



# Certificate of Analysis

## Cannabinoid Potency and Contaminant Analysis Report

Sample Name: Willow Top 25mg SG  
 Sample Type: Ingestible, Capsule, CO2  
 Sample ID: 1907AU0018.08614  
 Batch ID: WTH060719  
 METRC Tag: 1A400071267E6AD000004687

SOFTGEL CO  
 784 Valley Court, Unit E1  
 Grand Junction, CO 81505  
 Lic. #403H-63693.1

### Cannabinoid Profile

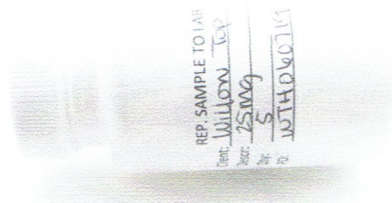
### Total Cannabinoids

| Analyte | LOQ<br>mg/unit | Amount<br>mg/unit | Amount<br>mg/g |
|---------|----------------|-------------------|----------------|
| THCa    | 0.16           | ND                | ND             |
| Δ9-THC  | 0.16           | 0.77              | 1.18           |
| Δ8-THC  | 0.07           | ND                | ND             |
| CBDa    | 0.16           | ND                | ND             |
| CBD     | 0.16           | 25.50             | 39.02          |
| CBDVa   | 0.07           | ND                | ND             |
| CBDV    | 0.07           | ND                | ND             |
| CBN     | 0.07           | ND                | ND             |
| CBGa    | 0.07           | ND                | ND             |
| CBG     | 0.07           | 0.42              | 0.65           |
| CBCa    | 0.07           | ND                | ND             |
| CBC     | 0.07           | 2.41              | 3.69           |
| CBL     | 0.07           | ND                | ND             |

| Analyte | Total*        |
|---------|---------------|
| THC     | 0.77 mg/unit  |
| CBD     | 25.50 mg/unit |
| CBG     | 0.42 mg/unit  |
| CBC     | 2.41 mg/unit  |
| CBDV    | <LOQ          |

\*Total is the sum of the neutral (active) cannabinoid and the completely converted acidic cannabinoid.

### Sample Photo



### Residual Solvent Analysis

| Analyte     | LOQ   | Limit  | Amount | Status |
|-------------|-------|--------|--------|--------|
|             | PPM   | PPM    | PPM    |        |
| Acetone     | 397.6 | 1000.0 | ND     | Pass   |
| Benzene     | 1.0   | 2.0    | ND     | Pass   |
| Butanes     | 50.7  | 1000.0 | ND     | Pass   |
| Ethanol     | 400.1 | 1000.0 | ND     | Pass   |
| Heptanes    | 52.0  | 1000.0 | ND     | Pass   |
| Hexanes     | 24.9  | 60.0   | ND     | Pass   |
| Isopropanol | 398.6 | 1000.0 | ND     | Pass   |
| n-Pentane   | 47.6  | 1000.0 | ND     | Pass   |
| Propane     | 50.7  | 1000.0 | ND     | Pass   |
| Toluene     | 22.0  | 180.0  | ND     | Pass   |
| Xylenes     | 33.4  | 430.0  | ND     | Pass   |

### Final Approval

### Microbial Contaminants

Results Approved By:  
 Lucas Mason, M.S.  
 Lab Director

Results Analyzed By:  
 Joshua Reilly  
 Analyst

| Analyte | Limit | Amount | Status |
|---------|-------|--------|--------|
|---------|-------|--------|--------|

Received: 07/02/2019

Tested: 07/02/2019

Reported: 07/03/2019

Definitions: LOQ= Limit of Quantitation, ND = Not Detected, CFU/g = Colony Forming Units per Gram

This product has been tested by Aurum Labs using valid testing methodologies and a quality system as required by state law. Values reported relate only to the product tested. Aurum Labs makes no claims as to the efficacy, safety or other risks associated with any detected or non-detected levels of any compounds reported herein. This Certificate shall not be reproduced except in full, without the written approval of Aurum Labs.

