

Analytical Test Report

Client: Pocono Organics	Final Report PHR-S2002461 Rev.01.00 Report Date: 13 JULY 2020	Laboratory: PHR Labs, LLC 2020 Downyflake Lane, Suite 301 Allentown, PA 18103 215-220-9981
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Sample ID #	Sample Name	Batch	Matrix	Date Received	Date Tested	Serving size weight
PHR-S20-02461	Lip Balm Kool Spearmint	08202007	MIP	10 July 2020	10-13 July 2020	1 gram

The test results presented in this report are accurate, complete, and compliant with the PHR Labs quality control criteria.

Authorization This test is accredited under the laboratory's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation AT-2685.01.

Corey Fitze

Corey Fitze
Chief Operating Officer



Case Narrative:

For cannabinoids, the sample was extracted using organic solvents and analyzed via High Performance Liquid Chromatography (HPLC-UV). For microbiological contaminants, the sample was prepared using cultured enrichments, was incubated for set periods of time, and analyzed via an automated Most Probable Number (MPN) methodology. For pathogenic bacterial contaminants, the sample was prepared using cultured enrichments, was incubated for set periods of time, and analyzed via an automated Enzyme Linked Fluorescent Assay (ELFA). For pesticide contaminants, the sample was extracted using organic solvents, and analyzed via Liquid Chromatography - Tandem Mass Spectrometry (LC-MS/MS). For heavy metals, the sample was extracted using nitric acid and microwave digestion, and analyzed via Inductively Coupled Plasma Mass Spectrometry (ICP-MS). The collected data was compared to data collected from analytical reference standards at known concentrations. Values reported below quantitation limits are for informational purposes.

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Requested Testing:

Test	Code	Procedure	Analytes Tested
Cannabinoid Profile	CN	PHR-TM-0002	CBGA, CBG, THCA, Δ9-THC, Δ8-THC, CBDA, CBD, CBNA, CBN, CBCA, CBC, CBLA, CBL, CBDVA, CBDV, THCVA, THC
Microbiological Screen	MB	PHR-TM-0001	Bacterial (Total Aerobic, Total Coliform, Bile-Tolerant Gram Negative), Yeast and Mold, Pathogenic (E. coli, Salmonella)
Heavy Metals Screen	HM	PHR-TM-0006	Arsenic (As), Cadmium (Cd), Lead (Pb), Mercury (Hg)
Pesticides Screen	PS	PHR-TM-0005	Cyfluthrin, Hexythiazox, Piperonyl Butoxide, Acephate, Cypermethrin, Imazalil, Imidacloprid, Propiconazole, Acetamiprid, DDVP, Propoxur, Aldicarb, Malathion, Pyridaben, Azoxystrobin, Dimethoate, Metalaxyl, Methiocarb, Bifenthrin, Ethoprophos, Methomyl, Spiromesifen, Etofenprox, Spirotetramat, Carbaryl, Etoxazole, Mkg-264, Spiroxamine, Carbofuran, Myclobutanil, Tebuconazole, Captan, Fenoxycarb, Naled, Thiacloprid, Chlorantranilprole, Fenpyroximate, Oxamyl, Thiamethoxam, Trifloxystrobin, Chlorpyrifos, Flonicamid, Permethrins, Clofentazine, Fludioxonil
Terpene Screen	TP	PHR-TM-0003	α-Pinene, Camphene, β-Myrcene, β-Pinene, δ-3-Carene, α-Terpinene, Ocimene, δ-Limonene, p-Cymene, β-Ocimene, Eucalyptol, γ-Terpinene, Terpinolene, Linalool, Isopulegol, Geraniol, β-Caryophyllene, α-Humulene, cis-Nerolidol, trans-Nerolidol, Guaiol, Caryophyllene Oxide, α-Bisabolol

Cannabinoid Profile [PCR-TM-0002] Analyst: JA Test Date: 10 Jul 20
 The sample was analyzed for cannabinoids via High Performance Liquid Chromatography (HPLC-UV). The collected data was compared to data collected from certified analytical reference standards at known concentrations.

