

CERTIFICATE OF ANALYSIS

Order Type: Other
Order ID: OR2019-4062

Customer ID: 72
Customer Name: Honey Creek Labs

Harvest/Extract Lot: None
Harvest/Extract Batch: SPK192305

Cultivar (Strain): SPK
Sample Date: 09/25/2019

Lab ID: SA2019-13071
Date Received: 09/25/2019

Sample Matrix: Concentrate
Date Completed: 10/04/2019

Remarks:

CANNABINOID (POTENCY) PROFILE

Analysis Date/Time: 09/29/2019 2145
Analyst: OL

Method: HPLC/DAD (Internal Method-001)
Instrument: Agilent 1100

Moisture Content (%): -
Water Activity (aw): -

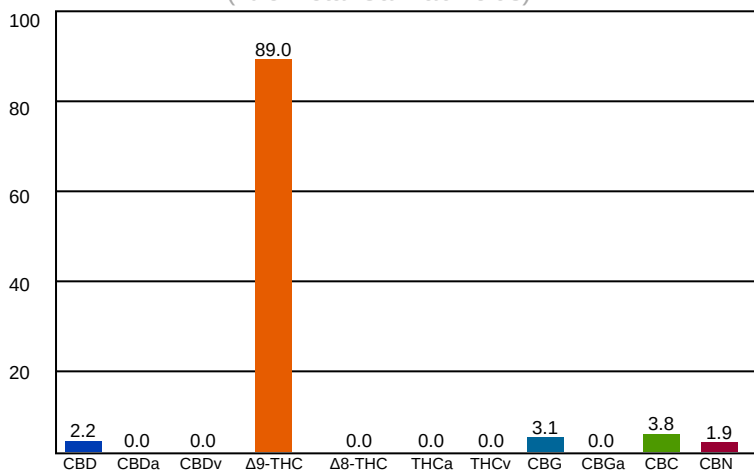
Cannabinoid	Result (%)	Result (mg/g)	Reporting Limit (mg/g)	Result (mg/mL)	Per Unit (mg)
CBD	1.62	16.2	0.515	-	16
CBDa	-	-	0.515	-	-
CBDv	-	-	0.515	-	-
Δ9-THC	64.2	642	0.515	-	642
Δ8-THC	-	-	0.515	-	-
THCa	-	-	0.515	-	-
THCv	-	-	0.515	-	-
CBC	2.77	27.7	0.515	-	28
CBG	2.2	22	0.515	-	22
CBGa	-	-	0.515	-	-
CBN	1.35	13.5	0.515	-	14
TOTAL	72.1	721			721
TOTAL THC	64.2	642			642
TOTAL CBD	1.62	16			16



UNIT MASS (g): 1

"-" Not detected above RL.

Cannabinoid Distribution (% of Total Cannabinoids)



Deviations from standard operating procedure: None

Recoveries for all analyte standards: 90-110%
Replicate Uncertainties: <5% RSD, <20% RPD
Sample/Reagent Blanks: <RL for all analytes

Values for plant matter are adjusted for moisture content.

Total THC = (THCa x 0.877) + Δ9-THC
Total CBD = (CBDa x 0.877) + CBD

Percentage results are reported by mass.
mg/g results are reported as mass component per mass material.

Abbreviations: UV - Ultraviolet, HPLC - High Pressure Liquid Chromatography, RL - Reporting Limit, RPD - Relative Percent Difference, RSD - Relative Standard Deviation

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Kyle W. Felling
Kyle W. Felling, Ph.D.
Laboratory Director

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TERPENOID PROFILE

Analysis Date/Time: 09/29/2019 2145
Analyst: OL

Method: HS/GC/FID (Internal Method-002)
Instrument: Agilent 6890

Deviations from SOP:
None

<u>Terpene</u>	<u>Result</u> ($\hat{\text{A}}\mu\text{g/g}$)	<u>Result</u> (%)
α -Bisabolol	-	-
Camphene	-	-
δ -3-Carene	-	-
β -Caryophyllene	72	0.0072
Caryophyllene oxide	-	-
p-Cymene	-	-
Eucalyptol	-	-
Geraniol	-	-
Guaiol	-	-
α -Humulene	-	-
Isopulegol	-	-
d-Limonene	-	-
Linalool	-	-
β -Myrcene	-	-
cis-Nerolidol	-	-
trans-Nerolidol	-	-
α -Ocimene	-	-
β -Ocimene	-	-
α -Pinene	-	-
β -Pinene	-	-
α -Terpinene	-	-
γ -Terpinene	-	-
Terpinolene	-	-
TOTAL	72	0.0072



Abbreviations: HS - Headspace, GC - Gas Chromatography, MS - Mass Spectrometry, RL - Reporting Limit

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"-" Not detected above RL.

