Hemp Quality Assurance Testing

CERTIFICATE OF ANALYSIS

DATE ISSUED 03/06/2024

SAMPLE NAME: Hightened - Mary Jane's Mule

Infused, Hemp

CULTIVATOR / MANUFACTURER

Business Name:

License Number:

Address:

DISTRIBUTOR / TESTED FOR

Business Name: Bent Paddle Brewing Co

License Number:

Address:

SAMPLE DETAIL

Batch Number: 022724-HIMJ-4

Sample ID: 240305M012

Date Collected: 03/05/2024

Date Received: 03/05/2024

Batch Size:

Sample Size: 1.0 units

Unit Mass: 355 milliliters per Unit

Serving Size:

Scan QR code to verify authenticity of results.

CANNABINOID ANALYSIS - SUMMARY

Total THC: **10.0465 mg/unit**

Total CBD: **0.2485 mg/unit**

Sum of Cannabinoids: 10.2950 mg/unit

Total Cannabinoids: 10.2950 mg/unit

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))
Total CBD = CBD + (CBDa (0.877))
Sum of Cannabinoids = Δ^9-THC + THCa + CBD + CBDa + CBG + CBGa + THCV + THCVa + CBC + CBCa + CBDV + CBDVa + Δ^8-THC + CBL + CBN
Total Cannabinoids = (Δ^9-THC+0.877*THCa) + (CBD+0.877*CBDa) + (CBG+0.877*CBGa) + (THCV+0.877*THCVa) + (CBC+0.877*CBCa) + (CBDV+0.877*CBDVa) + Δ^8-THC + CBL + CBN

Density: 1.0086 g/mL

LQC verified by: Michael Pham
Job Title: Senior Laboratory Analyst
Date: 03/06/2024

Approved by: Josh Wurzer
Job Title: Chief Compliance Officer
Date: 03/06/2024

For quality assurance purposes. Not a Regulatory Hemp Lab Test Report. 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.

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

Cannabinoid Analysis

Tested by high-performance liquid chromatography with diode-array detection (HPLC-DAD).

Method: QSP 1157 - Analysis of Cannabinoids by HPLC-DAD

TOTAL THC: **10.0465 mg/unit**

Total THC (Δ^9-THC+0.877*THCa)

TOTAL CBD: **0.2485 mg/unit**

Total CBD (CBD+0.877*CBDa)

TOTAL CANNABINOIDS: 10.2950 mg/unit

Total Cannabinoids (Total THC) + (Total CBD) + (Total CBG) + (Total THCV) + (Total CBC) + (Total CBDV) + Δ^8-THC + CBL + CBN

TOTAL CBG: ND

Total CBG (CBG+0.877*CBGa)

TOTAL THCV: ND

Total THCV (THCV+0.877*THCVa)

TOTAL CBC: ND

Total CBC (CBC+0.877*CBCa)

TOTAL CBDV: ND

Total CBDV (CBDV+0.877*CBDVa)

CANNABINOID TEST RESULTS - 03/06/2024

COMPOUND	LOD/LOQ (mg/mL)	MEASUREMENT UNCERTAINTY (mg/mL)	RESULT (mg/mL)	RESULT (%)
Δ^9-THC	*0.0001 / 0.0005*	*±0.00155*	**0.0283**	**0.00281**
CBD	*0.0001 / 0.0004*	*±0.00003*	**0.0007**	**0.00007**
Δ^8-THC	*0.0003 / 0.0008*	*N/A*	**ND**	**ND**
THCa	*0.0001 / 0.0002*	*N/A*	**ND**	**ND**
THCV	*0.0001 / 0.0005*	*N/A*	**ND**	**ND**
THCVa	*0.0001 / 0.0007*	*N/A*	**ND**	**ND**
CBDa	*0.0001 / 0.0010*	*N/A*	**ND**	**ND**
CBDV	*0.0001 / 0.0005*	*N/A*	**ND**	**ND**
CBDVa	*0.0001 / 0.0007*	*N/A*	**ND**	**ND**
CBG	*0.0001 / 0.0002*	*N/A*	**ND**	**ND**
CBGa	*0.0001 / 0.0003*	*N/A*	**ND**	**ND**
CBL	*0.0001 / 0.0004*	*N/A*	**ND**	**ND**
CBN	*0.0001 / 0.0003*	*N/A*	**ND**	**ND**
CBC	*0.0001 / 0.0004*	*N/A*	**ND**	**ND**
CBCa	*0.0001 / 0.0006*	*N/A*	**ND**	**ND**
SUM OF CANNABINOIDS			**0.0290 mg/mL**	**0.00288%**

