Steep Hill Massachusetts

Analytical Report

[A] 40 Speen St., Suite 301		
Framingham, MA 01701	SHMA Report ID:	**REVP-33309**
Lab: 508-465-3470 email: lab-ma@greenanalyticsllc.com	Report Submitted:	**1/6/2024**

[B] Client Info

Revolutionary Clinics

1 Oak Hill Rd., Unit B

Fitchburg, MA 01420

License:	**MP281425**
Metrc Manifest:	**2003866**
Date Received:	**1/2/2024**

[C] Sample Identification

METRC Batch ID:	**FCC1229333486**
METRC Sample ID:	**1A40A03000003EA000333309**
METRC Source ID:	**1A40A03000003EA000333486**
ME Batch ID:	**NA**

[D] Sample Properties

Sample Weight (g):	**70.3**
Serving Size (g):	**3.60**

[E] Product Characterization

Production Stage:	**Marijuana Infused Products**
Product Class:	**Edible**
Ingestion Only:	---
Extraction Solvent:	---
Retail Name:	**KIVA Camino Yuzu Lemon (1:1 CBD:THC) Gummies**

[F] Results for Requested Analyses

Y = Tested   "-" = Not Tested   P = Pass   F = Fail

Cannabinoid Profile	Terpene Profile	Heavy Metals	Residual Solvents	Pesticides	Total Yeast and Mold
Y	-	-	-	-	P

Mycotoxins	Pathogenic Bacteria	Total Coliforms	Total Aerobic Bacteria	Entero-bacteriaceae	Vitamin E Acetate
P	P	P	P	P	-

[G] Authorization

Steep Hill Massachusetts is an Independent Testing Laboratory accredited to ISO/IEC 17025:2017 and licensed by the Massachusetts Cannabis Control Commission (CCC, # IL281277). Analytical methods and best-practices used are in compliance with the CCC's Protocol for Sampling and Analysis of Finished Medical Marijuana Products and Marijuana-Infused Products for MA Registered Medical Marijuana Dispensaries. Where statements of conformity are reported ('pass' vs. 'fail'), the simple acceptance decision rule is applied.

The net/gross weight of the sample received was verified and all analyses were conducted at the SHMA laboratory. Results presented here pertain to the sample received and relate only to items tested. This Analytical Report shall not be reproduced except in full without SHMA approval.

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A2LA ACCREDITED
CERT #s 4356.04 ; 4356.05

Kimberly Ross, PhD

Kimberly Ross, PhD

Laboratory Director

Steep Hill Massachusetts

[H] Cannabinoid Profile

Metrc ID Tag: 1A40A03000003EA000333309   Analysis Date: 01/05/24

Datafile: REVP-33309_1A40A03000003EA000333309_498727_POTENCY_D_20240102_ML_01_122024_14_01   Analyst(s):   NG

Cannabinoids were analyzed using a High Performance Liquid Chromatograph equipped with a Photodiode Array Detector (HPLC-PDA) following SHMA SOP-002-GA; SOP-025-GA; SOP-073-GA.

Cannabinoid	LOQ (%)	Result (%)	Result (mg/g)	Result (mg/serv)
Tetrahydrocannabinolic acid (THCA)	0.0068	ND	ND	ND
Δ9-Tetrahydrocannabinol (Δ9-THC)	0.0068	0.1466	1.466	5.278
Cannabidiolic acid (CBDA)	0.0071	ND	ND	ND
Cannabidiol (CBD)	0.0067	0.1486	1.486	5.350
Cannabinol (CBN)	0.0027	0.0030	0.030	0.108
Cannabichromene (CBC)	0.0027	BLQ	BLQ	BLQ
Cannabigerolic acid (CBGA)	0.0028	ND	ND	ND
Cannabigerol (CBG)	0.0027	0.0079	0.079	0.284
Cannabidivarin (CBDV)	0.0027	BLQ	BLQ	BLQ
Tetrahydrocannabivarin (THCV)	0.0027	BLQ	BLQ	BLQ
Δ8-Tetrahydrocannabinol (Δ8-THC)	0.0027	ND	ND	ND
Total Available Cannabinoids	-	0.3061	3.061	11.020

Note "NT": Not Tested; "ND": Not Detected; "BLQ": Below limit of Quantification.

