

CERTIFICATE OF ANALYSIS

ISO/IEC 17025:2017 ACCREDITATION #103104



Order #: 59859
 Order Name: Leafwell FS 500
 MG Orange Tincture
 Batch#: 2
 Received: 08/14/2020
 Completed: 09/01/2020

Leafwell Botanicals, Inc.
 2535 Copper Ridge Dr. Unit B
 Steamboat Springs Colorado, 80487
 (954) 822-4818
 abe@leafwellbotanicals.com



Sample



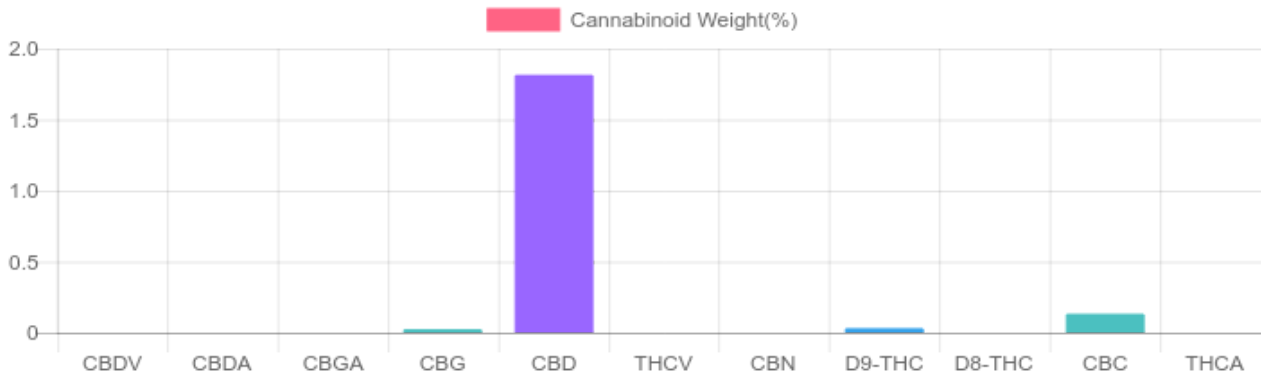
0.032% D9-THC	1.815% Total CBD
568.1 mg Cannabinoids per unit	514.5 mg CBD per unit

Cannabinoids Test

SHIMADZU INTEGRATED UPLC-PDA
 GSL SOP 400 **PREPARED:** 08/31/2020 17:05:16 **UPLOADED:** 09/01/2020 10:14:49

Cannabinoids	LOQ	weight(%)	mg/g	mg/unit
D9-THC	10 PPM	0.032%	0.322	9.1
THCA	10 PPM	N/D	N/D	N/D
CBD	10 PPM	1.815%	18.148	514.5
CBDA	20 PPM	N/D	N/D	N/D
CBDV	20 PPM	N/D	N/D	N/D
CBC	10 PPM	0.133%	1.326	37.6
CBN	10 PPM	N/D	N/D	N/D
CBG	10 PPM	0.024%	0.244	6.9
CBGA	20 PPM	N/D	N/D	N/D
D8-THC	10 PPM	N/D	N/D	N/D
THCV	10 PPM	N/D	N/D	N/D
TOTAL D9-THC		0.032%	0.032%	9.1
TOTAL CBD*		1.815%	18.148	514.5
TOTAL CANNABINOIDS		2.004%	20.040	568.1

1 unit = 30 ml per unit x density (0.945) x Cannabinoid concentration



Reporting Limit 10 ppm
 *Total CBD = CBD + CBDA x 0.877
 N/D - Not Detected, B/LOQ - Below Limit of Quantification

Dr. Andrew Hall, Ph.D., Chief Scientific Officer

Ben Witten, MS, MT., Lab Director

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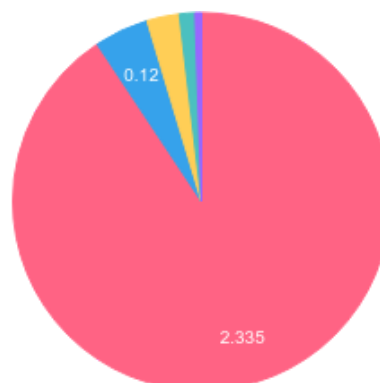
TERPENES: TOTAL (2.575%)