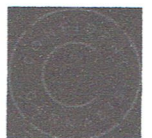


Aurum Labs  
 789 Tech Center Drive, Unit C  
 Durango, CO  
 (970) 422-1867  
 www.aurum-labs.com



Sample: 1907AU0018.08614

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# Certificate of Analysis

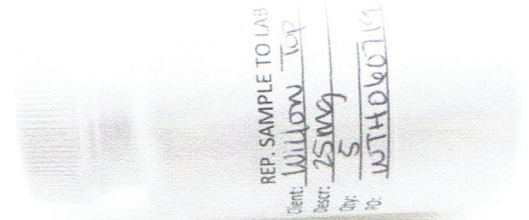
## Contaminant Analysis Report

Sample Name: Willow Top 25mg SG  
 Sample Type: Ingestible, Capsule, CO2  
 Sample ID: 1907AU0018.08614  
 Batch ID: WTH060719  
 METRC Tag: 1A400071267E6AD000004687

SOFTGEL CO  
 784 Valley Court, Unit E1  
 Grand Junction, CO 81505  
 Lic. #403H-63693.1

## Residual Solvent Analysis Results

| Analyte     | LOQ<br>PPM | Limit<br>PPM | Amount<br>PPM | Status |
|-------------|------------|--------------|---------------|--------|
| Acetone     | 397.6      | 1000.0       | ND            | Pass   |
| Benzene     | 1.0        | 2.0          | ND            | Pass   |
| Butanes     | 50.7       | 1000.0       | ND            | Pass   |
| Ethanol     | 400.1      | 1000.0       | ND            | Pass   |
| Heptanes    | 52.0       | 1000.0       | ND            | Pass   |
| Hexanes     | 24.9       | 60.0         | ND            | Pass   |
| Isopropanol | 398.6      | 1000.0       | ND            | Pass   |
| n-Pentane   | 47.6       | 1000.0       | ND            | Pass   |
| Propane     | 50.7       | 1000.0       | ND            | Pass   |
| Toluene     | 22.0       | 180.0        | ND            | Pass   |
| Xylenes     | 33.4       | 430.0        | ND            | Pass   |



## Final Approval

## Test Status

Results Approved By:  
 Lucas Mason, M.S.  
 Lab Director

Results Analyzed By:  
 Joshua Reilly  
 Analyst

Residual Solvent Analysis  
 Results

Pass

Received: 07/02/2019

Tested: 07/02/2019

Reported: 07/03/2019

Definitions: LOQ = Limit of Quantitation, ND = Not Detected, NT = Not Tested, CFU/g = Colony Forming Units per Gram

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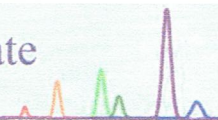


Sample: 1907AU0018.08614

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Certificate ID: **54970**

Received: **5/16/19**

Scan QR Code  
for authenticity



**Partnered Process**

**402 Travis ln unit 64**

**waukesha, wi 53189**

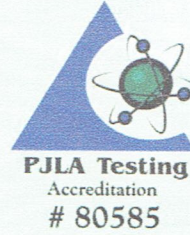
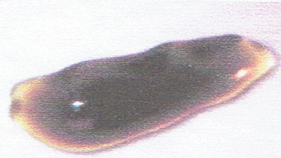
**Attn: Drew Faude**

Client Sample ID: **AC/DC Crude**

Lot Number: **171WT**

Matrix: **Concentrates/Extracts - Alcohol**

|  |                                   |                           |
|--|-----------------------------------|---------------------------|
| Authorization:<br><b>Jon Podgorni, Lab Manager</b> | Signature:<br><i>Jon Podgorni</i> | Date:<br><b>5/21/2019</b> |
|--|-----------------------------------|---------------------------|



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-10-17 & WI-10-17-01]**

Analyst: *JSG*

Test Date: *5/21/2019*

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.

**54970-CN**

| ID             | Weight %         | Concentration      |  |
|----------------|------------------|--------------------|--|
| D9-THC         | 2.14 wt %        | 21.41 mg/g         |  |
| THCV           | ND               | ND                 |  |
| CBD            | 57.87 wt %       | 578.66 mg/g        |  |
| CBDV           | ND               | ND                 |  |
| CBG            | 0.95 wt %        | 9.46 mg/g          |  |
| CBC            | 6.17 wt %        | 61.73 mg/g         |  |
| CBN            | ND               | ND                 |  |
| THCA           | ND               | ND                 |  |
| CBDA           | ND               | ND                 |  |
| CBGA           | ND               | ND                 |  |
| D8-THC         | ND               | ND                 |  |
| exo-THC        | ND               | ND                 |  |
| <b>Total</b>   | <b>67.13 wt%</b> | <b>671.26 mg/g</b> |  |
| <b>Max THC</b> | <b>2.14 wt%</b>  | <b>21.41 mg/g</b>  |  |
| <b>Max CBD</b> | <b>57.87 wt%</b> | <b>578.66 mg/g</b> |  |

**Ratio of Total CBD to THC 27.0:1**

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 (LLD)



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

Analyst: CMA

Test Date: 5/20/2019

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.

