



Certificate ID: **30929**

Received: **6/18/18**

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Client Sample ID: **CBD ISOLATE**

Lot Number: **ISO-100**

Matrix: **Concentrates/Extracts - Isolate**

|  |  |                   |
|--|--|-------------------|
| Authorization:<br>Matthew Silva, Chemical Engineer | Signature:<br> | Date:<br>7/9/2018 |
|--|--|-------------------|



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.

**CN: Cannabinoid Profile & Potency [WI-10-04]**

Analyst: **LG**

Test Date: **6/27/2018**

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

**30929-CN**

| ID             | Weight %          | Conc.              |           |                           |              |
|----------------|-------------------|--------------------|-----------|---------------------------|--------------|
| <b>Δ9-THC</b>  | <b>ND</b>         | <b>ND</b>          |           |                           |              |
| <b>THCV</b>    | <b>ND</b>         | <b>ND</b>          |           |                           |              |
| <b>CBD</b>     | <b>99.09 wt %</b> | <b>990.90 mg/g</b> |           |                           |              |
| <b>CBDV</b>    | <b>0.39 wt %</b>  | <b>3.90 mg/g</b>   |           |                           |              |
| <b>CBG</b>     | <b>ND</b>         | <b>ND</b>          |           |                           |              |
| <b>CBC</b>     | <b>ND</b>         | <b>ND</b>          |           |                           |              |
| <b>CBN</b>     | <b>ND</b>         | <b>ND</b>          |           |                           |              |
| <b>THCA</b>    | <b>ND</b>         | <b>ND</b>          |           |                           |              |
| <b>CBDA</b>    | <b>ND</b>         | <b>ND</b>          |           |                           |              |
| <b>CBGA</b>    | <b>ND</b>         | <b>ND</b>          |           |                           |              |
| <b>Total</b>   | <b>99.48 wt%</b>  | <b>994.80 mg/g</b> | <b>0%</b> | <b>Cannabinoids (wt%)</b> | <b>99.1%</b> |
| <b>Max THC</b> | <b>-</b>          | <b>-</b>           |           |                           |              |
| <b>Max CBD</b> | <b>99.09 wt%</b>  | <b>990.90 mg/g</b> |           |                           |              |

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. ND = None detected above the limits of detection (LLD)

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

Analyst: JFD

Test Date: 6/25/2018

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.

**30929-EA**

| Symbol | Metal      | Conc. <sup>1</sup> | MDL        | Limits <sup>2</sup> | Status |
|--------|------------|--------------------|------------|---------------------|--------|
| Al     | Aluminum   | 1,802 ug/kg        | 5 ug/kg    | -                   |        |
| As     | Arsenic    | ND                 | 4 ug/kg    | 15000 ug/kg         | PASS   |
| Cd     | Cadmium    | ND                 | 1 ug/kg    | 5000 ug/kg          | PASS   |
| Ca     | Calcium    | ND                 | 500 ug/kg  | -                   |        |
| Cr     | Chromium   | 24 ug/kg           | 5 ug/kg    | 45000 ug/kg         | PASS   |
| Co     | Cobalt     | ND                 | 10 ug/kg   | -                   |        |
| Cu     | Copper     | ND                 | 500 ug/kg  | 3100000 ug/kg       | PASS   |
| Fe     | Iron       | 171 ug/kg          | 5 ug/kg    | -                   |        |
| Pb     | Lead       | 21 ug/kg           | 2 ug/kg    | 400000 ug/kg        | PASS   |
| Mg     | Magnesium  | 532 ug/kg          | 500 ug/kg  | -                   |        |
| Mn     | Manganese  | ND                 | 500 ug/kg  | -                   |        |
| Hg     | Mercury    | ND                 | 2 ug/kg    | 9400 ug/kg          | PASS   |
| Mo     | Molybdenum | ND                 | 5000 ug/kg | -                   |        |
| Ni     | Nickel     | ND                 | 500 ug/kg  | 1500000 ug/kg       | PASS   |
| P      | Phosphorus | 10,196 ug/kg       | 500 ug/kg  | -                   |        |
| K      | Potassium  | ND                 | 5 ug/kg    | -                   |        |
| Se     | Selenium   | ND                 | 10 ug/kg   | -                   |        |
| Ag     | Silver     | ND                 | 10 ug/kg   | -                   |        |
| S      | Sulfur     | 2,297 ug/kg        | 5 ug/kg    | -                   |        |
| Sn     | Tin        | ND                 | 5000 ug/kg | -                   |        |
| Zn     | Zinc       | ND                 | 5 ug/kg    | 15000 ug/kg         | PASS   |

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

Analyst: MS

Test Date: 6/26/2018

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.

**30929-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.

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

Analyst: AR

Test Date: 6/27/2018

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.

**30929-MY**

| Test ID          | Date      | Results | MDL   | Limits   | Status* |
|------------------|-----------|---------|-------|----------|---------|
| Total Aflatoxin  | 6/27/2018 | < MDL   | 3 ppb | < 20 ppb | PASS    |
| Total Ochratoxin | 6/27/2018 | 2.4     | 2 ppb | < 20 ppb | PASS    |

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

Analyst: KSB

Test Date: 6/28/2018

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).

**30929-PST**

| Analyte            | CAS         | Result | Units | LLD   | Limits (ppb) | Status |
|--------------------|-------------|--------|-------|-------|--------------|--------|
| Abamectin          | 71751-41-2  | ND     | ppb   | 0.20  | 300          | PASS   |
| 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         | *      |
| Daminozide         | 1596-84-5   | ND     | ppb   | 10.00 | 10           | PASS   |
| Dichlorvos         | 62-73-7     | ND     | ppb   | 3.00  | 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.

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.

**30929-VC**

| Compound           | CAS      | Amount <sup>1</sup> | Limit <sup>2</sup> | Status |
|--------------------|----------|---------------------|--------------------|--------|
| Propane            | 74-98-6  | ND                  | N/A                | -      |
| Isobutane          | 75-28-5  | ND                  | 5,000 ppm          | PASS   |
| Butane             | 106-97-8 | ND                  | 5,000 ppm          | PASS   |
| Methanol           | 67-56-1  | ND                  | 3,000 ppm          | PASS   |
| 2-Methylbutane     | 78-78-4  | ND                  | N/A                | -      |
| Pentane            | 109-66-0 | 183 ppm             | 5,000 ppm          | PASS   |
| Ethanol            | 64-17-5  | ND                  | 5,000 ppm          | PASS   |
| Acetone            | 67-64-1  | ND                  | 5,000 ppm          | PASS   |
| Isopropanol        | 67-63-0  | ND                  | 5,000 ppm          | PASS   |
| Acetonitrile       | 75-05-8  | ND                  | 410 ppm            | PASS   |
| 2,3-Dimethylbutane | 79-29-8  | ND                  | N/A                | -      |
| 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**