[I] Heavy Metals Analysis

Metrc ID Tag: NT   Analysis Date: NT

Datafile: NT   Analyst(s):   NT

Heavy Metals were measured using an Inductively Coupled Plasma Mass Spectrometer (ICP-MS) following SHMA SOP-021-GA; SOP-061-GA; SOP-072-GA.

Analyte	LOQ (ppb)	Result (ppb)	All Uses Limit (ppb)	All Uses Finding	Ingestion Only Limit (ppb)	Ingestion Only Finding
Total Arsenic	NT	NT	200.0	NT	1500.0	NT
Cadmium	NT	NT	200.0	NT	500.0	NT
Total Mercury	NT	NT	100.0	NT	1500.0	NT
Lead	NT	NT	500.0	NT	1000.0	NT

Note "NT": Not Tested; "ND": Not Detected; "BLQ": Below limit of Quantification.

[J] Microbial Contaminants Analysis

Metrc ID Tag: 1A40A03000003EA000333309

Analyst(s):   JT

Microbial contaminants were quantified using a 3M Petrifilm method and reported as colony forming units per gram (CFU/g). Samples were extracted and analyzed following SHMA SOP-700-MA.

Analyte	Result (CFU/g)	Datafile	Analysis Date	Limit (CFU/g)	Finding
Total Coliforms (CC)	ND	PLA-20240102_AP_02	01/04/24	1.00E+03	Pass
Total Yeast and Mold (YM)	ND	PLA-20240102_AP_02	01/04/24	1.00E+04	Pass
Total Viable Aerobic Bacteria (TAC)	ND	PLA-20240102_AP_02	01/04/24	1.00E+05	Pass
Enterobacteriaceae (EB)	ND	PLA-20240102_AP_02	01/04/24	1.00E+03	Pass

Note: "NT": Not Tested; "ND" Not Detected. Enterobacteriaceae is the family of bacteria also known as Bile-Tolerant Gram-Negative bacteria.

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[K] Pathogenic Bacteria Results

Metrc ID Tag: 1A40A03000003EA000333309   Analysis Date: 01/04/24

Datafile: PCR-20240102_D2   Analyst(s): JT

The presence or absence of STEC E. coli and Salmonella spp in the sample was determined using a PCR technique. Samples were incubated for a minimum of 18 hours prior to DNA extraction following SHMA SOP-700-MA; SOP-701-GA; SOP-702-GA; SOP-703-GA; SOP-704-GA.

Analyte	Result	Analysis Date	Limit	Finding
STEC E. coli	Not Detected	01/04/24	Detection in 1.0 g	Pass
Salmonella spp.	Not Detected	01/04/24	Detection in 1.0 g	Pass

Note: "NT": Not Tested; "ND": Not Detected.

[L] Mycotoxins Results

Metrc ID Tag: 1A40A03000003EA000333309   Analysis Date: 01/06/24

Datafile: (Path: D:\Analyst Data\Projects\SHMA 2023\PGMY_VEA\Data\DataPGMY_B_20240103_BJ_02.w   Analyst(s): SD

Mycotoxins were measured using a High Performance Liquid Chromatograph equipped with a tandem Mass Spectrometer (HPLC-MS/MS) following SHMA SOP-002-GA; SOP-062-GA; SOP-070-GA.

Analyte	LOQ (ppb)	Result (ppb)	Limit (ppb)	Finding
Aflatoxin B1	6.0	ND	-	Tested
Aflatoxin B2	6.0	ND	-	Tested
Aflatoxin G1	6.0	ND	-	Tested
Aflatoxin G2	6.0	ND	-	Tested
Ochratoxin A	6.0	ND	-	Tested
Total Mycotoxins	-	ND	20.0	Pass

Note "NT": Not Tested; "ND": Not Detected; "BLQ": Below limit of Quantification.

[M] Residual Solvent Results

Metrc ID Tag: NT   Analysis Date: NT

Datafile: NT   Analyst(s): NT

Residual Solvents were measured using a Headspace Sampler coupled to a Gas Chromatograph equipped with a tandem Mass Spectrometer (HS-GC-MS/MS) following SHMA SOP-011-GA; SOP-067-GA; SOP-010-GA.