Table 1. 20-02461 Lip Balm Kool Spearmint 08202007 MIP Cannabinoid Testing

Analyte	Cannabinoid	Conc. (mg/serving size)	Conc. (mg/g)	LOQ (mg/g)	LOD (mg/g)
CBDVA	Cannabidivarinic acid	ND	ND	0.1	0.004
CBDV	Cannabidivarin	0.11	0.11	0.1	0.004
CBDA	Cannabidiolic acid	ND	ND	0.1	0.022
CBGA	Cannabigerolic acid	ND	ND	0.1	0.03
CBG	Cannabigerol	ND	ND	0.1	0.033
CBD	Cannabidiol	6.19	6.19	0.1	0.011
THCV	Tetrahydrocannabivarin	ND	ND	0.1	0.006
THCVA	Tetrahydrocannabivarinic acid	ND	ND	0.1	0.013
CBN	Cannabinol	ND	ND	0.1	0.008
CBNA	Cannabinolic acid	ND	ND	0.1	0.008
Δ9-THC	Δ9-Tetrahydrocannabinol	0.2	0.20	0.1	0.1
Δ8-THC	Δ8-Tetrahydrocannabinol	ND	ND	0.1	0.007
CBL	Cannabicyclol	ND	ND	0.1	0.014
CBC	Cannabichromene	0.36	0.36	0.1	0.009
THCA	Tetrahydrocannabinolic acid	ND	ND	0.1	0.015
CBCA	Cannabichromenic acid	ND	ND	0.5	0.025
CBLA	Cannabicyclolic acid	ND	ND	0.1	0.011

Note: ND = Not Detected; LOQ = Limit of Quantitation; LOD = Limit of Detection; BQL = Below Quantitation Limit.

Microbiological Screen [PCR-TM-0001] Analyst: JA Test Date: 10-13 Jul 20
 The sample was analyzed for microbiological contaminants via an automated Most Probable Number (MPN) methodology with cultured enrichments.

Microbiological Testing

Test ID	Test Analysis	Results	Unit
20-02461-AC	Total Viable Aerobic Bacteria	<100	CFU/g
20-02461-YM	Total Yeast and Mold	<100	CFU/g
20-02461-CC	Total Coliforms	Not Tested	CFU/g
20-02461-EB	Total Bile-Tolerant Gram Negative Bacteria	<100	CFU/g

Note: CFU = colony forming unit.

Pathogenic Bacterial Screen [PCR-TM-0001] Analyst: AP Test Date: 11 Jul 20

The sample was analyzed for pathogenic bacterial contamination via an automated Enzyme Linked Fluorescent Assay (ELFA).

Table 3. 20-02461 Lip Balm Kool Spearmint 08202007 MIP Pathogen Testing

Test ID	Test Analysis	Result	Units
20-02461-ECPT	<i>E. coli</i> (O157)	Not Detected	N/A
20-02461-SPT	<i>Salmonella</i>	Not Detected	N/A

Heavy Metals Screen [PCR-TM-0006] Analyst: JA Test Date: 10 Jul 20

The sample was analyzed via Inductively Coupled Plasma Mass Spectrometry. The collected data was compared to data collected from certified analytical reference standards at known concentrations.

Table 4. 20-02461 Lip Balm Kool Spearmint 08202007 MIP Heavy Metal Testing

Test ID	Test Analysis	Result (ppm)	LOD (ppm)	LOQ (ppm)
20-02461-HM	Arsenic (As)	ND	0.028	0.085
20-02461-HM	Cadmium (Cd)	ND	0.025	0.076
20-02461-HM	Mercury (Hg)	ND	0.014	0.044
20-02461-HM	Lead (Pb)	ND	0.014	0.042

Note: ND = Not Detected; LOD = Limit of Detection; LOQ = Limit of Quantitation; BQL = Below Quantitation Limit; ppm = parts per million.