**54970-VC**

| Compound      | CAS      | Amount <sup>1</sup> | Limit <sup>2</sup> | RL  | Status |
|---------------|----------|---------------------|--------------------|-----|--------|
| Propane       | 74-98-6  | ND                  | 1,000 ppm          | 200 | PASS   |
| Isobutane     | 75-28-5  | ND                  | 1,000 ppm          | 200 | PASS   |
| Butane        | 106-97-8 | ND                  | 1,000 ppm          | 200 | PASS   |
| Methanol      | 67-56-1  | ND                  | 3,000 ppm          | 200 | PASS   |
| Ethanol       | 64-17-5  | 3,023 ppm           | 5,000 ppm          | 200 | PASS   |
| Acetone       | 67-64-1  | ND                  | 5,000 ppm          | 200 | PASS   |
| Isopropanol   | 67-63-0  | ND                  | 5,000 ppm          | 200 | PASS   |
| Acetonitrile  | 75-05-8  | ND                  | 410 ppm            | 200 | PASS   |
| Hexane        | 110-54-3 | ND                  | 290 ppm            | 200 | PASS   |
| Ethyl Acetate | 141-78-6 | 630 ppm             | 5,000 ppm          | 200 | PASS   |
| Heptane       | 142-82-5 | ND                  | 5,000 ppm          | 200 | 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 on 3/31/16. Butane/Propane limits are based on limits established for state of Colorado.

**END OF REPORT**



Certificate ID: **55467**

 Received: **5/24/19**

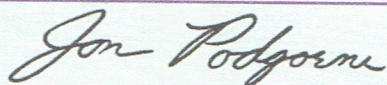
 Scan QR Code  
 for authenticity

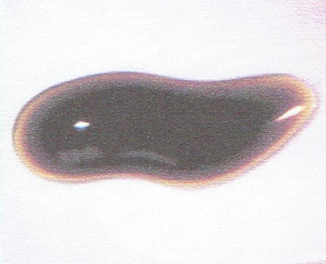
**Willow Top Hemp Farm**
**S3475 County Rd D**
**La Farge, WI 54639**
**Attn: Michael Sousa**

 Client Sample ID: **AC/DC**

 Lot Number: **171WT**

 Matrix: **Concentrates/Extracts - Alcohol**

|  |   |                          |
|--|---|--------------------------|
| <b>Authorization:</b><br>Jon Podgorni, Lab Manager | <b>Signature:</b><br> | <b>Date:</b><br>6/6/2019 |
|--|---|--------------------------|



The data contained within this report was collected in accordance with the requirements of ISO/IEC 17025:2005. 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.

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

 Analyst: *JFD*

Test Date: 5/29/2019

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.

**55467-HM**

| Symbol | Metal   | Conc. <sup>1</sup> | Units | MDL | Use Limits <sup>2</sup> |           | Units | Status |
|--------|---------|--------------------|-------|-----|-------------------------|-----------|-------|--------|
|        |         |                    |       |     | All                     | Ingestion |       |        |
| As     | Arsenic | 82                 | µg/kg | 4   | 200                     | 1500      | µg/kg | PASS   |
| Cd     | Cadmium | 8                  | µg/kg | 1   | 200                     | 500       | µg/kg | PASS   |
| Hg     | Mercury | ND                 | µg/kg | 2   | 100                     | 1500      | µg/kg | PASS   |
| Pb     | Lead    | 76                 | µg/kg | 2   | 500                     | 1000      | µg/kg | 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: 5/28/2019

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.

**55467-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: 5/29/2019

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.

**55467-MB2**

| Test ID     | Analysis       | Results  | Units | Limits*      | Status |
|-------------|----------------|----------|-------|--------------|--------|
| 55467 -ECPT | E. coli (O157) | Negative | NA    | Non Detected | PASS   |
| 55467 -SPT  | Salmonella     | Negative | NA    | Non Detected | PASS   |

Note: All recorded pathogenic bacteria tests passed.

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

Analyst: AR

Test Date: 5/31/2019

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.

**55467-MY**

| Test ID          | Date      | Results | MDL   | Limits   | Status* |
|------------------|-----------|---------|-------|----------|---------|
| Total Aflatoxin  | 5/31/2019 | < MDL   | 2 ppb | < 20 ppb | PASS    |
| Total Ochratoxin | 5/31/2019 | < MDL   | 3 ppb | < 20 ppb | PASS    |



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

Analyst: RAS

Test Date: 6/6/2019

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).

**55467-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          | PASS   |
| Azoxystrobin       | 131860-33-8 | 57     | 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.