Headspace GCMS - Shimadzu GCMS QP2020 with HS20

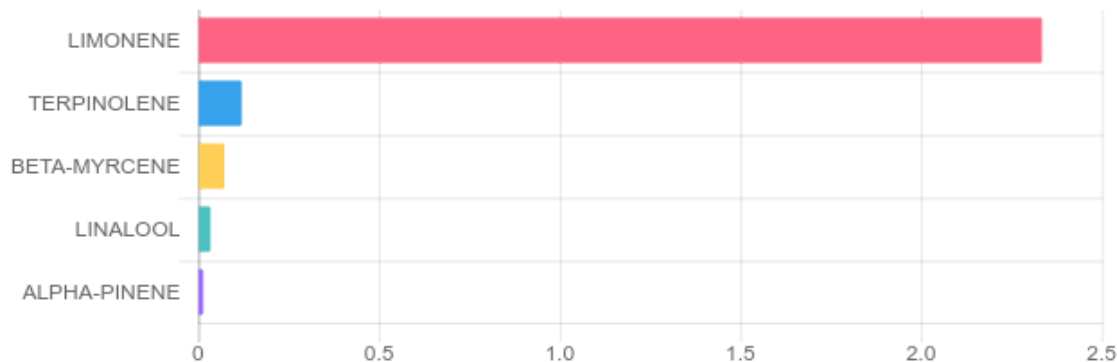
GSL SOP 404
 Prepared: 08/19/2020 21:39:59
 Uploaded: 08/20/2020 16:44:49

Terpene	Results (%)	LOQ (%)	LOD (%)
ALPHA-PINENE	0.014%	0.0067%	0.0063%
BETA-MYRCENE	0.072%	0.0067%	0.0063%
LIMONENE	2.335%	0.0067%	0.0063%
LINALOOL	0.034%	0.0067%	0.0063%
TERPINOLENE	0.120%	0.0067%	0.0063%

Terpenes Breakdown



Top Terpenes Results:



Tested for but not present:

CAMPHENE, BETA-PINENE, 3-CARENE, ALPHA-TERPINENE, TRANS-BETA-OCIMENE, P-CYMENE, CIS-BETA-OCIMENE, EUCALYPTOL, GAMMA-TERPINENE, ISOPULEGOL, GERANIOL, CARYOPHYLLENE, HUMULENE, CIS-NEROLIDOL, TRANS-NEROLIDOL, GUAJOL, CARYOPHYLLENE OXIDE, ALPHA-BISABOLOL

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PESTICIDE ANALYSIS:

GSL SOP 401

PREPARED: 08/14/2020 21:06:32

UPLOADED: 08/18/2020 07:34:08

GCMS-MS - Shimadzu GCMS-TQ8040

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
CAPTAN	3.000	N/D	0.003	0.001
CHLORDANE	0.100	N/D	0.003	0.001
CHLORFENAPYR	0.100	N/D	0.003	0.001
COUMAPHOS	0.100	N/D	0.003	0.001

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
CYFLUTHRIN	1.000	N/D	0.003	0.001
CYPERMETHRIN	1.000	N/D	0.003	0.001
PENTACHLORONITROBENZENE	0.200	N/D	0.003	0.001

