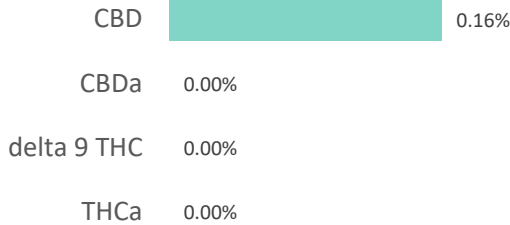
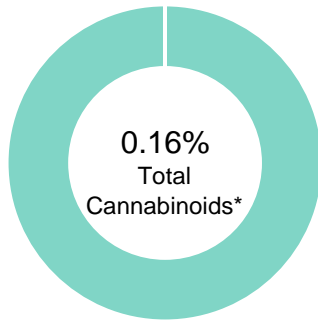


**RUGBY HEMP BALM 846019**

<b>Batch ID:</b>	RUGBY HEMP BALM 846019	<b>Test ID:</b>	4689039.0046
<b>Reported:</b>	4-Feb-2020	<b>Method:</b>	TM14
<b>Type:</b>	Concentrate		
<b>Test:</b>	Potency		

**CANNABINOID PROFILE**


Compound	LOQ (%)	Result (%)	Result (mg/g)
Delta 9-Tetrahydrocannabinolic acid (THCA-A)	0.02	0.00	0.0
Delta 9-Tetrahydrocannabinol (Delta 9THC)	0.01	0.00	0.0
Cannabidiolic acid (CBDA)	0.02	0.00	0.0
Cannabidiol (CBD)	0.01	0.16	1.6
Delta 8-Tetrahydrocannabinol (Delta 8THC)	0.01	0.00	0.0
Cannabinolic Acid (CBNA)	0.02	0.00	0.0
Cannabinol (CBN)	0.01	0.00	0.0
Cannabigerolic acid (CBGA)	0.01	0.00	0.0
Cannabigerol (CBG)	0.01	0.00	0.0
Tetrahydrocannabivarinic Acid (THCVA)	0.01	0.00	0.0
Tetrahydrocannabivarin (THCV)	0.01	0.00	0.0
Cannabidivarinic Acid (CBDVA)	0.02	0.00	0.0
Cannabidivarin (CBDV)	0.01	0.00	0.0
Cannabichromenic Acid (CBCA)	0.01	0.00	0.0
Cannabichromene (CBC)	0.02	0.00	0.0
<b>Total Cannabinoids</b>		<b>0.16</b>	<b>1.60</b>
Total Potential THC**		0.00	0.00
Total Potential CBD**		0.16	1.60

**NOTES:**

N/A

% = % (w/w) = Percent (Weight of Analyte / Weight of Product)


\* Total Cannabinoids result reflects the absolute sum of all cannabinoids detected.

\*\* Total Potential THC/CBD is calculated using the following formulas to take into account the loss of a carboxyl group during decarboxylation step.

$$\text{Total THC} = \text{THC} + (\text{THCa} * (0.877)) \text{ and Total CBD} = \text{CBD} + (\text{CBDa} * (0.877))$$
**FINAL APPROVAL**


Daniel Weidensaul  
 4-Feb-2020  
 11:36 AM

PREPARED BY / DATE



Greg Zimpfer  
 4-Feb-2020  
 3:26 PM

APPROVED BY / DATE

Testing results are based solely upon the sample submitted to Botanacor Laboratories, LLC, in the condition it was received. Botanacor Laboratories, LLC warrants that all analytical work is conducted professionally in accordance with all applicable standard laboratory practices using validated methods. Data was generated using an unbroken chain of comparison to NIST traceable Reference Standards and Certified Reference Materials. This report may not be reproduced, except in full, without the written approval of Botanacor Laboratories, LLC. ISO/IEC 17025:2005 Accredited A2LA Certificate Number 4329.02



**RUGBY HEMP BALM 846019**

<b>Batch ID:</b>	RUGBY HEMP BALM 846019	<b>Test ID:</b>	T000052602
<b>Reported:</b>	20-Jan-2020	<b>Method:</b>	Topical - Test Methods: TM05, TM06
<b>Type:</b>	Topical		
<b>Test:</b>	Microbial Contaminants		

**MICROBIAL CONTAMINANTS**


Contaminant	Result (CFU/g)*
<b>Total Aerobic Count**</b>	None Detected
<b>Total Coliforms**</b>	None Detected
<b>Total Yeast and Molds**</b>	None Detected
<b>E. coli</b>	None Detected
<b>Salmonella</b>	None Detected

\* CFU/g = Colony Forming Unit per Gram

\*\* Values recorded in scientific notation, a common microbial practice of expressing numbers that are too large to be conveniently written in decimal form.

