

SAMPLE NAME: Four Directions Flower

Flower, Inhalable

CULTIVATOR / MANUFACTURER

Business Name: Emerald Spirit Botanicals
License Number: CCL18-0000884
Address: [REDACTED]

DISTRIBUTOR

Business Name: REDWOOD ROOTS DISTRIBUTION, LLC.
License Number: C11-0000711-LIC
Address: 6840 BENBOW DR, SUITE B, GARBERVILLE, CA 95542-3604



SAMPLE DETAIL

Batch Number: ESB-FD
Sample ID: 230209L054
Source Metrc UID: 1A4060300002713000000091

Date Collected: 02/09/2023
Date Received: 02/10/2023
Batch Size: 120.0 grams
Sample Size: 14.2 grams
Unit Mass:
Serving Size:



Scan QR code to verify authenticity of results.

Sampling Method: QSP 1265 - Sampling of Cannabis and Product Batches

CANNABINOID ANALYSIS - SUMMARY

CALCULATED USING DRY-WEIGHT

Sum of Cannabinoids: 28.66%
Total Cannabinoids: 25.61%
Total THC: 8.63%
Total CBD: 10.69%

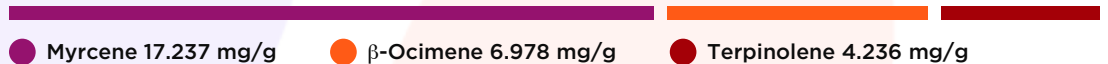
Sum of Cannabinoids = Δ^9 -THC + THCa + CBD + CBDa + CBG + CBGa + THCV + THCVa + CBC + CBCa + CBDV + CBDVa + Δ^8 -THC + CBL + CBN
Total Cannabinoids = $(\Delta^9$ -THC + 0.877*THCa + Δ^8 -THC) + (CBD + 0.877*CBDa) + (CBG + 0.877*CBGa) + (THCV + 0.877*THCVa) + (CBC + 0.877*CBCa) + (CBDV + 0.877*CBDVa) + CBL + CBN
Total THC/CBD is calculated using the following formulas to take into account the loss of a carboxyl group during the decarboxylation step:
Total THC = Δ^9 -THC + (THCa (0.877)) + Δ^8 -THC
Total CBD = CBD + (CBDa (0.877))

Moisture: 13.2%

TERPENOID ANALYSIS - SUMMARY

39 TESTED, TOP 3 HIGHLIGHTED

Total Terpenoids: 3.9283%



SAFETY ANALYSIS - SUMMARY

Pesticides: ✔ PASS	Mycotoxins: ✔ PASS	Heavy Metals: ✔ PASS
Microbiology: ✔ PASS	Foreign Material: ✔ PASS	Water Activity: ✔ PASS

These results relate only to the sample included on this report.

This report shall not be reproduced, except in full, without written approval of the laboratory.

Sample Certification: California Code of Regulations Title 4 Division 19. Department of Cannabis Control Business and Professions Code. Reference: Sections 26100, 26104 and 26110, Business and Professions Code.

Decision Rule: Statements of conformity (e.g. Pass/Fail) to specifications are made in this report without taking measurement uncertainty into account. Where statements of conformity are made in this report, the following decision rules are applied: PASS - Results within limits/specifications, FAIL - Results exceed limits/specifications.

References: limit of detection (LOD), limit of quantification (LOQ), not detected (ND), not tested (NT)



All LQC samples were performed and met the prescribed acceptance criteria in 4 CCR section 1730, as attested by:
Michael Pham
Job Title: Senior Laboratory Analyst
Date: 02/16/2023



Approved by: Josh Wurzer
Job Title: President
Date: 02/16/2023



CANNABINOID TEST RESULTS - 02/12/2023

Tested by high-performance liquid chromatography with diode-array detection (HPLC-DAD). Calculated using Dry-Weight. **Method:** QSP 1157 - Analysis of Cannabinoids by HPLC-DAD

TOTAL CANNABINOIDS: 25.61%

Total Cannabinoids (Total THC) + (Total CBD) + (Total CBG) + (Total THCV) + (Total CBC) + (Total CBDV) + CBL + CBN