Reporting Limit ($\hat{\text{A}}\mu\text{g/g}$): 20

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Sample Date: 09/25/2019	Date Received: 09/25/2019	Date Completed: 10/04/2019

Remarks:

RESIDUAL SOLVENT PROFILE

Analysis Date/Time: 09/29/2019 2145	Method: USP <467>	Deviations from SOP:
Analyst:	Instrument: Agilent 6890	None

<u>Solvent</u>	<u>Result</u> ($\hat{A}\mu\text{g/g}$)	<u>Action Level</u> ($\hat{A}\mu\text{g/g}$)	<u>Color Key</u>
Acetone (67-64-1)	-	1000	RESULT < 1/2 AL
Benzene (71-43-2)	-	2	1/2 AL < RESULT < AL
n-Butane (106-97-2)	-	1000	RESULT > AL
2,2-Dimethylbutane (75-83-2)	-	60	
2,3-Dimethylbutane (79-29-8)	-	60	
Ethyl benzene (100-41-4)	-	430	
n-Heptane (142-82-5)	-	1000	"-" not detected above reporting limit
n-Hexane (110-54-3)	-	60	
Isobutane (75-28-5)	-	1000	"*" - o,m,p-Xylene and Ethylbenzene
Isopropanol (67-63-0)	-	1000	
2-Methylbutane (78-78-4)	-	1000	
2-Methylpentane (107-83-5)	-	60	
3-Methylpentane (96-10-0)	-	60	
n-Pentane (109-66-0)	-	1000	
n-Propane (74-98-6)	-	1000	
Toluene (108-88-3)	-	180	
o-Xylene (95-47-6)	-	430	
m,p-Xylene (108-38-3 or 106-42-3)	-	430	
Xylenes* (1330-20-7)	-	430	

Reporting Limit ($\hat{A}\mu\text{g/g}$)
1/2 of AL



<u>Solvent</u>	<u>Synonym(s)</u>	<u>Solvent</u>	<u>Synonym(s)</u>	<u>Solvent</u>	<u>Synonym(s)</u>
Acetonitrile	Methyl Cyanide, ACN	2-Ethoxyethanol	Cellosolve, Ethyl glycol	Methanol	Methyl alcohol
1-Butanol	n-Butanol, Butyl Alcohol	Ethyl ether	Diethyl ether, Ether	2-Methylbutane	Isopentane
2-Butanol	sec-Butyl alcohol	Ethyl acetate	EtOAc	Methylene chloride	Dichloromethane
2-Butanone	Methyl ethyl ketone, MEK	Ethyl benzene	Phenylethane	2-Methylpentane	Isohexane
1,2-Dimethoxyethane	Monoglyme	Ethylene glycol	1,2-Ethanediol	1-Pentanol	n-Amyl alcohol
2,3-Dimethylbutane	Neohexane	Ethylene oxide	Oxirane	1-Propanol	Propyl alcohol
2,3-Dimethylbutane	Diisopropyl	Isobutane	2-Methylpropane	Tetrahydrofuran	THF
N,N-Dimethylformamide	DMF	Isopropanol	2-Propanol, IPA	Tetramethylene sulfone	Sulfolane
Dimethylsulfoxide	DMSO	Isopropyl Acetate	Acetic acid isopropyl ester	Xylene	Dimethylbenzene

Abbreviations: HS-Headspace, GC-Gas Chromatography, MS-Mass Spectrometry, RL-Reporting Limit, AL-Action Level
CAS-Chemical Abstract Services

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Remarks:

PESTICIDES PROFILE

Analysis Date/Time: 09/29/2019 2145
Analyst: OL

Method: LC/MS/MS and GC/MS
Instrument: Waters Acquity/TQD

Deviations from SOP:
None

<u>Pesticide</u>	<u>Result</u> ($\hat{\mu}$ g/g)	<u>Action Level</u> ($\hat{\mu}$ g/g)
Abamectin (71751-41-2)	-	0.5
Azoxystrobin (131860-33-8)	-	0.5
Bifenazate* (149877-41-8)	-	0.5
Etoxazole (153233-91-1)	-	0.5
Imazalil (35554-44-0)	-	0.5
Imidacloprid (138261-41-3)	-	0.5
Malathion (121-75-5)	-	0.5
Myclobutanil (88671-89-0)	-	0.5
Permethrins* (52645-53-1)	-	0.5
Spinosad A (168316-95-8)	-	0.5
Spinosad D (168316-95-8)	-	0.5
Spiromesifen (283594-90-1)	-	0.5
Spirotetramat (203313-25-1)	-	0.5
Tebuconazole (80443-41-0)	-	0.5

Color Key

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

Reporting Limit ($\hat{\mu}$ g/g)
1/2 of AL

"-" not detected above reporting limit

**" analyzed by GC/MS (all others analyzed by LC/MS/MS)

Permethrins measured as the cumulative residue of the *cis*- and *trans*-permethrin isomers.



Abbreviations: LC - Liquid Chromatography, GC - Gas Chromatography, MS - Mass Spectrometry, RL - Reporting Limit, AL - Action Level, CAS - Chemical Abstract Services

<u>Pesticide</u>	<u>Synonym(s)</u>	<u>Pesticide</u>	<u>Synonym(s)</u>	<u>Pesticide</u>	<u>Synonym(s)</u>
Cyfluthrin	Baythroid	Myclobutanil	Systhane	Propiconazole	Tilt
DDVP	Dichlorvos	Naled	Dibrom	Propoxur	Baygon
Ethoprophos	Prophos	Phosmet	Imidan		

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MYCOTOXIN PROFILE

Analysis Date/Time: 09/29/2019 2145
Analyst: OL

Method: LC/MS/MS
Instrument: Waters Acquity/TQD

Deviations from SOP:
None

<u>Mycotoxin</u>	<u>Result</u> ($\hat{1}/4g/kg$)	<u>Action Level</u> ($\hat{1}/4g/kg$)
Aflatoxin B1	-	20
Aflatoxin B2	-	20
Aflatoxin G1	-	20
Aflatoxin G2	-	20
Ochratoxin A	-	20



Abbreviations: EC - Escherichia Coli, CFU - Colony-Forming Unit,
RL - Reporting Limit, AL - Action Level

Color Key

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

Reporting Limit (CFU/g)

1

"-" not detected above reporting limit

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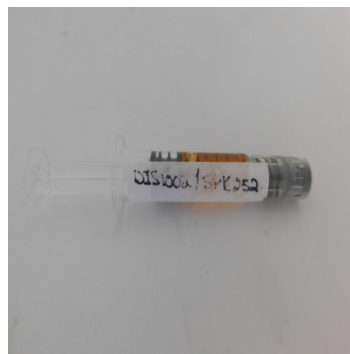
HEAVY METAL PROFILE

Analysis Date/Time: 09/29/2019 2145
Analyst: OL

Method: ICP/MS
Instrument: PerkinElmer Elan 9000

Deviations from SOP:
None

<u>Heavy Metal</u>	<u>Result</u> ($\hat{A}\mu\text{g/kg}$)	<u>Action Level</u> ($\hat{A}\mu\text{g/kg}$)
Arsenic (As)	-	400
Cadmium (Cd)	-	440
Lead (Pb)	-	1000
Mercury (Hg)	-	200



Abbreviations: ICP - Inductively-Coupled Plasma, OES - Optical Emission Spectroscopy, MS - Mass Spectroscopy, RL - Reporting Limit, AL - Action Level

Color Key

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

Reporting Limit ($\hat{A}\mu\text{g/kg}$)
50

"-" not detected above reporting limit

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Remarks:

MICROBIOLOGICAL PROFILE

Analysis Date/Time: 09/29/2019 2145
Analyst: OL

Method: Hardy Diagnostics CompactDry
Instrument: Thermo Incubator

Deviations from SOP:
None

<u>Bacteria/Microbe</u>	<u>Result (CFU/g)</u>	<u>Action Level (CFU/g)</u>
Aerobic Plate Count, Total	NT	-
Escherichia Coli (E. Coli)	Absent	1
Mold	Absent	10000
Yeast	Absent	10000
Salmonella spp.	Absent	1



Abbreviations: EC - Escherichia Coli, CFU - Colony-Forming Unit, RL - Reporting Limit, AL - Action Level, NT - Not Tested

Color Key

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

Reporting Limit (CFU/g)
1

"-" not detected above reporting limit

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