Utah Department of Agriculture and Food
Division of Laboratory Services
4451 South 2700 West
Taylorsville, Utah 84129
(801) 816-3840

CERTIFICATE OF ANALYSIS

Cannabinoid Analysis **Status:** PASS

Sample ID:	HP23297-3	**Description:**	Tincture - Ingest
Testing Date:	10/27/2023	**Reviewed By:**	Cameron Cheyne

Method: ACL.AM.003 Analysis performed using High-Performance Liquid Chromatography (HPLC-DAD)

Analyte	Abbreviation	CAS Number	% (w/w)	mg/g
Δ9-Tetrahydrocannabidiol	Δ9-THC	1972-08-03	<LOQ	<LOQ
Δ8-Tetrahydrocannabidiol	Δ8-THC	5957-75-5	ND	ND
Δ9-Tetrahydrocannabinolic acid	THCA	23978-85-0	ND	ND
Δ9-Tetrahydrocannabivarin	THCV	31262-37-0	ND	ND
Cannabidiol	CBD	13956-29-1	0.06%	0.6
Cannabidiolic acid	CBDA	1244-58-2	ND	ND
Cannabidivarin	CBDV	24274-48-4	ND	ND
Cannabinol	CBN	521-35-7	<LOQ	<LOQ
Cannabigerol	CBG	25654-31-3	2.36%	23.6
Cannabichromene	CBC	20675-51-8	0.13%	1.3
Cannabigerolic acid	CBGA	25555-57-1	0.09%	0.9
Cannabichromenic acid	CBCA	20408-52-0	ND	ND
Cannabicitran	CBTC	31508-71-1	NT	NT
9(R+S)-Δ6a,10a-Tetrahydrocannabidiol	Δ3-THC	95720-01-07, 95720-02-8	ND	ND
(6aR,9R)-Δ10-Tetrahydrocannabidiol	(6aR,9R)-Δ10-THC	95543-62-7	ND	ND
(6aR,9S)-Δ10-Tetrahydrocannabidiol	(6aR,9S)-Δ10-THC	95588-87-7	ND	ND
Total Cannabinoids			2.65%	26.50
Total THC			ND	ND
Total CBD			0.06%	0.60
Total THC Analogs			ND	ND

Unknown Cannabinoid Peak Area: 1.0% **Status:** PASS

Notes:

Total Cannabinoids is calculated as the direct sum of each of the cannabinoid values.
Total THC is calculated as Δ9-THC + (THCA x 0.877).
Total CBD is calculated as CBD + (CBDA x 0.877).
Total THC Analogs is calculated as Δ9-THC + (THCA x 0.877) + Δ8-THC + CBTC.
ND = Not Detected, NQ = Not Quantifiable, NT = Not Tested, <LOQ = Below the limit of quantification

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CERTIFICATE OF ANALYSIS

Prepared for:
Kielbasa Farms
Po Box 668
Duchesne, UT USA 84021

CINNAMON TINCTURE 82823

Batch ID or Lot Number: **BATCH102CINNAMONTINCTURE82823**	Test: **Density**	Reported: **01Sep2023**	USDA License: NA
Matrix: Concentrate	Test ID: T000254748	Started: 01Sep2023	Sampler ID: NA
	Method(s): TL-SOP-0034 (Gravimetric)	Received: 31Aug2023	Status: NA

Density Analysis

	Result	Notes
Density	0.956 g/ml	Free from visual mold, mildew, and foreign matter N/A

Final Approval

Karen Winternheimer
01Sep2023
09:31:00 AM MDT
PREPARED BY / DATE

Sam Smith
01Sep2023
09:33:00 AM MDT
APPROVED BY / DATE

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CINNAMON TINCTURE 82823

Batch ID or Lot Number:	Test:	Reported:	USDA License:
BATCH102CINNAMONTINCTURE82823	**Pesticides**	**07Sep2023**	NA
Matrix:	Test ID:	Started:	Sampler ID:
Finished Product	T000254744	06Sep2023	NA
	Method(s):	Received:	Status:
	TM17 (LC-QQ LC MS/MS)	31Aug2023	NA