Examples:  $10^2 = 100$  CFU  
 $10^3 = 1,000$  CFU  
 $10^4 = 10,000$  CFU  
 $10^5 = 100,000$  CFU

## NOTES:

Free from visual mold, mildew, and foreign matter  
TYM: None Detected  
Total Aerobic: None Detected  
Coliforms: None Detected**FINAL APPROVAL**  
Robert Belfon  
18-Jan-2020  
8:21 PM  
Greg Zimpfer  
20-Jan-2020  
8:33 AM

PREPARED BY / DATE

APPROVED BY / DATE

Testing results are based solely upon the sample submitted to Botanacor Laboratories, LLC, in the condition it was received. Botanacor Laboratories, LLC warrants that all analytical work is conducted professionally in accordance with all applicable standard laboratory practices using validated methods. Data was generated using an unbroken chain of comparison to NIST traceable Reference Standards and Certified Reference Materials. This report may not be reproduced, except in full, without the written approval of Botanacor Laboratories, LLC. ISO/IEC 17025:2005 Accredited A2LA Certificate Number 4329.03



Certificate #4329.03

## Certificate of Analysis

### Elixinol, LLC

555 Burbank Street, Unit J  
Bloomfield Colorado 80020 United States

<b>Sample Name:</b>	<b>Rugby Hemp Balm 846019</b>	<b>Eurofins Sample:</b>	<b>9180896</b>
<b>Project ID</b>	ELIXINOL-20200114-0005	<b>Receipt Date</b>	17-Jan-2020
<b>PO Number</b>	CVD	<b>Receipt Condition</b>	Ambient temperature
<b>Lot Number</b>	Rugby Hemp Balm 846019	<b>Login Date</b>	14-Jan-2020
<b>Sample Serving Size</b>		<b>Date Started</b>	17-Jan-2020
		<b>Sampled</b>	Sample results apply as received
		<b>Online Order</b>	13484-12E0844B

#### Analysis

#### Result

#### Enterobacteriaceae (Bile-Tolerant Gram-Negative Bacteria) \*

Enterobacterial Count <10 MPN/g

#### Elements by ICP Mass Spectrometry

Arsenic <100 ppb  
Cadmium <50.0 ppb  
Lead <50.0 ppb  
Mercury <50.0 ppb

#### Mycotoxins in Raw Materials

Aflatoxin B1 0.520 ppb  
Aflatoxin B2 <0.500 ppb  
Aflatoxin G1 <0.500 ppb  
Aflatoxin G2 <0.500 ppb  
Ochratoxin A <1.00 ppb

#### Glyphosate and AMPA \*

Glyphosate <100 ng/g  
AMPA <100 ng/g

#### Multi-Residue Analysis for hemp products - 60+ compounds

Matrix Type - To Determine Limit of Quantification (LOQ) Spices - Botanicals - and other Specialty Samples

Abamectin <0.30 mg/kg  
Aldicarb <0.10 mg/kg  
Aldicarb sulfone (Aldoxycarb) <0.10 mg/kg  
Aldicarb sulfoxide <0.10 mg/kg  
Azoxystrobin <0.10 mg/kg  
Bifenazate <0.10 mg/kg  
Bifenthrin <0.10 mg/kg  
Carbaryl <0.10 mg/kg  
Carbofuran <0.10 mg/kg  
Carbofuran-3-hydroxy- <0.10 mg/kg  
Chlorantraniliprole <0.10 mg/kg  
Chlordane, cis- <0.10 mg/kg  
Chlordane, trans- <0.10 mg/kg  
Chlorfenapyr <0.10 mg/kg

\* This analysis or component is not ISO accredited.