TOTAL THC: 8.63%

Total THC (Δ^9 -THC+0.877*THCa+ Δ^8 -THC)

TOTAL CBD: 10.69%

Total CBD (CBD+0.877*CBDA)

TOTAL CBG: 0.35%

Total CBG (CBG+0.877*CBGa)

TOTAL THCV: 2.819%

Total THCV (THCV+0.877*THCVa)

TOTAL CBC: 0.54%

Total CBC (CBC+0.877*CBCa)

TOTAL CBDV: 2.58%

Total CBDV (CBDV+0.877*CBDVa)

COMPOUND	LOD/LOQ (mg/g)	MEASUREMENT UNCERTAINTY (mg/g)	RESULT (mg/g)	RESULT (%)
CBDA	0.06 / 0.22	±3.718	113.00	11.300
THCa	0.04 / 0.24	±2.365	73.68	7.368
CBDVa	0.02 / 0.22	±0.250	27.79	2.779
THCVa	0.05 / 0.17	±0.568	24.19	2.419
Δ^8 -THC	0.1 / 0.4	±0.66	21.7	2.17
CBD	0.1 / 0.3	±0.33	7.8	0.78
THCV	0.07 / 0.21	±0.200	6.98	0.698
CBCa	0.1 / 0.4	±0.37	5.4	0.54
CBGa	0.1 / 0.4	±0.22	4.0	0.40
CBDV	0.1 / 0.3	±0.06	1.4	0.14
CBC	0.1 / 0.2	±0.03	0.7	0.07
CBG	0.2 / 0.5	N/A	<LOQ	<LOQ
Δ^8 -THC	0.05 / 0.50	N/A	ND	ND
CBL	0.1 / 0.4	N/A	ND	ND
CBN	0.07 / 0.20	N/A	ND	ND
SUM OF CANNABINOIDS			286.6 mg/g	28.66%

MOISTURE TEST RESULT

13.2%

Tested 02/11/2023
Method: QSP 1224 -
 Loss on Drying (Moisture)

TERPENOID TEST RESULTS - 02/13/2023

Terpene analysis utilizing gas chromatography-flame ionization detection (GC-FID). **Method:** QSP 1192 - Analysis of Terpenoids by GC-FID

COMPOUND	LOD/LOQ (mg/g)	MEASUREMENT UNCERTAINTY (mg/g)	RESULT (mg/g)	RESULT (%)
Myrcene	0.007 / 0.025	±0.6102	17.237	1.7237
β -Ocimene	0.005 / 0.018	±0.2742	6.978	0.6978
Terpinolene	0.008 / 0.027	±0.0640	4.236	0.4236
α -Pinene	0.005 / 0.015	±0.0940	2.627	0.2627
β -Caryophyllene	0.004 / 0.013	±0.1149	2.136	0.2136
Limonene	0.005 / 0.016	±0.0517	1.586	0.1586
β -Pinene	0.004 / 0.015	±0.0340	1.053	0.1053

