

CERTIFICATE OF ANALYSIS

Order Type: Industrial Hemp
Order ID: OR2019-5503

Customer ID: 191
Customer Name: Hempyre Genetics

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

Cultivar (Strain): HG 17
Sample Date: 11/20/2019

Lab ID: SA2019-17526
Date Received: 11/20/2019

Sample Matrix: Industrial Hemp
Date Completed: 11/27/2019

Remarks:

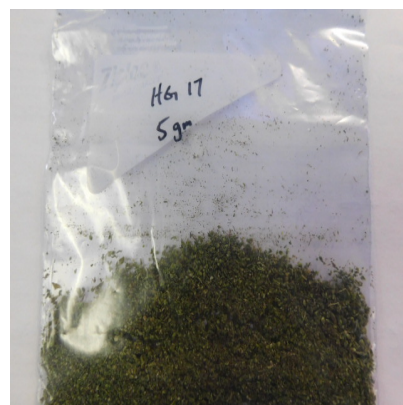
CANNABINOID (POTENCY) PROFILE

Analysis Date/Time: 11/23/2019 0644
Analyst: OL

Method: 2019-10-18T20:36:50Z
Instrument: Agilent 1100

Moisture Content (%): 10.5
Water Activity (aw): -

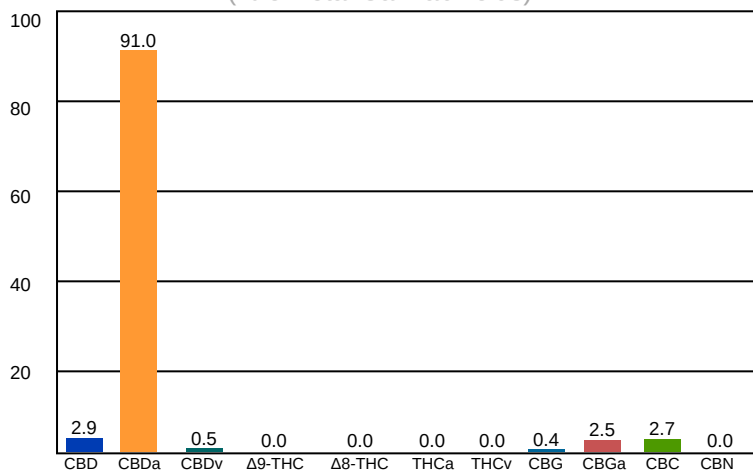
Cannabinoid	Result (%)	Result (mg/g)	Reporting Limit (mg/g)	Result (mg/mL)	Per Unit (mg)
CBD	0.31	3.1	0.0249	-	3
CBDa	9.62	96.2	0.0249	-	96
CBDv	0.0541	0.541	0.0249	-	0.541
Δ9-THC	-	-	0.0249	-	-
Δ8-THC	-	-	0.0249	-	-
THCa	-	-	0.0249	-	-
THCv	-	-	0.0249	-	-
CBC	0.286	2.86	0.0249	-	3
CBG	0.0386	0.386	0.0249	-	0.386
CBGa	0.267	2.67	0.0249	-	3
CBN	-	-	0.0249	-	-
TOTAL	10.6	106			106
TOTAL THC	-	-			-
TOTAL CBD	8.75	88			88



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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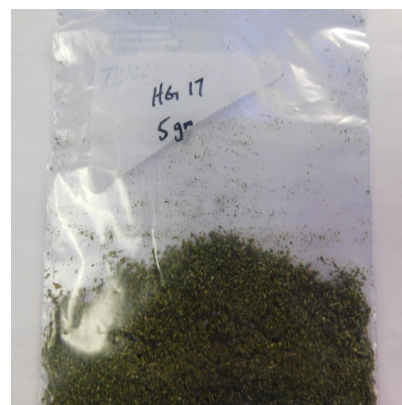
TERPENOID PROFILE

