

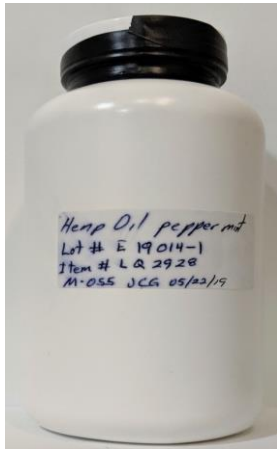
Certificate of Analysis

507 Highland Drive
 River Falls, WI, 54022
 Phone: (715) 426-0246
 Fax: (715) 426-0251
 www.eurofinsus.com/biodiagnostics

Customer Name: Fresh Hemp Foods (Manitoba Harvest USA LLC)
Office: Winnipeg, MB
Street Address: 69 Eagle Drive
City, State, Zip: Winnipeg, MB, R2R 1V4
Phone:

Date Reported: 05/30/2019
Date Completed: 05/29/2019
Date Received: 05/24/2019
Testing Method: HPLC-DAD

Sample Information	Cannabinoid Name	ID	Weight %	Conc. mg/g	Conc. mg/mL
Sample No: 119084466	Cannabichromenic Acid	CBCA	ND	ND	
Crop: Hemp, Industrial	Cannabicyclol	CBL	ND	ND	
Variety: BSHE Peppermint Spray	Cannabidiol	CBD	1.045	10.45	
Lot: E19014	Cannabidiolic Acid	CBDA	ND	ND	
Seed Size:	Cannabidivarin	CBDV	ND	ND	
Customer Tracking#:	Cannabidivarinic Acid	CBDVA	ND	ND	
Seeds Per Pound:	Cannabigerol	CBG	ND	ND	
Batch:	Cannabigerolic Acid	CBGA	ND	ND	
LIMS:	Cannabichromene	CBC	0.006	0.06	
IL:	Cannabinol	CBN	ND	ND	
	Cannabinolic Acid	CBNA	ND	ND	
Comments: LOQ= 50ppm or 0.005 wt %	Δ^9 -Tetrahydrocannabinol	Δ^9 -THC	ND	ND	
	Δ^8 -Tetrahydrocannabinol	Δ^8 -THC	ND	ND	
	Tetrahydrocannabinolic Acid A	THCA-A	ND	ND	
	Tetrahydrocannabivarin	THCV	ND	ND	
	Tetrahydrocannabivarinic Acid	THCVA	ND	ND	
	Total Cannabinoids		1.052	10.52	
	Total THC*		ND	ND	



*Total THC is calculated as the sum of Δ^9 -THC + Δ^8 -THC + (THCA-A * 0.877) + THCV + (THCV-A * 0.877).

Eurofins BioDiagnostics, Inc. warrants that it uses due care when performing tests for its customers. However, testing results are only reflective of the sample submitted by the customer. Eurofins BioDiagnostics, Inc. does not warrant the sample is representative of the seed lot from which the sample is drawn. Except for the testing services provided, Eurofins BioDiagnostics, Inc. makes no warranties or guarantees of any kind, expressed or implied, with respect to the services rendered.



Joseph Zalusky
 Approved Chemist, Gas Chromatography
 American Oil Chemists' Society (AOCS)



Certificate of Analysis

Eurofins BioDiagnostics, Inc.

Sample Name:	BSHE Peppermint Spray E19014 119084466	Eurofins Sample:	8502837
Project ID	EUROFINS-20190529-0566	Receipt Date	29-May-2019
PO Number	CVD	Receipt Condition	Ambient temperature
Sample Serving Size		Login Date	29-May-2019
		Date Started	29-May-2019
		Online Order	20

Analysis	Result
Terpenes	
(-)-alpha-Bisabolol	13 mg/100g
Camphene	<1.0 mg/100g
(1S)-(+)-3-Carene	<1.0 mg/100g
beta-Caryophyllene	63 mg/100g
p-Cymene	2.9 mg/100g
Eucalyptol	86 mg/100g
alpha-Humulene (alpha-Caryophyllene)	3.4 mg/100g
(-)-Isopulegol	<1.0 mg/100g
(R)-(+)-Limonene	42 mg/100g
Linalool	3.2 mg/100g
beta-Myrcene	5.7 mg/100g
(E)-b-Ocimene	0.80 mg/100g
(Z)-b-Ocimene	2.6 mg/100g
alpha-Pinene	12 mg/100g
beta-Pinene	16 mg/100g
alpha-Terpinene	6.0 mg/100g
gamma-Terpinene	8.3 mg/100g
Terpinolene	2.9 mg/100g