Pesticides Screen [PCR-TM-0005] Analyst: JA Test Date: 11 Jul 20

The sample was analyzed via Liquid Chromatography - Tandem Mass Spectrometry (LC-MS/MS).
The collected data was compared to data collected from analytical reference standards at known concentrations.

Table 5. 20-02461 Lip Balm Kool Spearmint 08202007 MIP Pesticide Testing

Test Analysis	Result (µg/g)	LOD (µg/g)	LOQ (µg/g)	Test Analysis	Result (µg/g)	LOD (µg/g)	LOQ (µg/g)
Cyfluthrin	ND	0.1666	0.5498	Spirotetramat	N/A	0.0145	0.0842
Hexythiazox	ND	0.0204	0.0673	Carbaryl	ND	0.0146	0.048
Piperonyl Butoxide	ND	0.015	0.0494	Etoxazole	ND	0.0112	0.0482
Acephate	ND	0.0196	0.0648	Mgk-264	ND	0.0113	0.037
Cypermethrin	N/A	0.0341	0.1124	Spiroxamine	N/A	0.1059	0.0372
Imazalil	ND	0.0079	0.0259	Carbofuran	ND	0.019	0.3493
Imidacloprid	ND	0.0347	0.1144	Myclobutanil	ND	0.0146	0.0627
Propiconazole	ND	0.0157	0.0519	Tebuconazole	ND	0.0148	0.0481
Acetamiprid	ND	0.0087	0.0288	Captan	ND	0.017	0.049
DDVP	ND	0.0217	0.0716	Fenoxycarb	ND	N/A	0.0562
Propoxur	ND	0.0198	0.0653	Naled	ND	0.0087	N/A
Aldicarb	ND	0.0133	0.0439	Thiacloprid	ND	0.0066	0.0288
Malathion	ND	0.0199	0.0658	Chlorantraniliprole	ND	0.0129	0.0217
Pyridaben	ND	0.0145	0.0477	Fenpyroximate	ND	0.0147	0.0428
Azoxystrobin	ND	N/A	0.05	Oxamyl	ND	0.0063	0.0484
Dimethoate	ND	0.0149	0.0491	Thiamethoxam	ND	0.0162	0.0207
Metaxyl	ND	0.0139	0.0459	Trifloxystrobin	ND	0.0116	0.0534
Methiocarb	ND	0.0139	0.0458	Chlorpyrifos	ND	0.0179	0.0384
Bifenthrin	N/A	0.035	0.1154	Fonicamid	ND	0.0164	0.0591
Ethoprophos	ND	0.0188	0.0622	Permethrins	ND	0.0095	0.054
Methomyl	ND	0.0157	0.0519	Clofentezine	ND	N/A	0.0313
Spiromesifen	N/A	0.0255	0.0842	Fludioxonil	ND	0.0205	0.05
Etofenprox	N/A	0.0145	0.048				

Note: ND = Not Detected; LOD = Limit of Detection; LOQ = Limit of Quantitation; ppb = parts per billion; N/A = not available.

Terpene Profile [PCR-TM-0003]*Analyst: JA**Test Date: 10 Jul 20*

The sample was analyzed via Gas Chromatography – Flame Ionization Detection with Headspace Autosampler. The collected data was compared to data collected from certified analytical reference standards at known concentrations.

Table. 6. 20-02461 Lip Balm Kool Spearmint 08202007 MIP Terpene Testing

Terpene	Test Result
α -Pinene	ND
Camphene	ND
β -Myrcene	ND
β -Pinene	ND
δ 3-Carene	ND
α -Terpinene	ND
Ocimene	ND
δ -Limonene	0.31%
p-Cymene	ND
β -Ocimene	ND
Eucalyptol	ND
γ -Terpinene	0.02%
Terpinolene	ND
Linalool	0.02%
Isopulegol	ND
Geraniol	ND
β -Caryophyllene	ND
α -Humulene	ND
cis-Nerolidol	ND
trans-Nerolidol	ND
Guaiol	ND
Caryophyllene Oxide	ND
α -Bisabolol	ND
Sum	0.35%

Note: ND = Not Detected.