## Certificate of Analysis

### Elixinol, LLC

555 Burbank Street, Unit J  
Bloomfield Colorado 80020 United States

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<b>Project ID</b>	ELIXINOL-20200114-0005	<b>Receipt Date</b>	17-Jan-2020
<b>PO Number</b>	CVD	<b>Receipt Condition</b>	Ambient temperature
<b>Lot Number</b>	Rugby Hemp Balm 846019	<b>Login Date</b>	14-Jan-2020
<b>Sample Serving Size</b>		<b>Date Started</b>	17-Jan-2020
		<b>Sampled</b>	Sample results apply as received
		<b>Online Order</b>	13484-12E0844B

### Analysis

### Result

#### Multi-Residue Analysis for hemp products - 60+ compounds

Chlorpyrifos	<0.10 mg/kg
Coumaphos	<0.10 mg/kg
Cyfluthrin	<0.10 mg/kg
Cypermethrin	<0.10 mg/kg
Cyproconazole (2 diastereoisomers)	<0.10 mg/kg
Cyprodinil	<0.10 mg/kg
Dichlorvos	<0.10 mg/kg
Diclobutrazol	<0.10 mg/kg
Dipropetryn	<0.10 mg/kg
Disulfoton	<0.10 mg/kg
Endosulfan I (alpha-isomer)	<0.10 mg/kg
Endosulfan II (beta-isomer)	<0.10 mg/kg
Endosulfan sulfate	<0.10 mg/kg
Epoxiconazole	<0.10 mg/kg
Ethiofencarb	<0.10 mg/kg
Etofenprox	<0.10 mg/kg
Etoxazole	<0.10 mg/kg
Fenoxycarb	<0.10 mg/kg
Fenpropathrin	<0.10 mg/kg
Fenvalerate/Esfenvalerate (sum of isomers)	<0.10 mg/kg
Fipronil	<0.10 mg/kg
Fipronil desulfinyl	<0.10 mg/kg
Fipronil sulfone	<0.10 mg/kg
Imazalil	<0.10 mg/kg
Imidacloprid	<0.10 mg/kg
Malathion	<0.10 mg/kg
Methiocarb	<0.10 mg/kg
Methiocarb sulfone	<0.10 mg/kg
Methiocarb sulfoxide	<0.10 mg/kg
Methomyl	<0.10 mg/kg
Mevinphos (E- and Z-isomers)	<0.10 mg/kg
Myclobutanil	<0.10 mg/kg

\* This analysis or component is not ISO accredited.

## Certificate of Analysis

### Elixinol, LLC

555 Burbank Street, Unit J  
Bloomfield Colorado 80020 United States

<b>Sample Name:</b>	<b>Rugby Hemp Balm 846019</b>	<b>Eurofins Sample:</b>	<b>9180896</b>
<b>Project ID</b>	ELIXINOL-20200114-0005	<b>Receipt Date</b>	17-Jan-2020
<b>PO Number</b>	CVD	<b>Receipt Condition</b>	Ambient temperature
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<b>Sample Serving Size</b>		<b>Date Started</b>	17-Jan-2020
		<b>Sampled</b>	Sample results apply as received
		<b>Online Order</b>	13484-12E0844B

#### Analysis

#### Result

#### Multi-Residue Analysis for hemp products - 60+ compounds

Naled (Dibrom)	<0.10 mg/kg
Paclobutrazol	<0.10 mg/kg
Permethrin (sum of isomers)	<0.10 mg/kg
Propoxur	<0.10 mg/kg
Spinetoram (spinosyns J and L)	<0.10 mg/kg
Spinosad (spinosyns A and D)	<0.10 mg/kg
Spirodiclofen	<0.10 mg/kg
Spiromesifen	<0.10 mg/kg
Spiromesifen enol	non-analyzable
Spirotetramat	<0.10 mg/kg
Spiroxamine (2 diastereoisomers)	<0.10 mg/kg
Tebuconazole	<0.10 mg/kg
Thiabendazole	<0.10 mg/kg
Thiabendazole-5-hydroxy-	non-analyzable
Thiacloprid	<0.10 mg/kg
Trifloxystrobin	<0.10 mg/kg
Metolachlor	<0.10 mg/kg
Pyrethrum (total)	<1.0 mg/kg

Analysis	LOQ	Limit	Result	Pass/Fail
<b>Residual Solvents - Class 1, 2a, 2b and 3 *</b>				
1,1,1-Trichloroethane	10 ppm	10 ppm	<10 ppm	Pass
1,1-Dichloroethene	8 ppm	8 ppm	<8 ppm	Pass
1,2-Dichloroethane	5 ppm	5 ppm	<5 ppm	Pass
Benzene	2 ppm	2 ppm	<2 ppm	Pass
Carbon Tetrachloride	4 ppm	4 ppm	<4 ppm	Pass
1,2-Dimethoxyethane	100 ppm	100 ppm	<100 ppm	Pass
1,4-Dioxane	380 ppm	380 ppm	<380 ppm	Pass
Acetonitrile	410 ppm	410 ppm	<410 ppm	Pass
Chlorobenzene	360 ppm	360 ppm	<360 ppm	Pass
Chloroform	60 ppm	60 ppm	<60 ppm	Pass

\* This analysis or component is not ISO accredited.

