

Certificate of Quality Assurance

PRODUCT NAME: Orange Tincture

PRODUCT STRENGTH: 1000 mg

LOT NUMBER: TO1000-T020

OIL BATCH NUMBER: CON019-23

DATE OF MANUFACTURE: 3/18/19

Expiration date is 18 months under sealed conditions.

DATE OF ANALYSIS: 3/18/19

ACTIVE INGREDIENT: Phytocannabinoid-Rich Hemp Oil

INACTIVE INGREDIENTS: MCT, Orange Essential Oil

JOY[™]
ORGANICS

Physical Attributes of Raw Hemp Oil

Attribute	Acceptance Criteria	Result
Appearance	Viscous Dark Amber Oil Possible Crystal Formation	Conforms
Aroma	Characteristic Hemp Aroma	Conforms
Dissolution	Not Cloudy or Turbid, Characteristic Color	Conforms
Microbial Testing	Total Aerobic Count <2000 cfu/g Total Yeast and Mold <2000 cfu/g	Conforms

Potency of Raw Hemp Oil

Cannabinoid	Weight %
CBD	89.80
CBG	<0.03
CBN	<0.03
THC	ND
CBC	<0.03
THC-A	ND
CBD-A	<0.03

Pesticides*

Compound	Result	Compound	Result
Acequinocil	ND	Spinosad	ND
Pyrethrium	ND	Spirotetramat	ND
Spiromesifin	ND	Bifenazate	ND
Abamectin	ND	Fenoxycarb	ND
Imidacloprid	ND	Paclobutrazol	ND

Terpene Results*

Compound	Weight %	Compound	Weight %
β -Bisabolene	1.0-3.0	Camphene	0.1-0.2
β -Farnesene	1.0-2.0	E-Farnesene	0.1-0.2
Gualol	0.5-2.0	Farnesol	0.1-0.2
β -Maaliene	0.5-2.0	α -Bisabolol	< 0.1
Calarene	0.5-1.5	p-Cymene	< 0.1
β -Caryophyllene	0.1-1.0	Linalool	< 0.1
α -Humulene	0.1-1.0	Myrcene	< 0.1
Cadinene	0.1-1.0	Phytol	< 0.1
α -Gurjunene	0.1-0.5	Isopulegol	< 0.1
d-Limonene	0.1-0.5	Terpinene	< 0.1
Nerolidol	0.1-0.5	Geraniol	< 0.1
α -Pinene	0.1-0.5	Myrcene	< 0.1
Aristolene	0.1-0.3	γ -Terpinene	< 0.1
Eucalyptol	0.1-0.2	δ -3-Carene	< 0.1

Residual Solvents*

Solvent	Weight %
Acetone	Compliant with USP<467>
Butane	Compliant with USP<467>
Ethanol	Compliant with USP<467>
Hexane	Compliant with USP<467>
Isobutane	Compliant with USP<467>
Isopropanol	Compliant with USP<467>
Pentane	Compliant with USP<467>

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Heavy Metals*

Metal	Result
Cadmium	Compliant with USP<233>
Lead	Compliant with USP<233>
Arsenic	Compliant with USP<233>
Mercury	Compliant with USP<233>

Analysis Results for Finished Product

Attribute	Acceptance Criteria	Result
Appearance	Clear Colorless to Light Yellow Liquid	Conforms
Aroma	Characteristic Orange Flavor	Conforms
Cannabidiol Content	95% to 110% of Label Claim	Conforms
THC Content	None Detected	Conforms

* Results based on testing of multiple batches of hemp oil raw material.

Certified by:



Matthew Plenert, Ph.D
Head Chemist and Quality Manager

4-23-19 Reissued

Date



This report cannot be used for ODA, OHA or OLCC compliance requirements.

