

Certificate of Analysis - Cannabinoid Profile

Client:	Hemp Works LLC	Date of Analysis:	20200221								
WHS Customer #:	WHSAA004	Batch ID:	20200221-5								
Credit Balance:	-	<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>>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*
THC Equivalents Key											
0.00 – 0.28%	Safe within State Limit*										
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>0.39%	Exceeding State Limit*										
Sample Type:	Tincture										
Sample Name:	2000mg FS Tincture										

Sample Cannabinoid Results		
	wt%	mg/g
Cannabidivarin (CBDV)	0.13%	1.29
Cannabidiolic acid (CBDA)	0.00%	ND
Cannabigerol acid (CBGA)	0.00%	ND
Cannabigerol (CBG)	0.00%	ND
Cannabidiol (CBD)	8.72%	87.23
Cannabinol (CBN)	0.12%	1.21
Delta-9-Tetrahydrocannabinol (d9-THC)	0.00%	ND
Delta-8-Tetrahydrocannabinol (d8-THC)	0.14%	1.40
Cannabichromene (CBC)	0.00%	ND
Tetrahydrocannabinolic acid (THCA)	0.00%	ND

Additional Parameters
Moisture Content
-
Sample Image
-
Chromatogram
-

CBD and THC Equivalents			
	wt%	mg/g	mg/lbs
CBD Equivalents	8.72%	87.23	39,602
THC Equivalents	0.14%	1.40	636
CBD:THC Ratio	62:1		

Benjamin Kluge

Lab Personnel Signature

20200221

Date Signed

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 molecular mass difference of CBDA and THCA from CBD and d9-THC, respectively.

Result Interpretations

[Wisconsin Hemp Scientific](#) (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 (MU)

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.

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. Please expect a 2-3 business day period before responding to individual emails.

Commitment to Quality

WHS Analytical Labs strives to offer the highest quality in both our product offerings and customer service. By taking our brief, [ten question survey](#), you can help us shape your ideal customer experience by voicing your opinions on how we are doing and what we can do to offer you more value for your dollar.