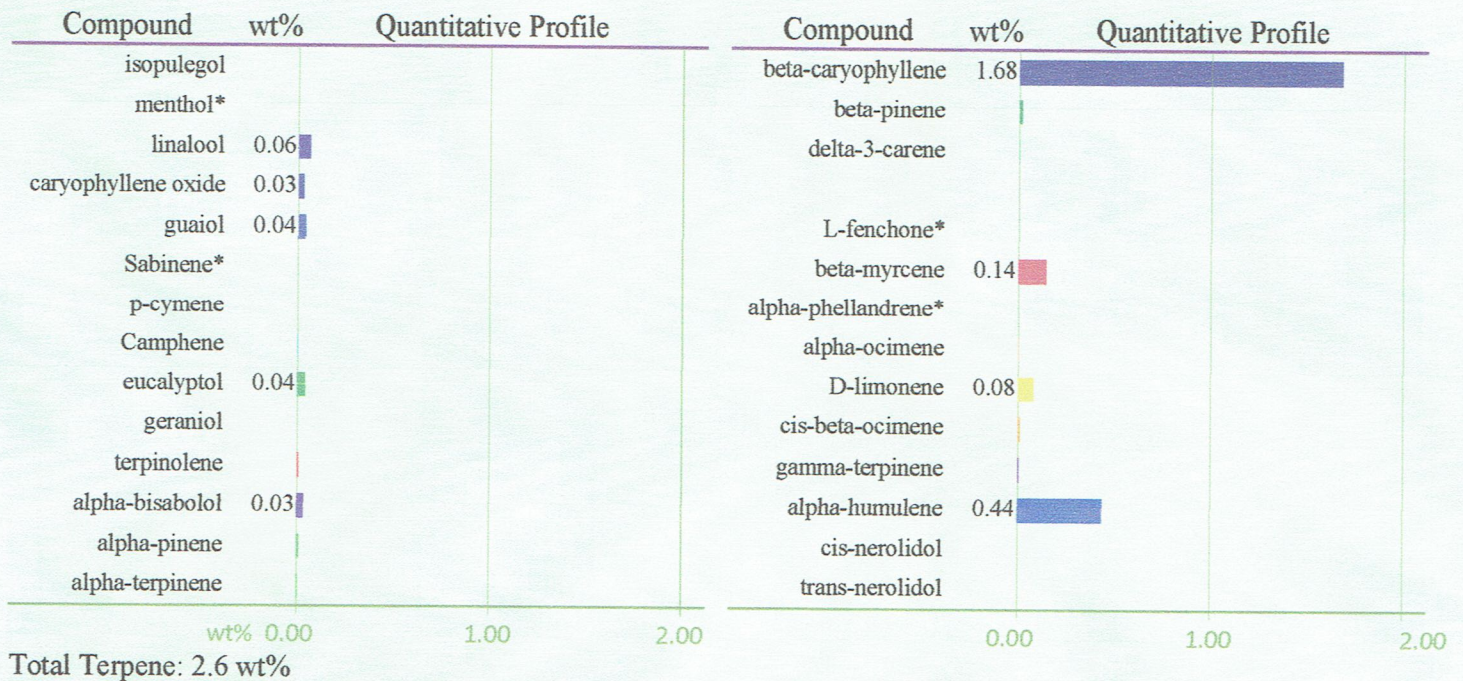


**TP: Terpenes Profile [WI-10-27]**

Analyst: CMA

Test Date: 5/29/2019

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 qualitative based on recorded peak areas

**55467-TP****VC: Analysis of Volatile Organic Compounds [WI-10-28]**

Analyst: CMA

Test Date: 6/3/2019

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.

**55467-VC**

| Compound      | CAS      | Amount <sup>1</sup> | Limit <sup>2</sup> | RL  | Status |
|---------------|----------|---------------------|--------------------|-----|--------|
| Propane       | 74-98-6  | ND                  | 1,000 ppm          | 200 | PASS   |
| Isobutane     | 75-28-5  | ND                  | 1,000 ppm          | 200 | PASS   |
| Butane        | 106-97-8 | ND                  | 1,000 ppm          | 200 | PASS   |
| Methanol      | 67-56-1  | ND                  | 3,000 ppm          | 200 | PASS   |
| Ethanol       | 64-17-5  | 3,136 ppm           | 5,000 ppm          | 200 | PASS   |
| Acetone       | 67-64-1  | 268 ppm             | 5,000 ppm          | 200 | PASS   |
| Isopropanol   | 67-63-0  | ND                  | 5,000 ppm          | 200 | PASS   |
| Acetonitrile  | 75-05-8  | ND                  | 410 ppm            | 200 | PASS   |
| Hexane        | 110-54-3 | ND                  | 290 ppm            | 200 | PASS   |
| Ethyl Acetate | 141-78-6 | 627 ppm             | 5,000 ppm          | 200 | PASS   |
| Heptane       | 142-82-5 | ND                  | 5,000 ppm          | 200 | 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 on 3/31/16. Butane/Propane limits are based on limits established for state of Colorado.

**END OF REPORT**