## Certificate of Analysis

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<b>Project ID</b>	ELIXINOL-20200114-0005	<b>Receipt Date</b>	17-Jan-2020
<b>PO Number</b>	CVD	<b>Receipt Condition</b>	Ambient temperature
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		<b>Online Order</b>	13484-12E0844B

Analysis	LOQ	Limit	Result	Pass/Fail
<b>Residual Solvents - Class 1, 2a, 2b and 3 *</b>				
1,2-Dichloroethene	1870 ppm	1870 ppm	<1870 ppm	Pass
Cumene	70 ppm	70 ppm	<70.0 ppm	Pass
Cyclohexane	3880 ppm	3880 ppm	<3880 ppm	Pass
Methanol	3000 ppm	3000 ppm	<3000 ppm	Pass
Methylbutylketone	50 ppm	50 ppm	<50 ppm	Pass
Methylcyclohexane	1180 ppm	1180 ppm	<1180 ppm	Pass
Methylene Chloride	600 ppm	600 ppm	<600 ppm	Pass
n-Hexane	290 ppm	290 ppm	<290 ppm	Pass
Nitromethane	50 ppm	50 ppm	<50 ppm	Pass
Pyridine	200 ppm	200 ppm	<200 ppm	Pass
Tetrahydrofuran	720 ppm	720 ppm	<720 ppm	Pass
Tetralin	96 ppm	96 ppm	<96.0 ppm	Pass
Toluene	890 ppm	890 ppm	<890 ppm	Pass
Trichloroethylene	80 ppm	80 ppm	<80 ppm	Pass
Xylenes(O,M,P + EB)	2170 ppm	2170 ppm	<2170 ppm	Pass
1-Butanol	200 ppm	5000 ppm	<200 ppm	Pass
1-Pentanol	200 ppm	5000 ppm	<200 ppm	Pass
1-Propanol	200 ppm	5000 ppm	<200 ppm	Pass
2-Butanol	200 ppm	5000 ppm	<200 ppm	Pass
Methylethylketone	200 ppm	5000 ppm	<200 ppm	Pass
3-Methyl-1-butanol	200 ppm	5000 ppm	<200 ppm	Pass
Acetic Acid Butyl Ester	200 ppm	5000 ppm	<200 ppm	Pass
Acetone	200 ppm	5000 ppm	<200 ppm	Pass
Anisole	200 ppm	5000 ppm	<200 ppm	Pass
Diethyl Ether	200 ppm	5000 ppm	<200 ppm	Pass
Ethanol	200 ppm	5000 ppm	<200 ppm	Pass
Ethyl Acetate	200 ppm	5000 ppm	<200 ppm	Pass
Ethyl Formate	500 ppm	5000 ppm	<500 ppm	Pass
2-Methyl-1-propanol	200 ppm	5000 ppm	<200 ppm	Pass

\* This analysis or component is not ISO accredited.

## Certificate of Analysis

### Elixinol, LLC

555 Burbank Street, Unit J  
Bloomfield Colorado 80020 United States

<b>Sample Name:</b>	<b>Rugby Hemp Balm 846019</b>	<b>Eurofins Sample:</b>	<b>9180896</b>
<b>Project ID</b>	ELIXINOL-20200114-0005	<b>Receipt Date</b>	17-Jan-2020
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<b>Sample Serving Size</b>		<b>Date Started</b>	17-Jan-2020
		<b>Sampled</b>	Sample results apply as received
		<b>Online Order</b>	13484-12E0844B

Analysis	LOQ	Limit	Result	Pass/Fail
<b>Residual Solvents - Class 1, 2a, 2b and 3 *</b>				
Isobutyl Acetate	200 ppm	5000 ppm	<200 ppm	Pass
2-Propanol	200 ppm	5000 ppm	<200 ppm	Pass
Isopropyl Acetate	200 ppm	5000 ppm	<200 ppm	Pass
Methyl Acetate	200 ppm	5000 ppm	<200 ppm	Pass
Methylisobutylketone	200 ppm	5000 ppm	<200 ppm	Pass
tert-Butylmethyl Ether	200 ppm	5000 ppm	<200 ppm	Pass
n-Heptane	200 ppm	5000 ppm	<200 ppm	Pass
n-Pentane	200 ppm	5000 ppm	<200 ppm	Pass
Propyl Acetate	200 ppm	5000 ppm	<200 ppm	Pass
Total Class 3 Residual Solvents	5000 ppm	5000 ppm	<5000 ppm	Pass

### Method References

### Testing Location

#### Elements by ICP Mass Spectrometry (ICP\_MS\_S)

#### Food Integrity Innovation-Madison

3301 Kinsman Blvd Madison, WI 53704 USA

Official Methods of Analysis, Method 2011.19 and 993.14, AOAC INTERNATIONAL, (Modified).

