



Certificate ID: **42112 (Reissued)**

Received: **10/23/18**

Scan QR Code for authenticity



**Sustainable Aquatics**

**110 W OLD ANDREW JOHNSON HWY  
JEFFERSON CITY, TN 37760**

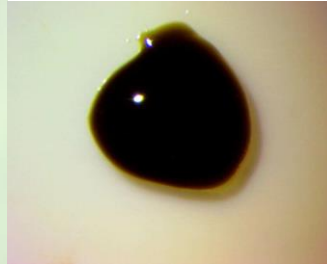
**Attn: Matthew Carberry**

Client Sample ID: **HOKYTN02**

Lot Number: **GSLot5**

Matrix: **Concentrates/Extracts - Rick Simpson Oil**

Authorization: Chris Hudalla, Chief Science Officer	Signature: 	Date: 11/23/2018
--	--	---------------------



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-10-17]**

Analyst: **LG**

Test Date: **11/13/2018**

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.

**42112-CN**

ID	Weight %	Conc.		
D9-THC	1.48 wt %	14.79 mg/g		
THCV	ND	ND		
CBD	35.43 wt %	354.32 mg/g		
CBDV	ND	ND		
CBG	0.43 wt %	4.25 mg/g		
CBC	2.94 wt %	29.35 mg/g		
CBN	0.05 wt %	0.55 mg/g		
THCA	ND	ND		
CBDA	ND	ND		
CBGA	ND	ND		
Total	40.33 wt%	403.26 mg/g	0%	Cannabinoids (wt%) 35.4%
Max THC	1.48 wt%	14.79 mg/g		
Max CBD	35.43 wt%	354.32 mg/g		

**Ratio of Total CBD to THC 24.0:1**

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

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

Analyst: JFD

Test Date: 11/6/2018

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.

**42112-EA**

Symbol	Metal	Conc. <sup>1</sup>	MDL	Limits <sup>2</sup>	Status
Al	Aluminum	ND	5 ug/kg	-	
As	Arsenic	34 ug/kg	4 ug/kg	150 ug/kg	PASS
Cd	Cadmium	ND	1 ug/kg	150 ug/kg	PASS
Ca	Calcium	17,923 ug/kg	500 ug/kg	-	
Cr	Chromium	9 ug/kg	5 ug/kg	2500 ug/kg	PASS
Co	Cobalt	ND	10 ug/kg	-	
Cu	Copper	6,569 ug/kg	500 ug/kg	10000 ug/kg	PASS
Fe	Iron	12,091 ug/kg	5 ug/kg	-	
Pb	Lead	ND	2 ug/kg	500 ug/kg	PASS
Mg	Magnesium	463,851 ug/kg	500 ug/kg	-	
Mn	Manganese	5,104 ug/kg	500 ug/kg	-	
Hg	Mercury	ND	2 ug/kg	150 ug/kg	PASS
Mo	Molybdenum	ND	5000 ug/kg	1000 ug/kg	PASS
Ni	Nickel	ND	500 ug/kg	150 ug/kg	PASS
P	Phosphorus	ND	500 ug/kg	-	
K	Potassium	ND	5 ug/kg	-	
Se	Selenium	ND	10 ug/kg	-	
Ag	Silver	ND	10 ug/kg	-	
S	Sulfur	3,527 ug/kg	5 ug/kg	-	
Sn	Tin	5,279 ug/kg	5000 ug/kg	-	
Zn	Zinc	15,365 ug/kg	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: Alyssa

Test Date: 10/24/2018

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.

**42112-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: 10/25/2018

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.

**42112-MB2**

Test ID	Analysis	Results	Units	Limits*	Status
42112-ECPT	E. coli (O157)	Negative	NA	Non Detected	PASS
42112-SPT	Salmonella	Negative	NA	Non Detected	PASS

Note: All recorded pathogenic bacteria tests passed.

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

Analyst: CJB

Test Date: 11/2/2018

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.

**42112-MY**

Test ID	Date	Results	MDL	Limits	Status*
Total Aflatoxin	11/2/2018	< MDL	3 ppb	< 20 ppb	PASS
Total Ochratoxin	11/2/2018	< MDL	2 ppb	< 20 ppb	PASS

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

Analyst: CJH

Test Date: 11/9/2018

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).

