Arkansas Location
232 S Broadview St
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(501) 679-2616

Oklahoma City Location
3680 E I-240 Service Rd
Oklahoma City, OK 73135
(405) 595-0344

Tulsa Location
14720 E Admiral Pl, Ste H
Tulsa, OK 74108
(918) 340-7139

SUMMARY OF ANALYSIS (SAMPLE ID: SA2020-25089)

Testing Location:	**Customer ID:** 1823	**Order ID:** OR2020-7841	**Sample Type:** Primary
OKC	Altum Group	**Lot Number:**	**Matrix:** Flower
3680 E. I-240 Service Rd.	22900 W Skelly Rd	Not Entered	**Mass:** 5g
Oklahoma City, OK 73135	Haskell, OK 74436	**Batch Number:**	**Date Collected:** 04/01/2020
	License: GAAA-4K7V-ISMN	H4 FZ-2A	**Date Received:** 04/01/2020

Cultivar (Strain) or Sample Description: Chem D **Date Completed:** 04/07/2020

*This page is simply a summary of the analysis performed. For analytical details, please consult the individual Certificate(s) of Analysis for each of the specific test(s) performed.

*For Oklahoma, with the new OMMA rules to be effective April 1, 2020, limits on moisture are proposed at 15% and water activity at 0.65aw.

Moisture Content (%)	PASS/FAIL	Water Activity (aw)	PASS/FAIL
12.7	PASS	0.47 @ 22.6ºC	PASS

Cannabinoids (Top 3)	(%)	mg/g
THCa	29.9	299
Δ9-THC	0.622	6
CBGa	0.569	6
TOTAL CBD	0.0621	0.621
TOTAL THC	26.8	268
TOTAL CANNABINOIDS	31.5	315

Terpenes (Top 5)	(%)	µg/g
β-Caryophyllene	0.755	7546
α-Humulene	0.291	2908
d-Limonene	0.167	1673
β-Myrcene	0.082	816
α-Bisabolol	0.071	707
TOTAL TERPENES	1.42	14247

Contaminants	PASS/FAIL
Heavy Metals:	PASS
Microbiology:	PASS
Mycotoxins:	PASS
Pesticides:	PASS
Visual Inspection:	PASS

Sample Picture Upon Receipt

Scan the QR code to verify results.

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Kyle W. Felling, Ph.D.
Laboratory Director

REPORT OF LABORATORY ANALYSIS

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CERTIFICATE OF ANALYSIS (SAMPLE ID: SA2020-25089)

Testing Location:
OKC
3680 E. I-240 Service Rd.
Oklahoma City, OK 73135

Customer ID: 1823
Altum Group
22900 W Skelly Rd
Haskell, OK 74436
License: GAAA-4K7V-ISMN

Order ID: OR2020-7841
Lot Number:
Not Entered
Batch Number:
H4 FZ-2A

Sample Type: Primary
Matrix: Flower
Mass: 5g
Date Collected: 04/01/2020
Date Received: 04/01/2020

Cultivar (Strain) or Sample Description: Chem D

Date Completed: 04/07/2020

CANNABINOID (POTENCY) PROFILE

Analysis Date/Time: 04/06/2020 0946
Analyst: WW

Method: HPLC/DAD
Instrument: Agilent 1100

Moisture Content (%): 12.7
Water Activity (aw): 0.4708 @ 22.57ÂºC

Cannabinoid	Result (%)	Result (mg/g)	Reporting Limit (mg/g)	Result (mg/mL)	Per Unit (mg)
CBD	-	-	0.0501	-	-
CBDa	0.0708	0.708	0.0501	-	0.708
CBDv	0.00578	0.0578	0.0501	-	0.0578
Δ9-THC	0.622	6.22	0.0501	-	6
Δ8-THC	0.0325	0.325	0.0501	-	0.325
THCa	29.9	299	0.0501	-	299
THCv	-	-	0.0501	-	-
CBC	0.0809	0.809	0.0501	-	0.809
CBG	0.167	1.67	0.0501	-	1.67
CBGa	0.569	5.69	0.0501	-	6
CBN	-	-	0.0501	-	-
TOTAL	31.5	315		-	315
TOTAL THC	26.8	268		-	268
TOTAL CBD	0.0621	0.621		-	0.621

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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Testing Location:	**Customer ID:** 1823	**Order ID:** OR2020-7841	**Sample Type:** Primary
OKC	Altum Group	**Lot Number:**	**Matrix:** Flower
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	License: GAAA-4K7V-ISMN	H4 FZ-2A	**Date Received:** 04/01/2020

Cultivar (Strain) or Sample Description: Chem D **Date Completed:** 04/07/2020

TERPENOID PROFILE

Analysis Date/Time: 04/06/2020 0946 **Method:** HS/GC/FID (Internal Method-002) **Deviations from SOP:**
Analyst: DJ **Instrument:** Agilent 6890 None

Terpene	Result (µg/g)	Result (%)
α-Bisabolol	707	0.0707
Camphene	49	0.00495
δ-3-Carene	-	-
β-Caryophyllene	7546	0.755
Caryophyllene oxide	57	0.00569
p-Cymene	-	-
Eucalyptol	-	-
Geraniol	42	0.00425
Guaiol	-	-
α-Humulene	2908	0.291
Isopulegol	-	-
d-Limonene	1673	0.167
Linalool	-	-
β-Myrcene	816	0.0816
cis-Nerolidol	-	-
trans-Nerolidol	-	-
α-Ocimene	-	-
β-Ocimene	-	-
α-Pinene	151	0.0151
β-Pinene	296	0.0296
α-Terpinene	-	-
γ-Terpinene	-	-
Terpinolene	-	-
TOTAL	14247	1.42

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

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Reporting Limit (µg/g): 2

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Cultivar (Strain) or Sample Description: Chem D

Date Completed: 04/07/2020

PESTICIDES PROFILE

Analysis Date/Time: 04/06/2020 0946
Analyst: DJ

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

Deviations from SOP:
None

Pesticide	Result (µg/g)	Action Level (µg/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 (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

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

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Cultivar (Strain) or Sample Description: Chem D

Date Completed: 04/07/2020

MYCOTOXIN PROFILE

Analysis Date/Time: 04/06/2020 0946
Analyst: DJ

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

Deviations from SOP:
None

Mycotoxin	Result (µg/kg)	Action Level (µg/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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Cultivar (Strain) or Sample Description: Chem D

Date Completed: 04/07/2020

HEAVY METAL PROFILE

Analysis Date/Time: 04/06/2020 0946
Analyst: CC

Method: ICP/MS
Instrument: PerkinElmer Elan 9000

Deviations from SOP:
None

Heavy Metal	Result (µg/kg)	Action Level (µg/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 (µg/kg)
50

"-" not detected above reporting limit

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Cultivar (Strain) or Sample Description: Chem D

Date Completed: 04/07/2020

MICROBIOLOGICAL PROFILE

Analysis Date/Time: 04/06/2020 0946
Analyst: KB

Method: Hardy Diagnostics CompactDry
Instrument: Thermo Incubator

Deviations from SOP:
None

Bacteria/Microbe	Result (CFU/g)	Action Level (CFU/g)
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 reporting limit

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