Analyte	LOQ (ppm)	Result (ppm)	Limit (ppm)	Finding
Ethanol	NT	NT	NT	NT
Propane	NT	NT	NT	NT
iso-Butane	NT	NT	NT	NT
n-Butane	NT	NT	NT	NT
n-Pentane	NT	NT	NT	NT
Acetone	NT	NT	NT	NT

Note "NT": Not Tested; "ND": Not Detected; "BLQ": Below limit of Quantification.

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[N] Pesticides Results

	Metrc ID Tag:	NT	Analysis Date:	NT
Datafile: NT			Analyst(s):	NT

Pesticides were measured using a High Performance Liquid Chromatograph equipped with a tandem Mass Spectrometer (HPLC MS/MS) following SHMA SOP-002-GA; SOP-062-GA; SOP-070-GA.

Analyte	LOQ (ppb)	Result (ppb)	Limit (ppb)	Finding
Bifenazate	NT	NT	NT	NT
Bifenthrin	NT	NT	NT	NT
Cyfluthrin	NT	NT	NT	NT
Etoxazole	NT	NT	NT	NT
Imazalil	NT	NT	NT	NT
Imidacloprid	NT	NT	NT	NT
Myclobutanil	NT	NT	NT	NT
Spiromesifen	NT	NT	NT	NT
Trifloxystrobin	NT	NT	NT	NT

Note "NT": Not Tested; "BLQ": Below Limit of Quantification; "ND": Not Detected

[O] Vitamin E Acetate Results

	Metrc ID Tag:	NT	Analysis Date:	NT
Datafile: NT			Analyst(s):	NT

Vitamin E Acetate was measured using a High Performance Liquid Chromatograph equipped with a tandem Mass Spectrometer (HPLC MS/MS) following SHMA SOP-002-GA; SOP-062-MA; SOP-070-MA.

Analyte	LOD (ppb)	Result (ppb)	Limit (ppb)	Finding
Vitamin E Acetate	-	NT	-	NT

Note "NT": Not Tested; "LOD": Limit of Detection

[P] Terpenes Profile

	Metrc ID Tag:	NT	Analysis Date:	NT
Datafile: NT			Analyst(s):	NT

Terpenes were measured using liquid autosampler injection onto a Gas Chromatograph equipped with a tandem Mass Spectrometer (HS-GC-MS/MS) following SHMA SOP-011-GA; SOP-067-GA; SOP-010-GA.

Terpenes	LOD (%)	Result (%)	Result (mg/g)
alpha-Pinene	NT	NT	NT
beta-Pinene	NT	NT	NT
beta-Myrcene	NT	NT	NT
Limonene	NT	NT	NT
Terpinolene	NT	NT	NT
Linalool	NT	NT	NT
Caryophyllene	NT	NT	NT
alpha-Humulene	NT	NT	NT
Caryophyllene oxide	NT	NT	NT
alpha-Bisabolol	NT	NT	NT
Total Terpenes	-	-	-

Note NT: Not Tested.

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Item Name: KIVA Camino Yuzu Lemon (1:1 CBD:THC) Gummies

QA/QC Section

[Q] Cannabinoid QC	Analysis Date:	01/05/24
Datafile: LCS_POTENCY_D_20240102_ML_01_122024_4_004.lcd	Analyst(s):	NG

QC Notes: Quality control checks were prepared at known concentrations and run alongside batch samples.

Cannabinoid	Measured Conc. (mg/mL)	Expected Conc. (mg/mL)	% Recovery
Tetrahydrocannabinolic acid (THCA)	0.049	0.050	97%
Δ9-Tetrahydrocannabinol (Δ9-THC)	0.047	0.050	95%
Cannabidiolic acid (CBDA)	0.048	0.050	95%
Cannabidiol (CBD)	0.048	0.050	96%
Cannabinol (CBN)	0.048	0.050	95%
Cannabichromene (CBC)	0.047	0.050	95%
Cannabigerolic acid (CBGA)	0.046	0.050	91%
Cannabigerol (CBG)	0.047	0.050	93%
Cannabidivarin (CBDV)	0.048	0.050	96%
Tetrahydrocannabivarin (THCV)	0.048	0.050	96%
Δ8-Tetrahydrocannabinol (Δ8-THC)	0.048	0.050	97%

[R] Heavy Metals QC	Analysis Date:	NT
Datafile: NT	Analyst(s):	NT

QC Notes: Quality control checks were prepared at known concentrations and run alongside batch samples.