**42112-PST**

Analyte	CAS	Result	Units	LLD	Limits (ppb)	Status
Abamectin	71751-41-2	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	*
Daminozide	1596-84-5	ND	ppb	10.00	10	PASS
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
Paclbutrazol	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	*

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.

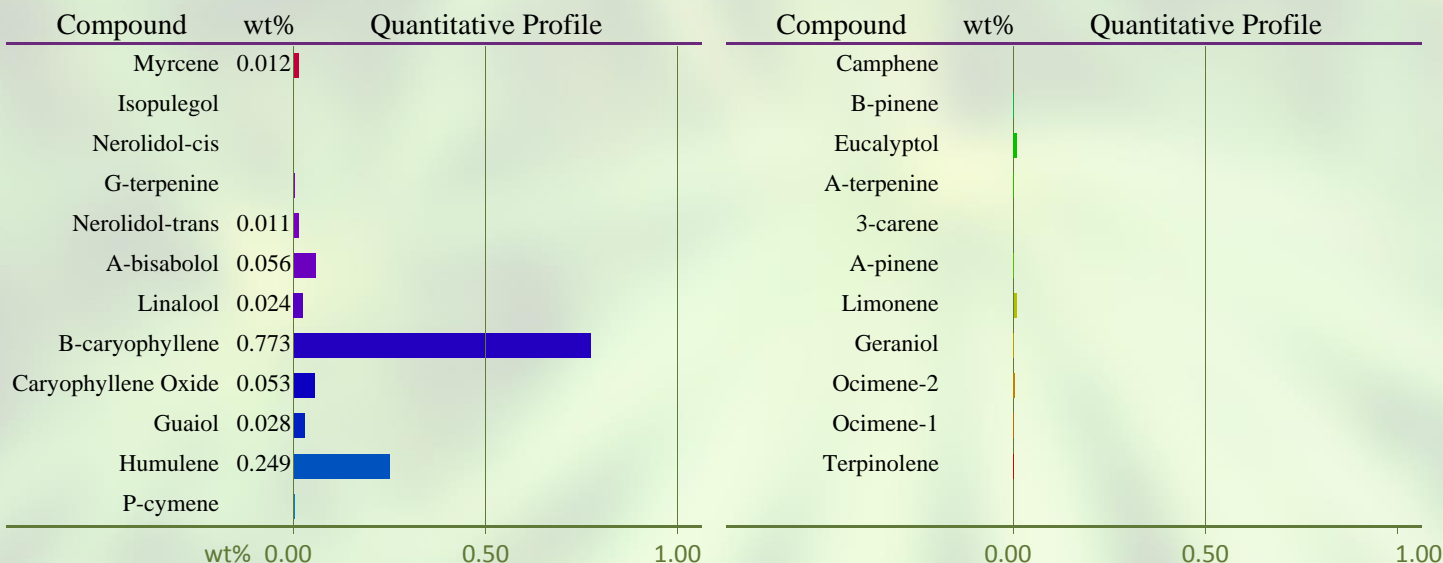
### TP: Terpenes Profile [WI-10-08]

Analyst: CMA

Test Date: 11/7/2018

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.

#### 42112-TP



Total Terpene: 1.2 wt%

\* Indicates qualitative calculation based on recorded peak areas.

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

Analyst:

Test Date: 11/13/2018

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. This certificate has been reissued to correct Residual Solvent Concentrations, which were initially over-reported due to an inappropriate scaling factor used.

#### 42112-VC

Compound	CAS	Amount <sup>1</sup>	Limit <sup>2</sup>	Status
Pyridine	110-86-1	5 ppm	200 ppm	PASS
Ethylene Glycol	107-21-1	61 ppm	620 ppm	PASS
1-Pentanol	71-41-0	16 ppm	5,000 ppm	PASS
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	636 ppm	3,000 ppm	PASS
Ethanol	64-17-5	1,085 ppm	5,000 ppm	PASS
Acetone	67-64-1	300 ppm	5,000 ppm	PASS
Isopropanol	67-63-0	42 ppm	5,000 ppm	PASS



Acetonitrile	75-05-8	ND	410 ppm	PASS
Hexane	110-54-3	ND	290 ppm	PASS
2-Butanone	78-93-3	9 ppm	N/A	-
Ethyl Acetate	141-78-6	14 ppm	5,000 ppm	PASS
Heptane	142-82-5	ND	5,000 ppm	PASS
1-Butanol	71-36-3	9 ppm	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