Method References	Testing Location
Terpenes (TERPENES_S) Internally Developed Method	Food Integrity Innovation-Madison

Testing Location(s)	Released on Behalf of Eurofins by
---------------------	-----------------------------------

Food Integrity Innovation-Madison

Edward Ladwig - Director

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

Certificate of Analysis

Eurofins BioDiagnostics, Inc.

These results apply only to the items tested. This certificate of analysis shall not be reproduced, except in its entirety, without the written approval of Eurofins.



Eurofins Microbiology Laboratories (Los Angeles)

11390 Knott St.
Garden Grove, CA 92841
+1 714 892-0208
micro-losangeles@eurofinsus.com

QC Dept.
BioDiagnostics, Inc.
507 Highland Drive
River Falls, WI 54022

Client Code: QR0000282
PO Number: Hemp INTERCO

ANALYTICAL REPORT

Received On: 05/29/2019
Reported On: 06/04/2019

AR-19-QR-TEMP0068-01
EUUSGA2-00029219

Eurofins Sample Code: 111-2019-05290038	Sample Registration Date: 5/29/19
Client Sample Code: 119084466	Condition Upon Receipt: Acceptable
Sample Description: BSHE Peppermint Spray, E19014	Sample Reference:

Aerobic Plate Count	Reference	Accreditation	Analysis Completed	Sub.
	AOAC 966.23	A2LA 3329.05	5/31/2019	

Parameter	Result
Aerobic Plate Count	< 10 cfu / g

Coliforms-Escherichia coli	Reference	Accreditation	Analysis Completed	Sub.
	AOAC 991.14	A2LA 3329.05	5/31/2019	

Parameter	Result
Coliforms	< 10 cfu / g
Escherichia coli	< 10 cfu / g

Listeria species	Reference	Accreditation	Analysis Completed	Sub.
	AOAC 2004.06		5/31/2019	

Parameter	Result
Listeria species	Not Detected / 25 g

Yeast-Mold	Reference	Accreditation	Analysis Completed	Sub.
	FDA BAM Chapter 18	A2LA 3329.05	6/3/2019	

Parameter	Result
Yeast	< 10 cfu / g
Mold	< 10 cfu / g

Salmonella species	Reference	Accreditation	Analysis Completed	Sub.
	AOAC 2004.03		5/31/2019	

Parameter	Result
Salmonella species	Not Detected / 25 g

ANALYTICAL REPORT

Received On: 05/29/2019
 Reported On: 06/04/2019

AR-19-QR-TEMP0068-01
 EUUSGA2-00029219

Eurofins Sample Code: 111-2019-05290039	Sample Registration Date: 5/29/19
Client Sample Code: 119084467	Condition Upon Receipt: Acceptable
Sample Description: BSHE Peppermint Spray, E19014-1	Sample Reference:

Aerobic Plate Count	Reference	Accreditation	Analysis Completed	Sub.
	AOAC 966.23	A2LA 3329.05	5/31/2019	

Parameter	Result
Aerobic Plate Count	< 10 cfu / g

Coliforms-Escherichia coli	Reference	Accreditation	Analysis Completed	Sub.
	AOAC 991.14	A2LA 3329.05	5/31/2019	

Parameter	Result
Coliforms	< 10 cfu / g
Escherichia coli	< 10 cfu / g

Listeria species	Reference	Accreditation	Analysis Completed	Sub.
	AOAC 2004.06		5/31/2019	

Parameter	Result
Listeria species	Not Detected / 25 g

Yeast-Mold	Reference	Accreditation	Analysis Completed	Sub.
	FDA BAM Chapter 18	A2LA 3329.05	6/3/2019	

