

Certificate of Analysis

Contract Pharmacal Corp.

135 Adams Ave.
Hauppauge New York 11788

Sample Name:	Uleva Vitality Capsule	Eurofins Sample:	9753321
Project ID	CONTR_PHAR-20200810-0011	Receipt Date	05-Aug-2020
PO Number	218131	Receipt Condition	Ambient temperature
Lot Number	202401	Login Date	10-Aug-2020
Sample Serving Size		Date Started	10-Aug-2020
Description	Hemp, Industrial	Sampled	Sample results apply as received

Analysis

Result

Terpenes

(-)-alpha-Bisabolol	3.5 mg/100g
Camphene	<1.0 mg/100g
(1S)-(+)-3-Carene	<1.0 mg/100g
beta-Caryophyllene	8.3 mg/100g
p-Cymene	<1.0 mg/100g
Eucalyptol	2.0 mg/100g
alpha-Humulene (alpha-Caryophyllene)	1.1 mg/100g
(-)-Isopulegol	<1.0 mg/100g
(R)-(+)-Limonene	<1.0 mg/100g
Linalool	<1.0 mg/100g
beta-Myrcene	<1.0 mg/100g
(E)-b-Ocimene	<0.60 mg/100g
(Z)-b-Ocimene	<0.30 mg/100g
alpha-Pinene	<1.0 mg/100g
beta-Pinene	<1.0 mg/100g
alpha-Terpinene	<1.0 mg/100g
gamma-Terpinene	<1.0 mg/100g
Terpinolene	<1.0 mg/100g

Industrial Hemp Cannabinoid Profile

CBDVA	<0.00250 %
CBDV	0.0402 %
CBDA	<0.00250 %
CBGA	<0.00250 %
CBG	<0.00250 %
CBD	3.32 %
THCV	<0.00250 %
CBN	<0.00250 %
Delta 9-THC	0.00591 %
Delta 8-THC	<0.00500 %
THCA	<0.00250 %
CBC	<0.00250 %

* This analysis or component is not ISO accredited.

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Industrial Hemp Cannabinoid Profile

THCVA	<0.00250 %
CBNA	<0.00250 %
CBCA	<0.00250 %
CBL	<0.00250 %
Total Cannabinoids	3.37 %
Total THC (THC + (THCA x 0.877))	0.00591 %
Total CBD (CBD + (CBDA x 0.877))	3.32 %

Genus Listeria (BAX) PCR Detection *

Listeria Not Detected /25 g

Salmonella (BAX) PCR Detection *

Salmonella Not Detected /25 g

Yeast and Mold Plate Count *

Yeast Plate Count	< 10 CFU/g
Mold Plate Count	< 10 CFU/g

Elements by ICP Mass Spectrometry

Arsenic	77.2 ppb
Cadmium	17.6 ppb
Lead	326 ppb
Mercury	9.01 ppb

Residual Solvents - Class 2 Mix C, Class 3 DMSO (Nonvolatile Solvents) *

Class 2

2-Methoxyethanol	<50.0 ppm
2-Ethoxyethanol	<160 ppm
N,N-Dimethylformamide	<880 ppm
N,N-Dimethylacetamide	<1090 ppm
Ethylene Glycol	<620 ppm
N-Methylpyrrolidone	<530 ppm
Formamide	<220 ppm
Sulfolane	<160 ppm

Class 3

Dimethyl Sulfoxide	<250 ppm
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Analysis	Result
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E.coli and Coliforms (Petrifilm) *

Total coliforms	< 10 CFU/g
Escherichia Coli	< 10 CFU/g

Analysis	Limit	Result	Pass/Fail
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Multi-Residue Analysis for hemp products - 60+ compounds

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	
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)		<0.20 mg/kg	

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Analysis	Limit	Result	Pass/Fail
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Multi-Residue Analysis for hemp products - 60+ compounds