Paquette, L.H., Szabo, A., Thompson, J.J., "Simultaneous Determination of Chromium, Selenium, and Molybdenum in Nutritional Products by Inductively Coupled Plasma/Mass Spectrometry: Single-Laboratory Validation," Journal of AOAC International, 94(4): 1240 - 1252 (2011).

#### Enterobacteriaceae (Bile-Tolerant Gram-Negative Bacteria) (USPN2021)

#### Food Integ. Innovation-Madison NE

2102 Wright Street Madison, WI 53704 USA

USP Current revision, Chapter 2021.

To satisfy the requirements of the USP, the Preparatory Test must be completed on each matrix.

\*\*Based on the results of the preparatory test, the detection limit stipulated is adequate for the enumeration of the specified microorganisms.

\* This analysis or component is not ISO accredited.

Printed: 30-Jan-2020 6:04 pm

Page 5 of 7

## Certificate of Analysis

Elixinol, LLC

555 Burbank Street, Unit J  
Bloomfield Colorado 80020 United States

### Method References

### Testing Location

#### Glyphosate and AMPA (GLY\_AMPA\_S)

#### Food Integrity Innovation-Madison

3301 Kinsman Blvd Madison, WI 53704 USA

Monsanto Company Method ME-1466-02, "High Throughput Assay for Glyphosate and AMPA in Raw Agricultural Commodities and Processed Fractions Using LC/MS/MS".

#### Multi-Residue Analysis for hemp products - 60+ compounds (PEST\_HEMP)

#### Food Integ. Innovation-Greenfield

671 S. Meridian Road Greenfield, IN 46140 USA

*Official Methods of Analysis, AOAC Official Method 2007.01*, Pesticide Residues in Foods by Acetonitrile Extraction and Partitioning with Magnesium Sulfate, AOAC INTERNATIONAL (modified).

*CEN Standard Method EN 15662*: Food of plant origin - Determination of pesticide residues using GC-MS and/or LC-MS/MS following acetonitrile extraction/partitioning and clean-up by dispersive SPE - QuEChERS method.

List of the tested pesticides and their limits of quantification (LOQs) are available upon request.

#### Mycotoxins in Raw Materials (MYCO\_REG\_S)

#### Food Integrity Innovation-Madison

3301 Kinsman Blvd Madison, WI 53704 USA

Varga, E., Glauner, T., Koppen, R., Mayer, K., Sulyok, M., Schumacher, R., Krska, R. and Berthiller, F., "Stable isotope dilution assay for the accurate determination of mycotoxins in maize by UHPLC-MS/MS," *Analytical and BioAnalytical Chemistry*, 402:2675-2686 (2012).

#### Residual Solvents - Class 1, 2a, 2b and 3 (USPR\_S)

#### Food Integrity Innovation-Madison

3301 Kinsman Blvd Madison, WI 53704 USA

United States Pharmacopeia, 38nd Rev. - National Formulary 33th Ed., Method <467>, USP Convention, Inc., Rockville, MD (2015). (Modified).



## Certificate of Analysis

Elixinol, LLC

555 Burbank Street, Unit J  
Bloomfield Colorado 80020 United States

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**Testing Location(s)**

**Released on Behalf of Eurofins by**

**Food Integ. Innovation-Greenfield**

**Timothy McIntyre - Manager**

Eurofins Food Chemistry Testing US, Inc.  
671 S. Meridian Road  
Greenfield IN 46140  
800-675-8375



2918.06

**Food Integrity Innovation-Madison**

**Edward Ladwig - Director**

Eurofins Food Chemistry Testing US, Inc.  
3301 Kinsman Blvd  
Madison WI 53704  
800-675-8375



2918.01

**Food Integ. Innovation-Madison NE**

**Shannon Jacoby - Business Unit Manager**

Eurofins Food Chemistry Testing US, Inc.  
2102 Wright Street  
Madison WI 53704  
800-675-8375

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