

# CERTIFICATE OF ANALYSIS

Sample Name: 1000 mg FS Tincture  
 Steep Hill ID: HI73213  
 Batch ID: 822019-01  
 State ID:  
 Sample Type: Tincture  
 Date Received: 9/12/2019  
 Date Reported: 9/15/2019  
 Density: 0.93 g/mL

Customer: Hawaii Cannabis Care

## OVERALL BATCH SUMMARY: PASS

Residual Pesticides	Microbial Impurities	Mycotoxins	Heavy Metals	Moisture	Residual Solvents	Foreign Material
Pass	Pass	Pass	Pass	NT	NT	NT

### Cannabinoid Results – Standard Potency

9/15/2019

Standard potency analysis utilizing Ultra High Performance Liquid Chromatography (UHPLC; HI-SOP-024)

Analyte	%	mg/g	mg/mL	LOD mg/g	LOQ mg/g
CBD	3.7	37	34	0.0087	0.0091
CBDA	ND	ND	ND	0.0087	0.0156
CBG	ND	ND	ND	0.0087	0.0100
CBN	ND	ND	ND	0.0087	0.0087
THC	ND	ND	ND	0.0087	0.0087
THCA	ND	ND	ND	0.0087	0.0200
Total	3.7	37	34		

Total THC	Total CBD
Not Detected	3.7 %
Not Detected	37 mg/g
Not Detected	34 mg/mL

Total THC = [THCA x 0.877] + [THC]  
 Total CBD = [CBDA x 0.877] + [CBD]

### Cannabinoid Results – Extended Cannabinoids NT

Extended cannabinoid analysis utilizing Ultra High Performance Liquid Chromatography (UHPLC; HI-SOP-024)

Analyte	%	mg/g	mg/mL	LOD mg/g	LOQ mg/g
CBC	NT	NT	NT	NT	NT
CBD	NT	NT	NT	NT	NT
CBDA	NT	NT	NT	NT	NT
CBDV	NT	NT	NT	NT	NT
CBDVA	NT	NT	NT	NT	NT
CBG	NT	NT	NT	NT	NT
CBN	NT	NT	NT	NT	NT
THC	NT	NT	NT	NT	NT
Δ8-THC	NT	NT	NT	NT	NT
THCA	NT	NT	NT	NT	NT
THCV	NT	NT	NT	NT	NT
THCVA	NT	NT	NT	NT	NT
Total	NT	NT	NT	NT	NT



Nelson Lazaga, Ph.D  
 Laboratory Director  
 Date: 9/16/2019

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**Residual Pesticides Results**
**Pass**
**9/15/2019**

 Residual pesticide analysis utilizing Liquid Chromatography – Mass Spectrometry (LC-MSMS; HI-SOP-025) - **Limit units: ug/g = ppm**