Analysis Date/Time: 11/23/2019 0644
Analyst: OL

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

Deviations from SOP:
None

Terpene	Result (µg/g)	Result (%)	
α-Bisabolol	1572	0.157	■
Camphene	-	-	
δ-3-Carene	-	-	
β-Caryophyllene	2876	0.288	■
Caryophyllene oxide	824	0.0824	■
p-Cymene	-	-	
Eucalyptol	-	-	
Geraniol	-	-	
Guaiol	204	0.0204	■
α-Humulene	956	0.0956	■
Isopulegol	-	-	
d-Limonene	-	-	
Linalool	-	-	
β-Myrcene	2100	0.21	■
cis-Nerolidol	-	-	
trans-Nerolidol	-	-	
α-Ocimene	-	-	
β-Ocimene	594	0.0594	■
α-Pinene	730	0.073	■
β-Pinene	418	0.0418	■
α-Terpinene	-	-	
γ-Terpinene	-	-	
Terpinolene	794	0.0794	■
TOTAL	11068	1.11	



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

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"-" Not detected above RL.

Reporting Limit (µg/g): 2

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Date Completed: 11/27/2019

Remarks:

PESTICIDES PROFILE

Analysis Date/Time: 11/23/2019 0644
Analyst: OL

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

Deviations from SOP:
None

<u>Pesticide</u>	<u>Result</u> (µg/g)	<u>Action Level</u> (µg/g)
Abamectin (71751-41-2)	-	0.5
Azoxystrobin (131860-33-8)	-	0.5
Bifenazate* (149877-41-8)	-	0.5
Etoazazole (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

<u>Color Key</u>
RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

Reporting Limit (µg/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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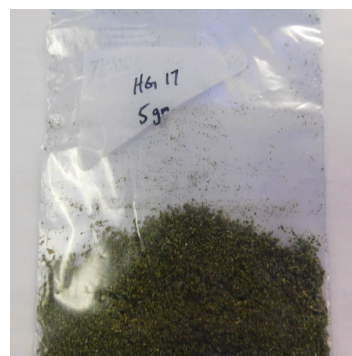
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Date Received: 11/20/2019**Sample Matrix:** Industrial Hemp
Date Completed: 11/27/2019**Remarks:****MYCOTOXIN PROFILE****Analysis Date/Time:** 11/23/2019 0644
Analyst: OL**Method:** LC/MS/MS
Instrument: Waters Acquity/TQD**Deviations from SOP:**
None

<u>Mycotoxin</u>	<u>Result</u> <u>(µg/kg)</u>	<u>Action Level</u> <u>(µg/kg)</u>
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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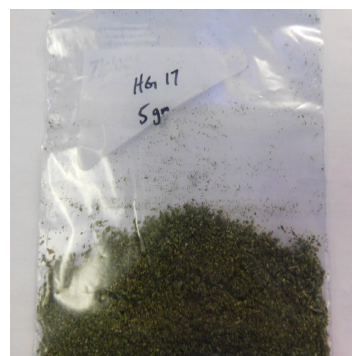
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Date Received: 11/20/2019**Sample Matrix:** Industrial Hemp
Date Completed: 11/27/2019**Remarks:****HEAVY METAL PROFILE****Analysis Date/Time:** 11/23/2019 0644
Analyst: OL**Method:** ICP/MS
Instrument: PerkinElmer Elan 9000**Deviations from SOP:**
None

<u>Heavy Metal</u>	<u>Result</u> <u>(µg/kg)</u>	<u>Action Level</u> <u>(µg/kg)</u>
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 (µg/kg)
50"- " not detected above
reporting limit

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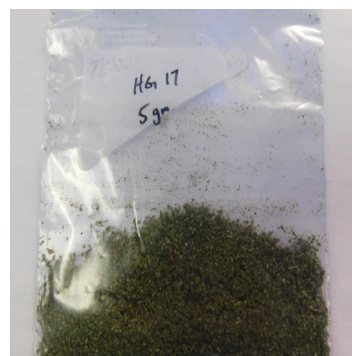
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Date Received: 11/20/2019**Sample Matrix:** Industrial Hemp
Date Completed: 11/27/2019**Remarks:****MICROBIOLOGICAL PROFILE****Analysis Date/Time:** 11/23/2019 0644
Analyst: OL**Method:** Hardy Diagnostics CompactDry
Instrument: Thermo Incubator**Deviations from SOP:**
None

<u>Bacteria/Microbe</u>	<u>Result</u> <u>(CFU/g)</u>	<u>Action Level</u> <u>(CFU/g)</u>
Aerobic Plate Count, Total	Absent	-
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
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