Parameter	Result
Yeast	< 10 cfu / g
Mold	< 10 cfu / g

Salmonella species	Reference	Accreditation	Analysis Completed	Sub.
	AOAC 2004.03		5/31/2019	

Parameter	Result
Salmonella species	Not Detected / 25 g

Eurofins Sample Code: 111-2019-05290040	Sample Registration Date: 5/29/19
Client Sample Code: 119084468	Condition Upon Receipt: Acceptable
Sample Description: BSHE Peppermint Spray, E19013	Sample Reference:

Aerobic Plate Count	Reference	Accreditation	Analysis Completed	Sub.
	AOAC 966.23	A2LA 3329.05	5/31/2019	

Parameter	Result
Aerobic Plate Count	< 10 cfu / g

Coliforms-Escherichia coli	Reference	Accreditation	Analysis Completed	Sub.
	AOAC 991.14	A2LA 3329.05	5/31/2019	

Parameter	Result

ANALYTICAL REPORT

Received On: 05/29/2019
 Reported On: 06/04/2019

AR-19-QR-TEMP0068-01
 EUUSGA2-00029219

Coliforms < 10 cfu / g
 Escherichia coli < 10 cfu / g

Listeria species	Reference	Accreditation	Analysis Completed	Sub.
	AOAC 2004.06		5/31/2019	

Parameter **Result**
 Listeria species Not Detected / 25 g

Yeast-Mold	Reference	Accreditation	Analysis Completed	Sub.
	FDA BAM Chapter 18	A2LA 3329.05	6/3/2019	

Parameter **Result**
 Yeast < 10 cfu / g
 Mold < 10 cfu / g

Salmonella species	Reference	Accreditation	Analysis Completed	Sub.
	AOAC 2004.03		5/31/2019	

Parameter **Result**
 Salmonella species Not Detected / 25 g

Respectfully Submitted,



Viridiana Castro
 Microbiology Supervisor



Results shown in this report relate solely to the item submitted for analysis. | Any opinions/interpretations expressed on this report are given independent of the laboratory's scope of accreditation. | All results are reported on an "As Received" basis unless otherwise stated. | Reports shall not be reproduced except in full without written permission of Eurofins Scientific, Inc. | All work done in accordance with Eurofins General Terms and Conditions of Sale: www.eurofinsus.com/terms_and_conditions.pdf | √ Indicates a subcontract test to a different lab. Lab(s) are listed at end of the report. For further details about the performing labs please contact your customer service contact at Eurofins. Measurement of uncertainty can be obtained upon request.

Certificate of Analysis

Eurofins BioDiagnostics, Inc.

Sample Name:	BSHE Peppermint Spray E19014 119084466	Eurofins Sample:	8502837
Project ID	EUROFINS-20190529-0566	Receipt Date	29-May-2019
PO Number	CVD	Receipt Condition	Ambient temperature
Sample Serving Size		Login Date	29-May-2019
		Date Started	29-May-2019
		Online Order	20

Analysis	LOQ	Limit	Result	Pass/Fail
Residual Solvents - Class 2 Mix C, Class 3 DMSO (Nonvolatile Solvents)				
2-Methoxyethanol	50 ppm	50 ppm	<50.0 ppm	Pass
2-Ethoxyethanol	160 ppm	160 ppm	<160 ppm	Pass
N,N-Dimethylformamide	880 ppm	880 ppm	<880 ppm	Pass
N,N-Dimethylacetamide	1090 ppm	1090 ppm	<1090 ppm	Pass
Dimethyl Sulfoxide	250 ppm	250 ppm	<250 ppm	Pass
Ethylene Glycol	620 ppm	620 ppm	<620 ppm	Pass
N-Methylpyrrolidone	530 ppm	530 ppm	<530 ppm	Pass
Formamide	220 ppm	220 ppm	<220 ppm	Pass
Sulfolane	160 ppm	160 ppm	<160 ppm	Pass
Residual Solvents - Class 3, Acids Only				
Acetic Acid	200 ppm		<200 ppm	
Formic Acid	200 ppm		<200 ppm	

Method References	Testing Location
-------------------	------------------

Residual Solvents - Class 2 Mix C, Class 3 DMSO (Nonvolatile Solvents) (USPR_DI_S)	Food Integrity Innovation-Madison
United States Pharmacopeia, 39th Rev. - National Formulary 34th Ed., Method <467>, USP Convention, Inc., Rockville, MD (2016). (Modified).	