Pesticides

	Dynamic Range (ppb)	**Result** (ppb)
Abamectin	419 - 2744	ND
Acephate	44 - 2757	ND
Acetamiprid	41 - 2752	ND
Azoxystrobin	48 - 2701	ND
Bifenazate	44 - 2732	ND
Boscalid	39 - 2669	ND
Carbaryl	42 - 2729	ND
Carbofuran	43 - 2709	ND
Chlorantraniliprole	44 - 2684	ND
Chlorpyrifos	44 - 2780	ND
Clofentezine	279 - 2751	ND
Diazinon	288 - 2747	ND
Dichlorvos	276 - 2790	ND
Dimethoate	42 - 2751	ND
E-Fenpyroximate	298 - 2805	ND
Etofenprox	44 - 2754	ND
Etoxazole	306 - 2771	ND
Fenoxycarb	28 - 2741	ND
Fipronil	54 - 2679	ND
Flonicamid	46 - 2810	ND
Fludioxonil	275 - 2643	ND
Hexythiazox	43 - 2787	ND
Imazalil	282 - 2751	ND
Imidacloprid	42 - 2806	ND
Kresoxim-methyl	46 - 2755	ND
Malathion	294 - 2709	ND
Metalaxyl	42 - 2719	ND
Methiocarb	43 - 2687	ND
Methomyl	41 - 2778	ND
MGK 264 1	170 - 1674	ND
MGK 264 2	109 - 1077	ND
Myclobutanil	41 - 2563	ND
Naled	40 - 2752	ND
Oxamyl	41 - 2784	ND
Paclobutrazol	44 - 2727	ND
Permethrin	274 - 2728	ND
Phosmet	44 - 2714	ND
Prophos	303 - 2652	ND
Propoxur	44 - 2720	ND
Pyridaben	299 - 2785	ND
Spinosad A	31 - 2097	ND
Spinosad D	66 - 682	ND
Spiromesifen	294 - 2758	ND
Spirotetramat	276 - 2734	ND
Spiroxamine 1	18 - 1178	ND
Spiroxamine 2	23 - 1491	ND
Tebuconazole	291 - 2783	ND
Thiacloprid	42 - 2731	ND
Thiamethoxam	41 - 2792	ND
Trifloxystrobin	44 - 2700	ND

Final Approval

K Winternheimer
PREPARED BY / DATE
Karen Winternheimer
07Sep2023
09:17:00 AM MDT

Samantha Smith
APPROVED BY / DATE
Sam Smith
07Sep2023
09:19:00 AM MDT

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Definitions
ND = None Detected (defined by dynamic range of the method)
Dynamic Range = Limit of Quantitation (LOQ) through Upper Limit of Method Range
ppb = Parts Per Billion

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CINNAMON TINCTURE 82823

Batch ID or Lot Number:	Test:	Reported:	USDA License:
BATCH102CINNAMONTINCTURE82823	**Heavy Metals**	**08Sep2023**	NA
Matrix:	**Test ID:**	**Started:**	**Sampler ID:**
Finished Product	T000254746	07Sep2023	NA
	Method(s):	**Received:**	**Status:**
	TM19 (ICP-MS): Heavy Metals	31Aug2023	NA

Heavy Metals

	Dynamic Range (ppm)	**Result** (ppm)	**Notes**
Arsenic	0.04 - 4.34	ND	
Cadmium	0.04 - 4.33	ND	
Mercury	0.04 - 4.37	ND	
Lead	0.04 - 4.44	ND	

Final Approval

Samantha Smith
Sam Smith
08Sep2023
08:29:00 AM MDT
PREPARED BY / DATE

K Winternheimer
Karen Winternheimer
08Sep2023
08:33:00 AM MDT
APPROVED BY / DATE

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Definitions
ND = None Detected (defined by dynamic range of the method)
Dynamic Range = Limit of Quantitation (LOQ) through Upper Limit of Method Range