Analyte	Pass/Fail	µg/g	Limit	LOD µg/g	LOQ µg/g	Analyte	Pass/Fail	µg/g	Limit	LOD µg/g	LOQ µg/g
Abamectin B1a	Pass	ND	1	0.22	0.67	Hexythiazox	Pass	ND	1	0.193	0.58
Acephate	Pass	ND	1	0.063	0.191	Imazalil	Pass	ND	1	0.043	0.131
Acequinocyl	Pass	ND	1	0.0032	0.87	Imidacloprid	Pass	ND	1	0.063	0.190
Acetamiprid	Pass	ND	1	0.105	0.32	Kresoxim-methyl	Pass	ND	1	0.059	0.179
Aldicarb	Pass	ND	1	0.035	0.105	Malathion	Pass	ND	1	0.054	0.164
Azoxystrobin	Pass	ND	1	0.080	0.24	Metalaxyl	Pass	ND	1	0.052	0.157
Bifenazate	Pass	ND	1	0.093	0.28	Methiocarb	Pass	ND	1	0.088	0.27
Bifenthrin	Pass	ND	1	0.182	0.55	Methomyl	Pass	ND	1	0.034	0.104
Boscalid	Pass	ND	1	0.190	0.57	Methyl Parathion	Pass	ND	1	0.131	0.40
Carbaryl	Pass	ND	1	0.037	0.111	MGK-264	Pass	ND	1	0.172	0.52
Carbofuran	Pass	ND	1	0.026	0.078	Myclobutanil	Pass	ND	1	0.053	0.161
Chlorantraniliprole	Pass	ND	1	0.079	0.24	Naled	Pass	ND	1	0.049	0.148
Chlorfenapyr	Pass	ND	1	0.034	0.103	Oxamyl	Pass	ND	1	0.034	0.103
Chlorpyrifos	Pass	ND	1	0.078	0.23	Paclobutrazol	Pass	ND	1	0.035	0.105
Clofentezine	Pass	ND	1	0.146	0.44	Permethrin	Pass	ND	1	0.24	0.71
Cyfluthrin	Pass	ND	1	0.36	0.87	Phosmet	Pass	ND	1	0.122	0.37
Cypermethrin	Pass	ND	1	0.23	0.70	Piperonyl Butoxide	Pass	ND	1	0.040	0.121
Diazinon	Pass	ND	1	0.031	0.093	Prallethrin	Pass	ND	1	0.073	0.22
Dichlorvos	Pass	ND	1	0.156	0.47	Propiconazole	Pass	ND	1	0.074	0.22
Dimethoate	Pass	ND	1	0.043	0.131	Propoxur	Pass	ND	1	0.027	0.082
Ethoprophos	Pass	ND	1	0.082	0.25	Pyrethrins	Pass	ND	1	0.035	0.105
Etofenprox	Pass	ND	1	0.21	0.64	Pyridaben	Pass	ND	1	0.184	0.56
Etoxazole	Pass	ND	1	0.044	0.132	Spinosad	Pass	ND	1	0.029	0.088
Fenpyroximate	Pass	ND	1	0.00129	0.0039	Spiromesifen	Pass	ND	1	0.055	0.166
Fipronil	Pass	ND	1	0.099	0.30	Spirotetramat	Pass	ND	1	0.046	0.141
Flonicamid	Pass	ND	1	0.084	0.26	Tebuconazole	Pass	ND	1	0.071	0.21
Fludioxonil	Pass	ND	1	0.054	0.164	Thiacloprid	Pass	ND	1	0.054	0.164

**Mycotoxin Results**
**Pass**
**9/15/2019**

 Mycotoxin analysis utilizing Liquid Chromatography – Mass Spectrometry (LC-MS; HI-SOP-025) - **Limit units: µg/kg = ppb**

Analyte	Pass/Fail	µg/kg	Limit	LOD µg/kg	LOQ µg/kg
Aflatoxin B1		ND		4.5	13.7
Aflatoxin B2		ND		4.1	12.5
Aflatoxin G1		ND		4.3	13.0
Aflatoxin G2		ND		6.2	18.8
Ochratoxin A	Pass	ND	<20	8.0	24
Total Aflatoxins	Pass	ND	<20	6.2	18.8

**Heavy Metals Results**
**Pass**
**9/14/2019**

 Heavy metals analysis utilizing Atomic Absorption Spectroscopy (AAS; HI-SOP-015) - **Limit units: µg/g = ppm**

Analyte	Pass/Fail	µg/g	Limit	LOD µg/g	LOQ µg/g
Arsenic	Pass	ND	10	0.00159	1.65
Cadmium	Pass	< LOQ	4	0.0000132	1.65
Lead	Pass	< LOQ	6	0.00192	1.65
Mercury	Pass	< LOQ	2	0.00142	1.65

**Residual Solvents Results**
**NT**

 Residual solvents and processing chemicals analysis utilizing Headspace Gas Chromatography – Mass Spectrometry (HS-GC-MS; HI-SOP-010) - **Limit units: ug/g = ppm**