QA/QC

Cannabinoid Profile [PCR-TM-0002] Analyst: MD Test Date: 10 Jul 20

The sample data for certified reference standards was collected at known concentrations of cannabinoids in solution.

QC-0.05 mg/mL 17 cannabinoid multi-component 44004

ID	Cannabinoid	Nominal Prep Conc (mg/mL)	Measured Conc. (mg/mL)	Recovery (%)
CBDVA	Cannabidivarinic acid	0.05	0.051	102%
CBDV	Cannabidivarin	0.05	0.051	102%
CBDA	Cannabidiolic acid	0.05	0.054	107%
CBGA	Cannabigerolic acid	0.05	0.050	100%
CBG	Cannabigerol	0.05	0.053	106%
CBD	Cannabidiol	0.05	0.051	102%
THCV	Tetrahydrocannabivarin	0.05	0.049	98%
THCVA	Tetrahydrocannabivarinic acid	0.05	0.048	96%
CBN	Cannabinol	0.05	0.050	100%
CBNA	Cannabinolic acid	0.05	0.049	98%
Δ 9-THC	Δ 9-Tetrahydrocannabinol	0.05	0.051	102%
Δ 8-THC	Δ 8-Tetrahydrocannabinol	0.05	0.049	98%
CBL	Cannabicyclol	0.05	0.051	102%
CBC	Cannabichromene	0.05	0.052	104%
THCA	Tetrahydrocannabinolic acid	0.05	0.053	106%
CBCA	Cannabichromenic acid	0.05	0.050	100%
CBLA	Cannabicyclolic acid	0.05	0.049	98%

Criteria for successful analysis is QC recovery to be $\leq 20\%$ above or below nominal.

Microbiological Screen [PCR-TM-0001] Analyst: AP Test Date:

Quality control checks are performed to confirm that the equipment used for reading incubated microbiological cultures, which are done at various concentrations, are working correctly and that the fluorescence readings are accurate. QC checks are performed within 30 days of the recorded measurements.

Date of most recent QC check:

Status: Pass

Pathogenic Bacterial Screen [PCR-TM-0001]

Analyst: JA

Test Date: 07 Jul 20

Quality control checks are performed to validate the equipment used for reading incubated pathogenic bacterial cultures. E. coli QC checks are run at least every 14 days. Salmonella QC checks are run every 28 days.

Date	QC Check	Pathogen	Result	Disposition
7/7/2020	Control (+)	<i>E. coli</i> (O157)	Positive	Pass
7/7/2020	Control (-)	<i>E. coli</i> (O157)	Negative	Pass
7/7/2020	Standard 1	<i>E. coli</i> (O157)	N/A	N/A
7/7/2020	Standard 2	<i>E. coli</i> (O157)	N/A	N/A
7/7/2020	Control (+)	<i>Salmonella</i>	Positive	Pass
7/7/2020	Control (-)	<i>Salmonella</i>	Negative	Pass
7/7/2020	Standard 1	<i>Salmonella</i>	N/A	N/A
7/7/2020	Standard 2	<i>Salmonella</i>	N/A	N/A

Heavy Metals Screen [PCR-TM-0006]

Analyst: JA

Test Date: 10 Jul 20

QC samples were prepared at target concentrations and injected at the end of the sequence.

Analyte	Prepared analyte concentration (ppb)	Analyte measured (ppb)	QC recovery (%)
Arsenic (As)	2.00	1.88	94%
Cadmium (Cd)	2.00	1.98	99%
Mercury (Hg)	0.50	5.2	87%
Lead (Pb)	6.00	2.01	100%

Criteria for successful analysis is QC recovery to be ≤20% above or below nominal.