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CINNAMON TINCTURE 82823

Batch ID or Lot Number:	Test:	Reported:	USDA License:
BATCH102CINNAMONTINCTURE82823	**Microbial Contaminants**	**05Sep2023**	NA
Matrix:	**Test ID:**	**Started:**	**Sampler ID:**
Finished Product	T000254745	01Sep2023	NA
	Method(s):	**Received:**	**Status:**
	TM25 (PCR) TM24, TM26, TM27 (Culture Plating)	31Aug2023	NA

Microbial Contaminants

	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	$1.0x10^3$ - $1.5x10^5$	<LLOQ	
Total Coliforms*	TM27: Culture Plating	10^1 CFU/g	$1.0x10^2$ - $1.5x10^4$	None Detected	

Final Approval

Brett Hudson
04Sep2023
01:11:00 PM MDT
PREPARED BY / DATE

Brianne Maillot
05Sep2023
09:55:00 AM MDT
APPROVED BY / DATE

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Definitions
* 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
CFU/g = Colony Forming Units per Gram, LOD = Limit of Detection
ULOQ = Upper Limit of Quantitation, LLOQ = Lower Limit of Quantitation
STEC = Shiga Toxin-Producing E. coli

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CINNAMON TINCTURE 82823

Batch ID or Lot Number:	Test:	Reported:	USDA License:
BATCH102CINNAMONTINCTURE82823	**Mycotoxins**	**12Sep2023**	N/A
Matrix:	**Test ID:**	**Started:**	**Sampler ID:**
Finished Product	T000254749	09Sep2023	N/A
	Method(s):	**Received:**	**Status:**
	TM18 (UHPLC-QQQ LCMS/MS): Mycotoxins	31Aug2023	Active

Mycotoxins	**Dynamic Range** (ppb)	**Result** (ppb)	**Notes**
Ochratoxin A	3.00 - 113.29	ND	N/A
Aflatoxin B1	0.98 - 29.83	ND	
Aflatoxin B2	0.95 - 29.62	ND	
Aflatoxin G1	0.98 - 29.86	ND	
Aflatoxin G2	1.16 - 30.34	ND	
Total Aflatoxins (B1, B2, G1, and G2)		ND	

Final Approval

Samantha Smith
Sam Smith
12Sep2023
06:21:00 AM MDT
PREPARED BY / DATE

K Winternheimer
Karen Winternheimer
12Sep2023
06:22:00 AM MDT
APPROVED BY / DATE

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Definitions
ND = None Detected (defined by dynamic range of the method)
Dynamic Range = Limit of Quantitation (LOQ) through Upper Limit of Method Range

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CINNAMON TINCTURE 82823

Batch ID or Lot Number:	Test:	Reported:	USDA License:
BATCH102CINNAMONTINCTURE82823	**Residual Solvents**	**05Sep2023**	N/A
Matrix:	**Test ID:**	**Started:**	**Sampler ID:**
Concentrate	T000254747	05Sep2023	N/A
	Method(s):	**Received:**	**Status:**
	TM04 (GC-MS): Residual Solvents	31Aug2023	Active

Residual Solvents

	Dynamic Range (ppm)	**Result** (ppm)	**Notes**
Propane	102 - 2039	ND	
Butanes (Isobutane, n-Butane)	207 - 4134	ND	
Methanol	65 - 1296	ND	
Pentane	104 - 2082	ND	
Ethanol	102 - 2047	ND	
Acetone	106 - 2116	ND	
Isopropyl Alcohol	109 - 2172	ND	
Hexane	6 - 127	ND	
Ethyl Acetate	106 - 2130	ND	
Benzene	0.2 - 4.2	ND	
Heptanes	107 - 2148	ND	
Toluene	19 - 387	ND	
Xylenes (m,p,o-Xylenes)	144 - 2881	ND	

Final Approval

K Winternheimer

Karen Winternheimer
05Sep2023
03:04:00 PM MDT

PREPARED BY / DATE

Samantha Smith

Sam Smith
05Sep2023
03:06:00 PM MDT

APPROVED BY / DATE

https://results.botanacor.com/api/v1/coas/uuid/702f6737-2ea1-4c14-85a4-e3e41a897ebf

Definitions
ND = None Detected (defined by dynamic range of the method)
Dynamic Range = Limit of Quantitation (LOQ) through Upper Limit of Method Range