Endosulfan II (beta-isomer)		<0.20 mg/kg	
Endosulfan sulfate		<0.20 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)		<0.20 mg/kg	
Fipronil		<0.10 mg/kg	
Fipronil desulfinyl		<0.10 mg/kg	
Fipronil sulfone		<0.10 mg/kg	
Imazalil		0.19 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	
Metolachlor		<0.10 mg/kg	
Mevinphos (E- and Z-isomers)		<0.10 mg/kg	
Myclobutanil		<0.10 mg/kg	
Naled (Dibrom)		<0.10 mg/kg	
Paclobutrazol		<0.10 mg/kg	
Permethrin (sum of isomers)		<0.10 mg/kg	
Propoxur		<0.10 mg/kg	
Pyrethrum (total)		<1.0 mg/kg	
Spinetoram (spinosyns J and L)		<0.10 mg/kg	
Spinosad (spinosyns A and D)		<0.10 mg/kg	
Spirodiclofen		non-analyzable	

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Analysis	Limit	Result	Pass/Fail
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Multi-Residue Analysis for hemp products - 60+ compounds

Spiromesifen		<0.10 mg/kg	
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-		<0.10 mg/kg	
Thiacloprid		<0.10 mg/kg	
Trifloxystrobin		<0.10 mg/kg	

Analysis	LOQ	Limit	Result	Pass/Fail
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Residual Solvents - Class 3, Acids Only *

Acetic Acid	200 ppm		<200 ppm	
Formic Acid	200 ppm		<200 ppm	

Method References

Testing Location

E.coli and Coliforms (Petrifilm) (ECCOLIPET)

AOAC 991.14

EML New Berlin

2345 S 170th St New Berlin, WI 53151 USA

Elements by ICP Mass Spectrometry (ICP_MS_S)

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).

Food Integrity Innovation-Madison

3301 Kinsman Blvd Madison, WI 53704 USA

Genus Listeria (BAX) PCR Detection (LISTBAX)

United States Department of Agriculture, MLG 8A.04, "FSIS Procedure for the Use of *Listeria monocytogenes* Polymerase Chain Reaction (PCR) Screening Test," USDA-FSIS: Washington DC (03Aug2009);; DuPont Qualicon Bax System User Guide, Part Number 2CQ-049. 13-0717-V3.3, 2005-2013.

EML New Berlin

2345 S 170th St New Berlin, WI 53151 USA

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Method References

Testing Location

Industrial Hemp Cannabinoid Profile (IHCBD_S)

Food Integrity Innovation-Madison

3301 Kinsman Blvd Madison, WI 53704 USA

Official Methods of Analysis, Method 2018.11, AOAC INTERNATIONAL, (Modified). Lukas Vaclavik, Frantisek Benes, Alex Krmela, Veronika Svobodova, Jana Hajsolva and Katerina Mastovska, "Quantification of Cannabinoids in Cannabis Dried Plant Materials, Concentrates, and Oils Liquid Chromatography-Diode Array Detection Technique with Optional Mass Spectrometric Detection," First Action Method, Journal of AOAC International, Future Issue

Multi-Residue Analysis for hemp products - 60+ compounds (PEST_HEMP)

Food Integrity Innovation-Madison

3301 Kinsman Blvd Madison, WI 53704 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.

Residual Solvents - Class 2 Mix C, Class 3 DMSO (Nonvolatile Solvents) (USPR_DIN_S)

Food Integrity Innovation-Madison

3301 Kinsman Blvd Madison, WI 53704 USA

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

3301 Kinsman Blvd Madison, WI 53704 USA

[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).

Salmonella (BAX) PCR Detection (SALBAX)

EML New Berlin

2345 S 170th St New Berlin, WI 53151 USA

AOAC 2003.09; DuPont Qualicon BAX System User Guide, Part Number 2CQ-049. 13-0713-V3.3, 2005-2013.

Terpenes (TERPENES_S)

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Internally Developed Method

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Method References

Testing Location

Yeast and Mold Plate Count (YM_SPRD)

EML New Berlin

2345 S 170th St New Berlin, WI 53151 USA

Compendium of Methods for the Microbiological Examination of Foods, Yeasts and Molds, 4th Edition, Chapter 20, 2001, (Modified)

Testing Location(s)

Released on Behalf of Eurofins by

Food Integrity Innovation-Madison

Edward Ladwig - President Eurofins Food Chemistry Testing Madison

Eurofins Food Chemistry Testing Madison, Inc.
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