP

Compound	ppm	Terpene Profile	Compound	ppm	Terpene Profile	
beta-myrcene			camphene			
isopulegol			L-fenchone			
menthol			beta-pinene			
cis-nerolidol			eucalyptol			
trans-nerolidol			alpha-terpinene			
gamma-terpinene			delta-3-carene			
alpha-bisabolol			alpha-pinene			
linalool			D-limonene			
beta-caryophyllene			geraniol			
caryophyllene oxide			cis-beta-ocimene			
guaiol			alpha-ocimene			
sabinene			alpha-phellandrene			
alpha-humulene			terpinolene			
p-cymene						
	ppm 0.00	5.00	10.00	0.00	5.00	10.00

Total Terpene: <0.1 wt%

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

Analyst: CMA

Test Date: 9/9/2019

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.

63876-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	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	121 ppm	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