Pesticides Screen [PCR-TM-0005] Analyst: JA *All* alv Test Date: 11 Jul 20

QC samples were prepared at target concentrations and injected at the end of the sequence.

Test Analysis	Prepared analyte concentration (µg/g)	Result	Test Analysis	Prepared analyte concentration (µg/g)	Result
Cyfluthrin	0.1500	Detected	Spirotetramat	0.1500	Detected
Hexythiazox	0.1500	Detected	Carbaryl	0.1500	Detected
Piperonyl Butoxide	0.1500	Detected	Etoxazole	0.1500	Detected
Acephate	0.1500	Detected	Mgk-264	0.1500	Detected
Cypermethrin	0.1500	Detected	Spiroxamine	0.1500	Detected
Imazalil	0.1500	Detected	Carbofuran	0.1500	Detected
Imidacloprid	0.1500	Detected	Myclobutanil	0.1500	Detected
Propiconazole	0.1500	Detected	Tebuconazole	0.1500	Detected
Acetamiprid	0.1500	Detected	Captan	0.1500	Detected
DDVP	0.1500	Detected	Fenoxycarb	0.1500	Detected
Propoxur	0.1500	Detected	Naled	0.1500	Detected
Aldicarb	0.1500	Detected	Thiacloprid	0.1500	Detected
Malathion	0.1500	Detected	Chlorantraniliprole	0.1500	Detected
Pyridaben	0.1500	Detected	Fenpyroximate	0.1500	Detected
Azoxystrobin	0.1500	Detected	Oxamyl	0.1500	Detected
Dimethoate	0.1500	Detected	Thiamethoxam	0.1500	Detected
Metalaxyl	0.1500	Detected	Trifloxystrobin	0.1500	Detected
Methiocarb	0.1500	Detected	Chlorpyrifos	0.1500	Detected
Bifenthrin	0.1500	Detected	Flonicamid	0.1500	Detected
Ethoprophos	0.1500	Detected	Permethrins	0.1500	Detected
Methomyl	0.1500	Detected	Clofentezine	0.1500	Detected
Spriromesifen	0.1500	Detected	Fludioxonil	0.1500	Detected
Etofenprox	0.1500	Detected			

Terpene Profile [PCR-TM-0003]

Analyst: JA

Test Date: 10 Jul 20

The sample was analyzed via Gas Chromatography – Flame Ionization Detection with Headspace Autosampler. The collected data was compared to data collected from certified analytical reference standards at known concentrations.

Terpene	Nominal Prep Conc (mg/mL)	Measured Conc. (mg/mL)	Recovery (%)
α -Pinene	50.0	52.4	105%
Camphene	50.0	47.4	95%
β -Myrcene	50.0	55.3	111%
β -Pinene	50.0	47.8	96%
δ 3-Carene	50.0	49.9	100%
α -Terpinene	50.0	52.3	105%
Ocimene	50.0	48.6	97%
δ -Limonene	50.0	49.0	100%
p-Cymene	50.0	49.8	98%
β -Ocimene	50.0	48.8	98%
Eucalyptol	50.0	47.6	95%
γ -Terpinene	50.0	46.6	93%
Terpinolene	50.0	50.3	101%
Linalool	50.0	47.7	95%
Isopulegol	50.0	50.8	102%
Geraniol	50.0	43.6	87%
β -Caryophyllene	50.0	50.8	102%
α -Humulene	50.0	47.4	95%
cis-Nerolidol	50.0	49.3	99%
trans-Nerolidol	50.0	49.6	99%
Guaiol	50.0	53.2	106%
Caryophyllene Oxide	50.0	52.0	104%
α -Bisabolol	50.0	55.5	111%

Criteria for successful analysis is QC recovery to be $\leq 20\%$ above or below nominal.

END OF REPORT