LCMS-MS - Shimadzu LCMS-8060

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
ABAMECTIN B1A	0.300	N/D	0.005	0.001
ACEPHATE	3.000	N/D	0.001	0.001
ACEQUINOCYL	2.000	N/D	0.001	0.001
ACETAMIPRID	3.000	N/D	0.005	0.001
ALDICARB	0.100	N/D	0.005	0.001
AZOXYSTROBIN	3.000	N/D	0.001	0.001
BIFENAZATE	3.000	N/D	0.005	0.001
BIFENTHRIN	0.500	N/D	0.005	0.001
BOSCALID	3.000	N/D	0.005	0.001
CARBARYL	0.500	N/D	0.003	0.001
CARBOFURAN	0.100	N/D	0.001	0.001
CHLORANTRANILIPROLE	3.000	N/D	0.005	0.005
CHLORMEQUAT CHLORIDE	3.000	N/D	0.025	0.025
CHLORPYRIFOS	0.100	N/D	0.001	0.001
CLOFENTEZINE	0.500	N/D	0.001	0.001
DAMINOZIDE	0.100	N/D	0.005	0.001
DIAZINON	0.200	N/D	0.001	0.001
DICHLORVOS	0.100	N/D	0.005	0.001
DIMETHOATE	0.100	N/D	0.001	0.001
DIMETHOMORPH	3.000	N/D	0.005	0.001
ETHOPROPHOS	0.100	N/D	0.001	0.001
ETOFENPROX	0.100	N/D	0.001	0.001
ETOXAZOLE	1.500	N/D	0.010	0.005
FENHEXAMID	3.000	N/D	0.005	0.001
FENOXYCARB	0.100	N/D	0.005	0.001
FENPYROXIMATE	2.000	N/D	0.001	0.001
FIPRONIL	0.100	N/D	0.003	0.001
FLONICAMID	2.000	N/D	0.025	0.010
FLUDIOXONIL	3.000	N/D	0.003	0.001
HEXYTHIAZOX	2.000	N/D	0.005	0.001

Pesticide	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
IMAZALIL	0.100	N/D	0.005	0.001
IMIDACLOPRID	3.000	N/D	0.005	0.001
KRESOXIM-METHYL	1.000	N/D	0.010	0.005
MALATHION	2.000	N/D	0.005	0.001
METALAXYL	3.000	N/D	0.001	0.001
METHIOCARB	0.100	N/D	0.005	0.001
METHOMYL	0.100	N/D	0.001	0.001
MEVINPHOS	0.100	N/D	0.001	0.001
MYCLOBUTANIL	3.000	N/D	0.005	0.001
NALED	0.500	N/D	0.005	0.001
OXAMYL	0.500	N/D	0.001	0.001
PACLOBUTRAZOL	0.100	N/D	0.005	0.001
PERMETHRINS	1.000	N/D	0.005	0.001
PHOSMET	0.200	N/D	0.005	0.001
PIPERONYL BUTOXIDE	3.000	N/D	0.001	0.001
PRALLETHRIN	0.400	N/D	0.005	0.005
PROPICONAZOLE	1.000	N/D	0.010	0.005
PROPOXUR	0.100	N/D	0.001	0.001
PYRETHRINS (PYRETHRIN I)	1.000	N/D	0.005	0.005
PYRIDABEN	3.000	N/D	0.005	0.001
SPINETORAM	3.000	N/D	0.001	0.001
SPINOSAD	3.000	N/D	0.001	0.001
SPIROMESIFEN	3.000	N/D	0.005	0.001
SPIROTETRAMAT	3.000	N/D	0.001	0.001
SPIROXAMINE	0.100	N/D	0.001	0.001
TEBUCONAZOLE	1.000	N/D	0.005	0.001
THIACLOPRID	0.100	N/D	0.001	0.001
THIAMETHOXAM	1.000	N/D	0.001	0.001
TRIFLOXYSTROBIN	3.000	N/D	0.001	0.001

N/D = Not Detected, A/LOQ = Above LOQ Level, B/LOQ = Below LOQ Level, B/LOD = Below LOD Level


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RESIDUAL SOLVENTS:

Headspace GCMS - Shimadzu GCMS QP2020 with HS20

GSL SOP 405

Prepared: 08/17/2020 19:38:11

Uploaded: 08/18/2020 08:32:29

Residual Solvent	Action Level (ppm)	Results (ppm)	LOQ (ppm)	LOD (ppm)
1,1-DICHLOROETHENE	8	N/D	0.63	0.63
1,2- DICHLOROETHANE	2	N/D	0.12	0.02
ACETONE	5,000	N/D	140	20
ACETONITRILE	410	N/D	25	1
BENZENE	1	N/D	1	0.5
BUTANE	5,000	N/D	50	10
CHLOROFORM	1	N/D	1	0.5
CIS 1,2-DICHLOROETHENE	5	N/D	0.73	0.18
ETHANOL	5,000	N/D	140	20
ETHYL ACETATE	5,000	N/D	140	20
ETHYL ETHER	5,000	N/D	140	20
ETHYLENE OXIDE	1	N/D	0	0
ISOPROPYL ALCOHOL	5,000	N/D	140	20
METHANOL	3,000	N/D	100	20
METHYLENE CHLORIDE	125	N/D	0.15	0.15
N-HEPTANE	5,000	N/D	140	20
N-HEXANE	290	N/D	18	10
PENTANE	5,000	N/D	140	20
PROPANE	5,000	N/D	20	1
TOLUENE	890	N/D	53	1
TRANS 1,2-DICHLOROETHENE	5	N/D	0.73	0.18
TRICHLOROETHENE	1	N/D	1	0.5
XYLENES	150	N/D	130	20

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Microbial Analysis:

Microbial Analysis GSL SOP 406
 Prepared: 08/14/2020 21:30:17
 Uploaded: 08/31/2020 16:34:20

PCR - Agilent AriaMX

MICROBIAL ANALYSIS:

PCR - Agilent AriaMX

Test	SOP	Test Method	Device Used	LOD	Allowable Criteria	Actual Result	Pass/Fail
TOTAL YEAST AND MOLD	406.01	USP 61/62†	ARIAMX PCR	CFU/G BY SAMPLE TYPE**	10,000 CFU/G	NOT DETECTED	PASS
LISTERIA MONOCYTOGENES	406.01		ARIAMX PCR	2 COPIES OF DNA	PRESENCE/ABSENT	NOT DETECTED	PASS
STEC E. COLI*	406.01	USP 61/62†	ARIAMX PCR	1 CFU/G**	DETECT/NOT DETECTED	NOT DETECTED	PASS
PATHOGENIC E. COLI	406.01	USP 61/62†	ARIAMX PCR	1 CFU/G**	DETECT/NOT DETECTED	NOT DETECTED	PASS
SALMONELLA*	406.01	USP 61/62†	ARIAMX PCR	1 CFU/G**	DETECT/NOT DETECTED	NOT DETECTED	PASS

† USP 61 (enumeration of bacteria TAC, TYM, and ENT/Coliform), USP 62 (identifying specific species E.coli Aspergillus etc)

* STEC and Salmonella run as Multiplex

** CFU/g Calculation based on MIP/Extract matrix

*** Flavus = 2 Copies of DNA / Fumigatis = 2 Copies of DNA Niger = 20 Copies of DNA / Terrus = 10 copies of DNA

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Mycotoxin Analysis:

LC-MS - Shimadzu LCMS-8060
GSL SOP 401

Uploaded: 08/17/2020 15:34:02

Analyte	Action Lvl (ppb)	Results (ppb)
AFLATOXIN B1	20	N/D
AFLATOXIN B2	20	N/D
AFLATOXIN G1	20	N/D
AFLATOXIN G2	20	N/D
OCHRATOXIN A	20	N/D

LOQ is 1ppb, LOD is 1ppb

Moisture Analysis:

Shimadzu MOC63U Moisture Balance - GSL SOP 411

Uploaded: 08/17/2020 16:18:29

Moisture %

4.3%

Heavy Metals Analysis:

ICP-MS - Shimadzu ICPMS-2030
GSL SOP 403

Uploaded: 08/15/2020 03:09:48

Metal	Action Level (ppb)	Result (ppb)
ARSENIC (AS)	200	B/LOQ
CADMIUM (CD)	200	B/LOQ
MERCURY (HG)	100	B/LOQ
LEAD (PB)	500	B/LOQ

Lower Limit of Quantitation (LOQ) is 75 ppb

Water Activity:

HD-3A Water Activity Meter - GSL SOP 407

Uploaded: 08/17/2020 20:16:02

Water

0.52

Filth and Foreign Materials Analysis:

Microscope - Amscope Simul-Focal Trinocular Stereo Zoom Microscope - GSL SOP 409

Uploaded: 08/17/2020 21:09:50

Pass: No Foreign Materials Detected

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