Analyte	Pass/Fail	µg/g	Limit	LOD µg/g	LOQ µg/g	Analyte	Pass/Fail	µg/g	Limit	LOD µg/g	LOQ µg/g
Acetone	NT	NT	NT	NT	NT	Isobutane	NT	NT	NT	NT	NT
Acetonitrile	NT	NT	NT	NT	NT	Isopropanol	NT	NT	NT	NT	NT
Benzene	NT	NT	NT	NT	NT	Methanol	NT	NT	NT	NT	NT
Butanes	NT	NT	NT	NT	NT	n-Pentane	NT	NT	NT	NT	NT
Chloroform	NT	NT	NT	NT	NT	Tetrahydrofuran	NT	NT	NT	NT	NT
Ethanol	NT	NT	NT	NT	NT	Toluene	NT	NT	NT	NT	NT
Heptanes	NT	NT	NT	NT	NT	Total Xylenes	NT	NT	NT	NT	NT
n-Hexane	NT	NT	NT	NT	NT						



 Nelson Lazaga, Ph.D.  
 Laboratory Director  
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**Terpenoid Results - Standard Terpenes** NT

Standard terpene analysis utilizing Liquid Chromatography – Mass Spectrometry (LC-MS; HI-SOP-024)

Analyte	%	mg/g	mg/mL	LOD mg/g	LOQ mg/g
Caryophyllene Oxide	NT	NT	NT	NT	NT
β-Caryophyllene	NT	NT	NT	NT	NT
Citronellol	NT	NT	NT	NT	NT
α-Humulene	NT	NT	NT	NT	NT
Linalool	NT	NT	NT	NT	NT
β-Myrcene	NT	NT	NT	NT	NT
Total	NT	NT	NT	NT	NT

**Terpenoid Results - Extended Terpenes** NT

Extended terpene analysis utilizing Gas Chromatography – Mass Spectrometry (GC-MS)

Analyte	%	mg/g	mg/mL	LOD mg/g	LOQ mg/g
α-Bisabolol	NT	NT	NT	NT	NT
Camphene	NT	NT	NT	NT	NT
3-Carene	NT	NT	NT	NT	NT
Caryophyllene Oxide	NT	NT	NT	NT	NT
β-Caryophyllene	NT	NT	NT	NT	NT
Eucalyptol	NT	NT	NT	NT	NT
Geraniol	NT	NT	NT	NT	NT
Guaiol	NT	NT	NT	NT	NT
Humulene	NT	NT	NT	NT	NT
p-Isopropyltoluene	NT	NT	NT	NT	NT
Isopulegol	NT	NT	NT	NT	NT
Limonene	NT	NT	NT	NT	NT
Linalool	NT	NT	NT	NT	NT
β-Myrcene	NT	NT	NT	NT	NT
Nerolidol	NT	NT	NT	NT	NT
Ocimene	NT	NT	NT	NT	NT
α-Pinene	NT	NT	NT	NT	NT
β-Pinene	NT	NT	NT	NT	NT
α-Terpinene	NT	NT	NT	NT	NT
γ-Terpinene	NT	NT	NT	NT	NT
Terpinolene	NT	NT	NT	NT	NT
Total	NT	NT	NT	NT	NT

**Microbial Impurities Results**
Pass

9/15/2019

 Microbiological screening utilizing PathogenDx and TEMPO (HI-SOP-008 + HI-SOP-007) - **Limit units: CFU/g**

Analyte	Pass/Fail	Result	Limit	LOQ
Aspergillus flavus	Pass	ND	ND	Not Detected in 1 gram
Aspergillus fumigatus	Pass	ND	ND	Not Detected in 1 gram
Aspergillus niger	Pass	ND	ND	Not Detected in 1 gram
Salmonella	Pass	ND	ND	Not Detected in 1 gram
Aerobic	Pass	<100	10000	1 CFU/g
Coliform	Pass	<100	100	1 CFU/g
Enterobacteria	Pass	<100	100	1 CFU/g
General E. coli	Pass	<1	ND	1 CFU/g
Yeast & Mold	Pass	<100	1000	1 CFU/g

**Moisture Results**
NT

 Moisture content analysis utilizing Moisture Balance (MB; HI-SOP-033) - **Limit units: %**

Analyte	Pass/Fail	%	Limit
Moisture	NT	NT	

**Foreign Material Results**
NT

Foreign material analysis utilizing visual inspection with 10x magnification (HI-SOP-016)

Analyte	Pass/Fail
Visual Inspection	NT

 LOD: Limit of Detection  
 LOQ: Limit of Quantitation  
 NT: Not Tested  
 ND: Not Detected



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