TERPENOID TEST RESULTS - 02/13/2023 *continued*

COMPOUND	LOD/LOQ (mg/g)	MEASUREMENT UNCERTAINTY (mg/g)	RESULT (mg/g)	RESULT (%)
α -Humulene	0.009 / 0.031	±0.0528	0.981	0.0981
trans- β -Farnesene	0.008 / 0.028	±0.0541	0.949	0.0949
Linalool	0.009 / 0.030	±0.0085	0.217	0.0217
Terpineol	0.008 / 0.025	±0.0119	0.194	0.0194
α -Phellandrene	0.006 / 0.019	±0.0039	0.172	0.0172
Δ^3 -Carene	0.005 / 0.018	±0.0043	0.152	0.0152
Caryophyllene Oxide	0.011 / 0.038	±0.0078	0.131	0.0131
α -Terpinene	0.006 / 0.019	±0.0026	0.121	0.0121
Fenchol	0.009 / 0.029	±0.0042	0.113	0.0113
γ -Terpinene	0.005 / 0.018	±0.0020	0.085	0.0085
Eucalyptol	0.005 / 0.018	±0.0030	0.075	0.0075
Borneol	0.004 / 0.014	±0.0029	0.062	0.0062
Camphene	0.004 / 0.014	±0.0018	0.057	0.0057
Sabinene Hydrate	0.007 / 0.022	±0.0014	0.037	0.0037
α -Bisabolol	0.008 / 0.026	±0.0015	0.035	0.0035
Nerolidol	0.006 / 0.020	±0.0021	0.027	0.0027
Sabinene	0.004 / 0.014	±0.0007	0.022	0.0022
p-Cymene	0.005 / 0.015	N/A	<LOQ	<LOQ
Fenchone	0.008 / 0.026	N/A	ND	ND
Isopulegol	0.004 / 0.013	N/A	ND	ND
Camphor	0.005 / 0.015	N/A	ND	ND
Isoborneol	0.003 / 0.011	N/A	ND	ND
Menthol	0.008 / 0.025	N/A	ND	ND
Nerol	0.003 / 0.011	N/A	ND	ND
Citronellol	0.003 / 0.010	N/A	ND	ND
Pulegone	0.003 / 0.010	N/A	ND	ND
Geraniol	0.002 / 0.007	N/A	ND	ND
Geranyl Acetate	0.004 / 0.012	N/A	ND	ND
α -Cedrene	0.005 / 0.017	N/A	ND	ND
Valencene	0.010 / 0.033	N/A	ND	ND
Guaial	0.011 / 0.035	N/A	ND	ND
Cedrol	0.009 / 0.032	N/A	ND	ND
TOTAL TERPENOIDS			39.283 mg/g	3.9283%



CATEGORY 1 PESTICIDE TEST RESULTS - 02/13/2023 ✔ PASS

Pesticide and plant growth regulator analysis utilizing high-performance liquid chromatography-mass spectrometry (HPLC-MS) or gas chromatography-mass spectrometry (GC-MS). *GC-MS utilized where indicated. **Method:** QSP 1212 - Analysis of Pesticides and Mycotoxins by LC-MS or QSP 1213 - Analysis of Pesticides by GC-MS

COMPOUND	LOD/LOQ (µg/g)	ACTION LIMIT (µg/g)	MEASUREMENT UNCERTAINTY (µg/g)	RESULT (µg/g)	RESULT
Aldicarb	0.03 / 0.08	≥ LOD	N/A	ND	PASS
Carbofuran	0.02 / 0.05	≥ LOD	N/A	ND	PASS
Chlordane*	0.03 / 0.08	≥ LOD	N/A	ND	PASS
Chlorfenapyr*	0.03 / 0.10	≥ LOD	N/A	ND	PASS
Chlorpyrifos	0.02 / 0.06	≥ LOD	N/A	ND	PASS
Coumaphos	0.02 / 0.07	≥ LOD	N/A	ND	PASS
Daminozide	0.02 / 0.07	≥ LOD	N/A	ND	PASS
Dichlorvos (DDVP)	0.03 / 0.09	≥ LOD	N/A	ND	PASS
Dimethoate	0.03 / 0.08	≥ LOD	N/A	ND	PASS
Ethoprophos	0.03 / 0.10	≥ LOD	N/A	ND	PASS
Etofenprox	0.02 / 0.06	≥ LOD	N/A	ND	PASS
Fenoxycarb	0.03 / 0.08	≥ LOD	N/A	ND	PASS
Fipronil	0.03 / 0.08	≥ LOD	N/A	ND	PASS
Imazalil	0.02 / 0.06	≥ LOD	N/A	ND	PASS
Methiocarb	0.02 / 0.07	≥ LOD	N/A	ND	PASS
Parathion-methyl	0.03 / 0.10	≥ LOD	N/A	ND	PASS
Mevinphos	0.03 / 0.09	≥ LOD	N/A	ND	PASS
Paclobutrazol	0.02 / 0.05	≥ LOD	N/A	ND	PASS
Propoxur	0.03 / 0.09	≥ LOD	N/A	ND	PASS
Spiroxamine	0.03 / 0.08	≥ LOD	N/A	ND	PASS
Thiacloprid	0.03 / 0.10	≥ LOD	N/A	ND	PASS