Unit Mass: 355 milliliters per Unit

Δ^9-THC per Unit	**10.0465 mg/unit**
Total THC per Unit	**10.0465 mg/unit**
CBD per Unit	**0.2485 mg/unit**
Total CBD per Unit	**0.2485 mg/unit**
Sum of Cannabinoids per Unit	**10.2950 mg/unit**
Total Cannabinoids per Unit	**10.2950 mg/unit**

DENSITY TEST RESULT

1.0086 g/mL

Tested 03/06/2024

Method: QSP 7870 - Sample Preparation

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CERTIFICATE OF ANALYSIS

Prepared for:
Bent Paddle Brewing Co
1912 W Michigan St.
Duluth, MN USA 55806

Hightened - Mary Jane Mule

Batch ID or Lot Number:	Test, Test ID and Methods:	Matrix:	
022724-HIMJ	Various	Unit	
Reported:	Started:	Received:	
26Feb2024	26Feb2024	26Feb2024	

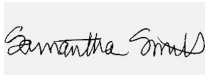
Pesticides

Test ID: T000272330
Methods: TM17

(LC-QQ LC MS/MS)	**Dynamic Range** (ppb)	**Result** (ppb)		**Dynamic Range** (ppb)	**Result** (ppb)
Abamectin	277 - 2691	ND	Malathion	290 - 2684	ND
Acephate	42 - 2661	ND	Metalaxyl	43 - 2715	ND
Acetamiprid	41 - 2675	ND	Methiocarb	43 - 2701	ND
Azoxystrobin	48 - 2688	ND	Methomyl	40 - 2717	ND
Bifenazate	44 - 2695	ND	MGK 264 1	170 - 1633	ND
Boscalid	46 - 2666	ND	MGK 264 2	100 - 1073	ND
Carbaryl	42 - 2691	ND	Myclobutanil	40 - 2682	ND
Carbofuran	44 - 2692	ND	Naled	45 - 2651	ND
Chlorantraniliprole	40 - 2671	ND	Oxamyl	41 - 2712	ND
Chlorpyrifos	53 - 2685	ND	Paclobutrazol	46 - 2710	ND
Clofentezine	273 - 2698	ND	Permethrin	284 - 2754	ND
Diazinon	290 - 2692	ND	Phosmet	41 - 2562	ND
Dichlorvos	290 - 2674	ND	Prophos	291 - 2668	ND
Dimethoate	40 - 2684	ND	Propoxur	42 - 2697	ND
E-Fenpyroximate	258 - 2738	ND	Pyridaben	291 - 2708	ND
Etofenprox	46 - 2699	ND	Spinosad A	32 - 2080	ND
Etoxazole	289 - 2622	ND	Spinosad D	66 - 668	ND
Fenoxycarb	42 - 2696	ND	Spiromesifen	261 - 2707	ND
Fipronil	41 - 2821	ND	Spirotetramat	288 - 2747	ND
Flonicamid	50 - 2744	ND	Spiroxamine 1	16 - 1023	ND
Fludioxonil	303 - 2688	ND	Spiroxamine 2	25 - 1588	ND
Hexythiazox	42 - 2739	ND	Tebuconazole	287 - 2690	ND
Imazalil	275 - 2727	ND	Thiacloprid	42 - 2695	ND
Imidacloprid	43 - 2746	ND	Thiamethoxam	42 - 2725	ND
Kresoxim-methyl	42 - 2730	ND	Trifloxystrobin	45 - 2706	ND