Analyte	Measured Conc. (ppb)	Expected Conc. (ppb)	% Recovery
Total Arsenic	NT	NT	NT
Cadmium	NT	NT	NT
Total Mercury	NT	NT	NT
Lead	NT	NT	NT

[S] Microbial Contaminants QC	Analysis Date:	1/4/2024
	Analyst(s):	JT

QC Notes: Quality control checks are included with each run to assess the success of sample plating.

Target	Datafile	Positive Control Result	Negative Control Result	Finding
Total Coliforms (CC)	PLA-20240102_AP_02	Detected	Not Detected	Pass
Total Yeast and Mold (YM)	PLA-20240102_AP_02	Detected	Not Detected	Pass
Total Viable Aerobic Bacteria (TAC)	PLA-20240102_AP_02	Detected	Not Detected	Pass
Enterobacteriaceae (EB)	PLA-20240102_AP_02	Detected	Not Detected	Pass
Expected Value		*Detected*	*Not Detected*	

Note: "NT": Not Tested; "ND" Not Detected.

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[T] Pathogenic Bacteria QC

	Analysis Date:	1/4/2024
	Analyst(s):	JT

QC Notes: Quality control checks are included with each run to assess the success of instrument run and polymerase chain reaction.

Target	Datafile	Positive Control Cq	Negative Control Cq	Finding
STEC E. coli	PCR-20240102_D2	13.29	N/A	Pass
Salmonella spp.	PCR-20240102_D2	22.31	N/A	Pass
Expected Value		*Cq ≤ 35*	*Cq>35 or N/A*	

Note: "NT": Not Tested; "ND": Not Detected.

[U] Mycotoxins QC

	Analysis Date:	01/06/24
Datafile: (Path: D:\Analyst Data\Projects\SHMA 2023\PGMY_VEA\Data\DataPGMY_B_20240103_BJ_02.wiff)	Analyst(s):	SD

QC Notes: Quality control checks were prepared at known concentrations and run alongside batch samples.

Analyte	Measured Conc. (ppb)	Expected Conc. (ppb)	% Recovery
Aflatoxin B1	1.0	0.8	121%
Aflatoxin B2	0.7	0.8	89%
Aflatoxin G1	0.6	0.8	73%
Aflatoxin G2	0.6	0.8	78%
Ochratoxin A	0.7	0.8	86%

[V] Residual Solvent QC

	Analysis Date:	NT
Datafile: NT	Analyst(s):	NT

QC Notes: Quality control checks were prepared at known concentrations and run alongside batch samples.

Analyte	Measured Conc. (ppm)	Expected Conc. (ppm)	% Recovery
Ethanol	NT	NT	NT
iso-Butane	NT	NT	NT
Propane	NT	NT	NT
n-Butane	NT	NT	NT
n-Pentane	NT	NT	NT
Acetone	NT	NT	NT

[W] Pesticides QC

	Analysis Date:	NT
Datafile: NT	Analyst(s):	NT

QC Notes: Quality control checks were prepared at known concentrations and run alongside batch samples.

Analyte	Measured Conc (ppb)	Expected Conc (ppb)	% Recovery	Finding
Bifenazate	NT	NT	NT	NT
Bifenthrin	NT	NT	NT	NT
Cyfluthrin	NT	NT	NT	NT
Etoxazole	NT	NT	NT	NT
Imazalil	NT	NT	NT	NT
Imidacloprid	NT	NT	NT	NT
Myclobutanil	NT	NT	NT	NT
Spiromesifen	NT	NT	NT	NT
Trifloxystrobin	NT	NT	NT	NT

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[X] Vitamin E Acetate QC		Analysis Date:	NT
Datafile: NT		Analyst(s):	NT

QC Notes: Quality control checks were prepared at known concentrations and run alongside batch samples.

Analyte	Observed Result	Expected Result	Finding
Vitamin E Acetate	NT	NT	NT

- End of Analytical Report -