CATEGORY 2 PESTICIDE TEST RESULTS - 02/13/2023 *continued*

COMPOUND	LOD/LOQ (µg/g)	ACTION LIMIT (µg/g)	MEASUREMENT UNCERTAINTY (µg/g)	RESULT (µg/g)	RESULT
Cyfluthrin	0.12 / 0.38	2	N/A	ND	PASS
Cypermethrin	0.11 / 0.32	1	N/A	ND	PASS
Diazinon	0.02 / 0.05	0.1	N/A	ND	PASS
Dimethomorph	0.03 / 0.09	2	N/A	ND	PASS
Etoazole	0.02 / 0.06	0.1	N/A	ND	PASS
Fenhexamid	0.03 / 0.09	0.1	N/A	ND	PASS
Fenpyroximate	0.02 / 0.06	0.1	N/A	ND	PASS
Flonicamid	0.03 / 0.10	0.1	N/A	ND	PASS
Fludioxonil	0.03 / 0.10	0.1	N/A	ND	PASS
Hexythiazox	0.02 / 0.07	0.1	N/A	ND	PASS
Imidacloprid	0.04 / 0.11	5	N/A	ND	PASS
Kresoxim-methyl	0.02 / 0.07	0.1	N/A	ND	PASS
Malathion	0.03 / 0.09	0.5	N/A	ND	PASS
Metalaxyl	0.02 / 0.07	2	N/A	ND	PASS
Methomyl	0.03 / 0.10	1	N/A	ND	PASS
Myclobutanil	0.03 / 0.09	0.1	N/A	ND	PASS
Naled	0.02 / 0.07	0.1	N/A	ND	PASS
Oxamyl	0.04 / 0.11	0.5	N/A	ND	PASS
Pentachloronitrobenzene*	0.03 / 0.09	0.1	N/A	ND	PASS
Permethrin	0.04 / 0.12	0.5	N/A	ND	PASS
Phosmet	0.03 / 0.10	0.1	N/A	ND	PASS
Piperonyl Butoxide	0.02 / 0.07	3	N/A	ND	PASS
Prallethrin	0.03 / 0.08	0.1	N/A	ND	PASS
Propiconazole	0.02 / 0.07	0.1	N/A	ND	PASS
Pyrethrins	0.04 / 0.12	0.5	N/A	ND	PASS
Pyridaben	0.02 / 0.07	0.1	N/A	ND	PASS
Spinetoram	0.02 / 0.07	0.1	N/A	ND	PASS
Spinosad	0.02 / 0.07	0.1	N/A	ND	PASS
Spiromesifen	0.02 / 0.05	0.1	N/A	ND	PASS
Spirotetramat	0.02 / 0.06	0.1	N/A	ND	PASS
Tebuconazole	0.02 / 0.07	0.1	N/A	ND	PASS
Thiamethoxam	0.03 / 0.10	5	N/A	ND	PASS
Trifloxystrobin	0.03 / 0.08	0.1	N/A	ND	PASS

CATEGORY 2 PESTICIDE TEST RESULTS - 02/13/2023 ✔ PASS

COMPOUND	LOD/LOQ (µg/g)	ACTION LIMIT (µg/g)	MEASUREMENT UNCERTAINTY (µg/g)	RESULT (µg/g)	RESULT
Abamectin	0.03 / 0.10	0.1	N/A	ND	PASS
Acephate	0.02 / 0.07	0.1	N/A	ND	PASS
Acequinocyl	0.02 / 0.07	0.1	N/A	ND	PASS
Acetamiprid	0.02 / 0.05	0.1	N/A	ND	PASS
Azoxystrobin	0.02 / 0.07	0.1	N/A	ND	PASS
Bifenazate	0.01 / 0.04	0.1	N/A	ND	PASS
Bifenthrin	0.02 / 0.05	3	N/A	ND	PASS
Boscalid	0.03 / 0.09	0.1	N/A	ND	PASS
Captan	0.19 / 0.57	0.7	N/A	ND	PASS
Carbaryl	0.02 / 0.06	0.5	N/A	ND	PASS
Chlorantraniliprole	0.04 / 0.12	10	N/A	ND	PASS
Clofentezine	0.03 / 0.09	0.1	N/A	ND	PASS