Residual Solvents - Class 3, Acids Only (USPR_ACD_S)	Food Integrity Innovation-Madison
[1] United States Pharmacopeia, 39th Rev. - National Formulary 34th Ed., Method <467>, USP Convention, Inc., Rockville, MD (2015). (Modified)	
[2] Zhou, D., Hou, Q., Liu, W., Ren, X., "Rapid determination of formic and acetic acids in biomass hydrosylate by headspace gas chromatography," Journal of Industrial and Engineering Chemistry, 47:281-287 (2017).	

Certificate of Analysis

Eurofins BioDiagnostics, Inc.

Testing Location(s)**Released on Behalf of Eurofins by**

Food Integrity Innovation-Madison

Edward Ladwig - Director

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

These results apply only to the items tested. This certificate of analysis shall not be reproduced, except in its entirety, without the written approval of Eurofins.

Certificate of Analysis

Eurofins BioDiagnostics, Inc.

Sample Name:	BSHE Peppermint Spray E19014 119084466	Eurofins Sample:	8502837
Project ID	EUROFINS-20190529-0566	Receipt Date	29-May-2019
PO Number	CVD	Receipt Condition	Ambient temperature
Sample Serving Size		Login Date	29-May-2019
		Date Started	29-May-2019
		Online Order	20

Analysis

Result

Multi-Residue Analysis for hemp products - 60+ compounds

Matrix Type - To Determine Limit of Quantification (LOQ)

Spices - Botanicals - and other
Specialty Samples

Abamectin	<0.05 mg/kg
Aldicarb	<0.05 mg/kg
Aldicarb sulfone (Aldoxycarb)	<0.05 mg/kg
Aldicarb sulfoxide	<0.05 mg/kg
Azoxystrobin	<0.05 mg/kg
Bifenazate	<0.05 mg/kg
Bifenthrin	<0.05 mg/kg
Carbaryl	<0.05 mg/kg
Carbofuran	<0.05 mg/kg
Carbofuran-3-hydroxy-	<0.05 mg/kg
Chlorantraniliprole	<0.05 mg/kg
Chlordane, cis-	<0.05 mg/kg
Chlordane, trans-	<0.05 mg/kg
Chlorfenapyr	<0.05 mg/kg
Chlorpyrifos	<0.05 mg/kg
Coumaphos	<0.05 mg/kg
Cyfluthrin	<0.05 mg/kg
Cypermethrin	non-analyzable
Cyproconazole (2 diastereoisomers)	<0.05 mg/kg
Cyprodinil	<0.05 mg/kg
Dichlorvos	<0.05 mg/kg
Diclobutrazol	<0.05 mg/kg
Dipropetryn	<0.05 mg/kg
Disulfoton	<0.05 mg/kg
Endosulfan I (alpha-isomer)	<0.05 mg/kg
Endosulfan II (beta-isomer)	<0.05 mg/kg
Endosulfan sulfate	<0.05 mg/kg
Epoxiconazole	<0.05 mg/kg
Ethiofencarb	<0.05 mg/kg
Etofenprox	<0.05 mg/kg
Etoxazole	<0.05 mg/kg

Certificate of Analysis

Eurofins BioDiagnostics, Inc.

Sample Name:	BSHE Peppermint Spray E19014 119084466	Eurofins Sample:	8502837
Project ID	EUROFINS-20190529-0566	Receipt Date	29-May-2019
PO Number	CVD	Receipt Condition	Ambient temperature
Sample Serving Size		Login Date	29-May-2019
		Date Started	29-May-2019
		Online Order	20

