



N63 W22595 Main St.  
Sussex, WI, 53089  
Info@WIHempSci.com

Date Printed: 01-30-2020  
Invoice: #000062&

### Certificate of Analysis - Cannabinoid Profile

<b>Client:</b>	Hemp Works LLC	<b>Date of Analysis:</b>	01-30-2020								
<b>WHS Customer #:</b>	WHSAA004	<b>Batch ID:</b>	20200130-3								
<b>Credit Balance:</b>	0	<table border="1"> <thead> <tr> <th colspan="2">THC Equivalents Key</th> </tr> </thead> <tbody> <tr> <td>0.00 – 0.28%</td> <td>Safe within State Limit*</td> </tr> <tr> <td>0.29 – 0.39%</td> <td>Nearing State Limit*</td> </tr> <tr> <td>&gt;0.39%</td> <td>Exceeding State Limit*</td> </tr> </tbody> </table> <p><small>*THC limits based on Wisconsin DATCP regulations</small></p>		THC Equivalents Key		0.00 – 0.28%	Safe within State Limit*	0.29 – 0.39%	Nearing State Limit*	>0.39%	Exceeding State Limit*
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0.00 – 0.28%	Safe within State Limit*										
0.29 – 0.39%	Nearing State Limit*										
>0.39%	Exceeding State Limit*										
<b>Sample Type:</b>	Tincture										
<b>Sample Name:</b>	CBG 500mg 15mL										

Sample Cannabinoid Results		
	wt%	mg/g
Cannabidiolic acid (CBDA)	0.00%	ND
Cannabigerol (CBG)	0.17%	1.74
Cannabidiol (CBD)	4.07%	40.65
Cannabinol (CBN)	0.00%	ND
Delta-9-Tetrahydrocannabinol (d9-THC)	0.00%	ND
Tetrahydrocannabinolic acid (THCA)	0.00%	ND

Additional Parameters
<b>Moisture Content</b>
-
<b>Sample Image</b>
-
<b>Chromatogram</b>
-

CBD and THC Equivalents			
	wt%	mg/g	mg/lbs
<b>CBD Equivalents</b>	4.07%	40.65	18,456
<b>THC Equivalents</b>	0.00%	ND	ND
<b>CBD:THC Ratio</b>	THC Free		

*Benjamin Kluge*

Lab Personnel Signature

**01-30-2020**

Date Signed



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## **WHS Testing Services - Scope**

### ***CBD and THC Equivalents explained***

CBD equivalents are defined as the sum of CBD and a portion of CBDA found in the tested sample mentioned above. The calculation for CBD equivalents is as follows:

$$\text{CBD Equivalents} = \text{CBD} + 0.877(\text{CBDA})$$

THC equivalents are defined as the sum of d9-THC and a portion of THCA found in the tested sample mentioned above. The calculation for THC equivalents is as follows:

$$\text{THC Equivalents} = \text{d9-THC} + 0.877(\text{THCA})$$

A constant value of 0.877 is implemented to account for the non-conversion of CBDA and THCA into CBD and d9-THC during industrial processes, respectively.

### ***Result Interpretations***

WHS lab staff are trained to adhere to the standards of practice established by WHS to conduct and troubleshoot experimentation as they relate to cannabinoid testing. Staff do not have specialties or credentials to answer questions or provide guidance in the areas including but not limited to growing, harvesting, extracting, differentiating “good and bad results,” and business operations conducted by WHS.

### ***Sample Preparation***

The analytical team takes care to report results that are representative of your sample while not compromising our range of detection or standards of practice. For tinctures, crudes, and formulated products, we premix each sample to homogenize the final sample to ensure accuracy and precision of the entire sample. Likewise, for flower and biomass products, we take a portion of each plant system (between flower and leaf in a 80/20% ratio, respectively) to go into the final sample to be tested.

### ***Testing Variability - Margin of Uncertainty (MOU)***

Even with standards of practice being followed and equipment calibrated daily, there can be a certain degree of variability in testing samples. Our HPLC and analytical equipment has a calculated margin of uncertainty (MOU) that is factored in to your COAs results.

It should be understood that testing may not be reproduced except in its entirety. The variability in several sample types do not allow for the same results, even when from the same origin source. This is more so true for flower samples, but may still be applied to crudes, tinctures, balms, and distillate/isolate.



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## **Terms of Use**

### ***Chain of Custody***

The chain of custody form you submit with your samples remains unbroken from the time of receiving your samples until our seven-business day holding period elapses. Your samples are held in-house, isolated from other samples to prevent cross-contamination, and only handled by certified lab personnel. Our seven-day holding day period is to allow re-tests of the sample at the request and expense of the tester.

### ***Privacy***

WHS will not release test results to any public entity other than the sole individual documented on the COA at the time of request. Test results will be held in house for a period of five years from the date results were documented. WHS reserves the right to publish data for the purposes of research and collaboration to promote and foster hemp research and advancement. In cases where data is relinquished in this fashion, data points will be masked to ensure no personal information is transmitted as to be traced back to the individual tester/company.

### ***Disclaimer***

The results reported in this certificate are solely for the purposes of research and development. This report is only for the sample listed above and may not be reproduced except in its entirety. This COA does not replace Wisconsin Department of Agriculture, Trade, and Consumer Protection mandatory THC testing.

## **Questions**

If any questions pertaining to testing and/or the analytical department are not covered in this COA, please contact our department at [Ben@WiHempSci.com](mailto:Ben@WiHempSci.com). Please expect a 2-3 business day period before response to individual emails.