Product identity: TO1000 T020
Laboratory ID: 19-006075-0002

Client/Metric ID: .
Sample Date:

Summary

Potency:

Analyte per 30ml	Result	Limits	Units	LOQ	
CBD per 30ml	1050		mg/30ml	0.933	CBD-Total per 30ml 1050 mg/30ml
CBDV per 30ml†	7.73		mg/30ml	0.933	THC-Total per 30ml < 1.753 mg/30ml

Pesticides:

All analytes passing and less than LOQ.

Metals:

Less than LOQ for all analytes.

Microbiology:

Less than LOQ for all analytes.



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Customer: JOY ORGANICS
Product identity: TO1000 T020
Client/Metric ID: .
Sample Date:
Laboratory ID: 19-006075-0002
Relinquished by: Received By Mail
Temp: 22.4 °C
Serving Size #1: 28 g

Sample Results

Potency per 30ml		Batch: 1904852					
Analyte	Result	Limits	Units	LOQ	Analyze	Method	Notes
CBC per 30ml [†]	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
CBC-A per 30ml [†]	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
CBC-Total per 30ml [†]	< LOQ		mg/30ml	1.75	06/04/19	J AOAC 2015 V98-6	
CBD per 30ml	1050		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
CBD-A per 30ml	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
CBD-Total per 30ml	1050		mg/30ml	1.75	06/04/19	J AOAC 2015 V98-6	
CBDV per 30ml [†]	7.73		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
CBDV-A per 30ml [†]	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
CBDV-Total per 30ml [†]	7.73		mg/30ml	1.74	06/04/19	J AOAC 2015 V98-6	
CBG per 30ml [†]	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
CBG-A per 30ml [†]	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
CBG-Total per 30ml [†]	< LOQ		mg/30ml	1.75	06/04/19	J AOAC 2015 V98-6	
CBL per 30ml [†]	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
CBN per 30ml	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
Δ8-THC per 30ml [†]	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
Δ9-THC per 30ml	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
THC-A per 30ml	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
THC-Total per 30ml	< LOQ		mg/30ml	1.75	06/04/19	J AOAC 2015 V98-6	
THCV per 30ml [†]	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
THCV-A per 30ml [†]	< LOQ		mg/30ml	0.933	06/04/19	J AOAC 2015 V98-6	
THCV-Total per 30ml [†]	< LOQ		mg/30ml	1.74	06/04/19	J AOAC 2015 V98-6	



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Microbiology

Analyte	Result	Limits	Units	LOQ	Batch	Analyze	Method	Notes
E.coli	< LOQ		cfu/g	10	1904705	05/31/19	AOAC 991.14 (Petrifilm)	X
Total Coliforms	< LOQ		cfu/g	10	1904705	05/31/19	AOAC 991.14 (Petrifilm)	X
Mold	< LOQ		cfu/g	10	1904704	05/31/19	AOAC 2014.05 (RAPID)	X
Yeast	< LOQ		cfu/g	10	1904704	05/31/19	AOAC 2014.05 (RAPID)	X

Pesticides Method AOAC 2007.01 & EN 15662 (mod) Units mg/kg Batch 1904844 Analyze 05/31/19 04:44 PM