Analysis

Result

Multi-Residue Analysis for hemp products - 60+ compounds

Fenoxycarb	<0.05 mg/kg
Fenpropathrin	<0.05 mg/kg
Fenvalerate/Esfenvalerate (sum of isomers)	non-analyzable
Fipronil	<0.05 mg/kg
Fipronil desulfinyl	<0.05 mg/kg
Fipronil sulfone	<0.05 mg/kg
Imazalil	<0.05 mg/kg
Imidacloprid	<0.05 mg/kg
Malathion	<0.05 mg/kg
Methiocarb	<0.05 mg/kg
Methiocarb sulfone	<0.05 mg/kg
Methiocarb sulfoxide	<0.05 mg/kg
Methomyl	<0.05 mg/kg
Metolachlor	<0.05 mg/kg
Mevinphos (E- and Z-isomers)	<0.05 mg/kg
Myclobutanil	<0.05 mg/kg
Naled (Dibrom)	<0.05 mg/kg
Paclobutrazol	<0.05 mg/kg
Permethrin (sum of isomers)	<0.05 mg/kg
Propoxur	<0.05 mg/kg
Pyrethrum (total)	<0.50 mg/kg
Spinetoram (spinosyns J and L)	<0.05 mg/kg
Spinosad (spinosyns A and D)	<0.05 mg/kg
Spirodiclofen	<0.05 mg/kg
Spiromesifen	<0.05 mg/kg
Spiromesifen enol	<0.05 mg/kg
Spirotetramat	<0.05 mg/kg
Spiroxamine (2 diastereoisomers)	<0.05 mg/kg
Tebuconazole	<0.05 mg/kg
Thiabendazole	<0.05 mg/kg
Thiabendazole-5-hydroxy-	<0.05 mg/kg
Thiacloprid	<0.05 mg/kg
Trifloxystrobin	<0.05 mg/kg

Certificate of Analysis

Eurofins BioDiagnostics, Inc.

Method References	Testing Location
-------------------	------------------

Multi-Residue Analysis for hemp products - 60+ compounds (PEST_HEMP)	Food Integ. Innovation-Greenfield
-----------------------------------------------------------------------------	------------------------------------------

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.

Testing Location(s)	Released on Behalf of Eurofins by
---------------------	-----------------------------------

Food Integ. Innovation-Greenfield

Karelyn Koehn - Manager

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



2918.06

These results apply only to the items tested. This certificate of analysis shall not be reproduced, except in its entirety, without the written approval of Eurofins.

Certificate of Analysis

Eurofins BioDiagnostics, Inc.

Sample Name:	BSHE Peppermint Spray E19014 119084466	Eurofins Sample:	8502837
Project ID	EUROFINS-20190529-0566	Receipt Date	29-May-2019
PO Number	CVD	Receipt Condition	Ambient temperature
Sample Serving Size		Login Date	29-May-2019
		Date Started	29-May-2019
		Online Order	20

Analysis	Result
Elements by ICP Mass Spectrometry	
Arsenic	<10.0 ppb
Cadmium	<5.00 ppb
Lead	<5.00 ppb
Mercury	<5.00 ppb

Method References	Testing Location
-------------------	------------------

Elements by ICP Mass Spectrometry (ICP_MS_S)	Food Integrity Innovation-Madison
<p>Official Methods of Analysis, Method 2011.19 and 993.14, AOAC INTERNATIONAL, (Modified). Pequette, 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).</p>	

Testing Location(s)	Released on Behalf of Eurofins by
---------------------	-----------------------------------

Food Integrity Innovation-Madison	Edward Ladwig - Director
------------------------------------------	---------------------------------

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



2918.01

These results apply only to the items tested. This certificate of analysis shall not be reproduced, except in its entirety, without the written approval of Eurofins.

REPORT OF ANALYSIS

Customer: Eurofins BioDiagnostics
507 Highland Drive
River Falls WI 54022
Attn: Darcey Rodewald

Date Received: 05/29/19
Report Date: 05/31/19

***Description:** 119084466
Lab Number: CI01195
Commodity: BSHE PEPP SPRAY E19014


Analysis	Result	Unit	MDL	Analyzed	Reference
Gluten (ELISA) - Wheat Rye & Barley	<3.0	ppm	3.0	05/31/19	R7001

*The results shown in this report relate solely to the item submitted for analysis.

ISO/IEC 17025

Testing Cert. 1940.01

Eurofins GeneScan



Dr. Frank Spiegelhalter
Executive Vice President