MYCOTOXIN TEST RESULTS - 02/13/2023 ✔ PASS

Mycotoxin analysis utilizing high-performance liquid chromatography-mass spectrometry (HPLC-MS). **Method:** QSP 1212 - Analysis of Pesticides and Mycotoxins by LC-MS

COMPOUND	LOD/LOQ (µg/kg)	ACTION LIMIT (µg/kg)	MEASUREMENT UNCERTAINTY (µg/kg)	RESULT (µg/kg)	RESULT
Aflatoxin B1	2.0 / 6.0		N/A	ND	
Aflatoxin B2	1.8 / 5.6		N/A	ND	
Aflatoxin G1	1.0 / 3.1		N/A	ND	
Aflatoxin G2	1.2 / 3.5		N/A	ND	
Total Aflatoxin		20		ND	PASS
Ochratoxin A	6.3 / 19.2	20	N/A	ND	PASS

FOREIGN MATERIAL TEST RESULTS - 02/11/2023 ✔ PASS

Visual analysis includes, but is not limited to, sand, soil, cinders, dirt, mold, hair, insect fragments, and mammalian excreta. **Method:** QSP 1226 - Analysis of Foreign Material in Cannabis and Cannabis Products

COMPOUND	ACTION LIMIT	RESULT
Total Sample Area Covered by Sand, Soil, Cinders, or Dirt	>25%	PASS
Total Sample Area Covered by Mold	>25%	PASS
Total Sample Area Covered by an Imbedded Foreign Material	>25%	PASS
Insect Fragment Count	> 1 per 3 grams	PASS
Hair Count	> 1 per 3 grams	PASS
Mammalian Excreta Count	> 1 per 3 grams	PASS

HEAVY METALS TEST RESULTS - 02/11/2023 ✔ PASS

Heavy metal analysis utilizing inductively coupled plasma-mass spectrometry (ICP-MS). **Method:** QSP 1160 - Analysis of Heavy Metals by ICP-MS

COMPOUND	LOD/LOQ (µg/g)	ACTION LIMIT (µg/g)	MEASUREMENT UNCERTAINTY (µg/g)	RESULT (µg/g)	RESULT
Arsenic	0.02 / 0.1	0.2	N/A	ND	PASS
Cadmium	0.02 / 0.05	0.2	N/A	ND	PASS
Lead	0.04 / 0.1	0.5	N/A	ND	PASS
Mercury	0.002 / 0.01	0.1	N/A	<LOQ	PASS

WATER ACTIVITY TEST RESULTS - 02/12/2023 ✔ PASS

Method: QSP 1227 - Analysis of Water Activity in Cannabis and Cannabis Products

COMPOUND	LOD/LOQ (Aw)	ACTION LIMIT (Aw)	MEASUREMENT UNCERTAINTY (Aw)	RESULT (Aw)	RESULT
Water Activity	0.030 / 0.030	0.65	±0.0036	0.520	PASS

MICROBIOLOGY TEST RESULTS - 02/11/2023 ✔ PASS

Analysis conducted by polymerase chain reaction (PCR) and fluorescence detection of microbiological contaminants. **Method:** QSP 1221 - Analysis of Microbiological Contaminants

COMPOUND	ACTION LIMIT	RESULT	RESULT
Shiga toxin-producing <i>Escherichia coli</i>	Not Detected in 1g	ND	PASS
<i>Salmonella</i> spp.	Not Detected in 1g	ND	PASS
<i>Aspergillus fumigatus</i>	Not Detected in 1g	ND	PASS
<i>Aspergillus flavus</i>	Not Detected in 1g	ND	PASS
<i>Aspergillus niger</i>	Not Detected in 1g	ND	PASS
<i>Aspergillus terreus</i>	Not Detected in 1g	ND	PASS