Analyte	Result	Limits	LOQ	Status	Notes	Analyte	Result	Limits	LOQ	Status	Notes
Abamectin	< LOQ	0.50	0.250	pass		Acephate	< LOQ	0.40	0.250	pass	
Acequinocyl	< LOQ	2.0	1.00	pass		Acetamiprid	< LOQ	0.20	0.100	pass	
Aldicarb	< LOQ	0.40	0.200	pass		Azoxystrobin	< LOQ	0.20	0.100	pass	
Bifentazate	< LOQ	0.20	0.100	pass		Bifenthrin	< LOQ	0.20	0.100	pass	
Boscalid	< LOQ	0.40	0.100	pass		Carbaryl	< LOQ	0.20	0.100	pass	
Carbofuran	< LOQ	0.20	0.100	pass		Chlorantraniliprole	< LOQ	0.20	0.100	pass	
Chlorfenapyr	< LOQ	1.0	0.500	pass		Chlorpyrifos	< LOQ	0.20	0.100	pass	
Clofentezine	< LOQ	0.20	0.100	pass		Cyfluthrin (incl.	< LOQ	1.0	0.500	pass	
Cypermethrin	< LOQ	1.0	0.500	pass		Daminozide	< LOQ	1.0	0.500	pass	
Diazinon	< LOQ	0.20	0.100	pass		Dichlorvos	< LOQ	1.0	0.500	pass	
Dimethoate	< LOQ	0.20	0.100	pass		Ethoprophos	< LOQ	0.20	0.100	pass	
Etofenprox	< LOQ	0.40	0.200	pass		Etoxazole	< LOQ	0.20	0.100	pass	
Fenoxycarb	< LOQ	0.20	0.100	pass		Fenpyroximate	< LOQ	0.40	0.200	pass	
Fipronil	< LOQ	0.40	0.200	pass		Fonicamid	< LOQ	1.0	0.400	pass	
Fludioxonil	< LOQ	0.40	0.200	pass		Hexythiazox	< LOQ	1.0	0.400	pass	
Imazalil	< LOQ	0.20	0.100	pass		Imidacloprid	< LOQ	0.40	0.200	pass	
Kresoxim-methyl	< LOQ	0.40	0.200	pass		Malathion	< LOQ	0.20	0.100	pass	
Metalaxyl	< LOQ	0.20	0.100	pass		Methiocarb	< LOQ	0.20	0.100	pass	
Methomyl	< LOQ	0.40	0.200	pass		MGK-264	< LOQ	0.20	0.100	pass	
Myclobutanil	< LOQ	0.20	0.100	pass		Naled	< LOQ	0.50	0.250	pass	
Oxamyl	< LOQ	1.0	0.500	pass		Paclbutrazole	< LOQ	0.40	0.200	pass	
Parathion-Methyl	< LOQ	0.20	0.200	pass		Permethrin	< LOQ	0.20	0.100	pass	
Phosmet	< LOQ	0.20	0.100	pass		Piperonyl butoxide	< LOQ	2.0	1.00	pass	
Prallethrin	< LOQ	0.20	0.100	pass		Propiconazole	< LOQ	0.40	0.200	pass	
Propoxur	< LOQ	0.20	0.100	pass		Pyrethrin I (total)	< LOQ	1.0	0.500	pass	
Pyridaben	< LOQ	0.20	0.100	pass		Spinosad	< LOQ	0.20	0.100	pass	
Spiromesifen	< LOQ	0.20	0.100	pass		Spirotetramat	< LOQ	0.20	0.100	pass	
Spiroxamine	< LOQ	0.40	0.200	pass		Tebuconazole	< LOQ	0.40	0.200	pass	
Thiacloprid	< LOQ	0.20	0.100	pass		Thiamethoxam	< LOQ	0.20	0.100	pass	
Trifloxystrobin	< LOQ	0.20	0.100	pass							



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Metals								
Analyte	Result	Limits	Units	LOQ	Batch	Analyze	Method	Notes
Arsenic	< LOQ		mg/kg	0.100	1904897	06/03/19	AOAC 2013.06	X
Cadmium	< LOQ		mg/kg	0.100	1904897	06/03/19	AOAC 2013.06	X
Lead	< LOQ		mg/kg	0.100	1904897	06/03/19	AOAC 2013.06	X
Mercury	< LOQ		mg/kg	0.100	1904897	06/03/19	AOAC 2013.06	X



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Abbreviations

Limits: Action Levels per OAR-333-007-0400, OAR-333-007-0210, OAR-333-007-0220

Limit(s) of Quantitation (LOQ): The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence.

† = Analyte not NELAP accredited.

Units of Measure

cfu/g = Colony forming units per gram

g = Gram

mg/kg = Milligram per kilogram = parts per million (ppm)

mg/28g = Milligram per 28g

% = Percentage of sample

% wt = $\mu\text{g/g}$ divided by 10,000

Glossary of Qualifiers

X: Not ORELAP accredited.

Approved Signatory

Derrick Tanner
General Manager