Final Approval

Karen Winternheimer
28Feb2024
10:34:00 AM MST
PREPARED BY / DATE



Sam Smith
28Feb2024
10:39:00 AM MST
APPROVED BY / DATE

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Prepared for:
Bent Paddle Brewing Co
1912 W Michigan St.
Duluth, MN USA 55806

Hightened - Mary Jane Mule

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022724-HIMJ	Various	Unit	
Reported:	Started:	Received:	
26Feb2024	26Feb2024	26Feb2024	

Heavy Metals

Test ID: T000272332
Methods: TM19 (ICP-MS): Heavy Metals

	Dynamic Range (ppm)	**Result** (ppm)	**Notes**
Arsenic	0.04 - 4.29	ND	
Cadmium	0.04 - 4.33	ND	
Mercury	0.05 - 4.61	ND	
Lead	0.03 - 3.13	ND	

Final Approval


Sam Smith
29Feb2024
12:24:00 PM MST
PREPARED BY / DATE


Karen Winternheimer
29Feb2024
02:22:00 PM MST
APPROVED BY / DATE

Microbial Contaminants

Test ID: T000272331
Methods: TM25 (PCR) TM24, TM26, TM27 (Culture Plating)

	Method	**LOD**	**Quantitation Range**	**Result**	**Notes**
STEC	TM25: PCR	10^0 CFU/25g	NA	Absent	Free from visual mold, mildew, and foreign matter
Salmonella	TM25: PCR	10^0 CFU/25g	NA	Absent	
Total Yeast and Mold*	TM24: Culture Plating	10^1 CFU/g	$1.0x10^2$ - $1.5x10^4$	None Detected	
Total Aerobic Count*	TM26: Culture Plating	10^2 CFU/g	$1.0x10^3$ - $1.5x10^5$	None Detected	
Total Coliforms*	TM27: Culture Plating	10^1 CFU/g	$1.0x10^2$ - $1.5x10^4$	None Detected	

Final Approval


Brianne Maillot
29Feb2024
10:21:00 AM MST
PREPARED BY / DATE


Eden Thompson-Wright
29Feb2024
04:01:00 PM MST
APPROVED BY / DATE

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022724-HIMJ	Various	Unit	
Reported:	**Started:**	**Received:**	
26Feb2024	26Feb2024	26Feb2024	

https://results.botanacor.com/api/v1/coas/uuid/b84c11d0-db20-4f0d-8a07-916a973bdda3

Definitions
LOD = Limit of Detection, ULOQ = Upper Limit of Quantitation, LLOQ = Lower Limit of Quantitation, PPB = Parts per Billion, % = % (w/w) = Percent (weight of analyte / weight of product). ND = None Detected (defined by dynamic range of the method). Total Potential Delta 9-THC or CBD is calculated to take into account the loss of a carboxyl group during decarboxylation step, using the following formulas: Total Potential Delta 9-THC = Delta 9-THC + (Delta 9-THCa *(0.877)) and Total CBD = CBD + (CBDa *(0.877)). Fail equates to a concentration level of Delta 9-THC, on a dry weight basis, higher than 0.3 percent + or – the measurement uncertainty. Total Potential THC is calculated using the following formulas to take into account the loss of a carboxyl group during decarboxylation step. Total THC = THC + (THCa *(0.877)). ALOQ = Above Limit Of Quantitation (defined by dynamic range of the method), CFU/g = Colony Forming Units per Gram. Values recorded in scientific notation, a common microbial practice of expressing numbers that are too large to be conveniently written in decimal form. Examples: 10^2 = 100 CFU, 10^3 = 1,000 CFU, 10^4 = 10,000 CFU, 10^5 = 100,000 CFU.

Cert #4329.02
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