

HOP QUALITY REPORT CERTIFICATE OF ANALYSIS



To: Wisconsin Hop Exchange

Sample ID: 24NDV1104-01LH

Variety: Northern Discover

Product: T-90 Pellet

Date : 3/15/2025

Certifying Officer: Zach Lilla - Lab Manager
 TTB Certified Chemist - Member AOAC - ASBC - BJCP

<u>Method</u>			
Hops-4C	Moisture Analysis	% Moisture	11.7
		% Dry Matter	88.3
AAR	Xanthohumol by HPLC		NT mg/g
Hops-12	Hop Storage Index	HSI	0.297
Hops-13	Essential Oil by Steam Distillation	mL/100g	0.22
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	51.9 (% of Total AA)
ICE-3		% Alpha Acids	3.41
		Colupulone	76.7 (% of Total BA)
		% Beta Acids	3.54
		a/b ratio	0.96
Hops-17	Hop Essential Oil by GC-FID (as is)	% area	mg/100g
		B-Pinene	0.39 0.73
		Myrcene	30.79 64.92
		Linalool	0.55 1.21
		Caryophyllene	11.57 22.41
		Farnesene	0.28 0.67
		Humulene	1.51 2.90
		Geraniol	0.30 0.67

NT=NOT TESTED

Signed:

Zachary Lilla - Lab Manager - TTB Certified Chemist
 AAR LAB - ADVANCED ANALYTICAL RESEARCH
 2517 Advance Rd Ste. A Madison WI 53718



AROMA QUALITY (AQ)

HOP QUALITY REPORT



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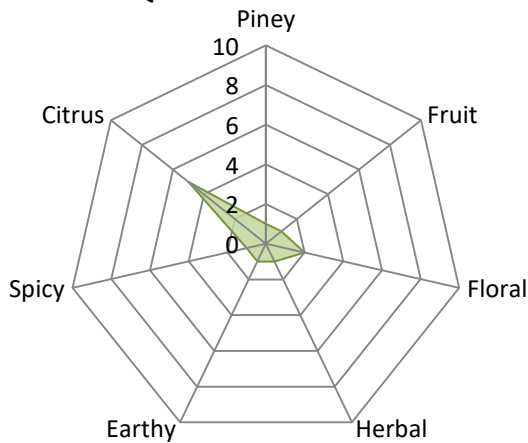
Certifying Officer: Zach Lilla - Lab Manager
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	Typical Range	
% Moisture 11.7	8 - 12 %	✓
HOP QUALITY (adjusted to 10% moisture)		
Total Oil ml/100g 0.22	0.4 - 0.8 mL	↓
cohumulone 51.9	48 - 54%	✓
Alpha Acids 3.47	7.0 - 9%	↓
Beta Acids 3.61	4.0 - 6.0%	↓
Myrcene 30.79	30.00 - 50.00 %	✓

AROMA QUALITY (AQ)

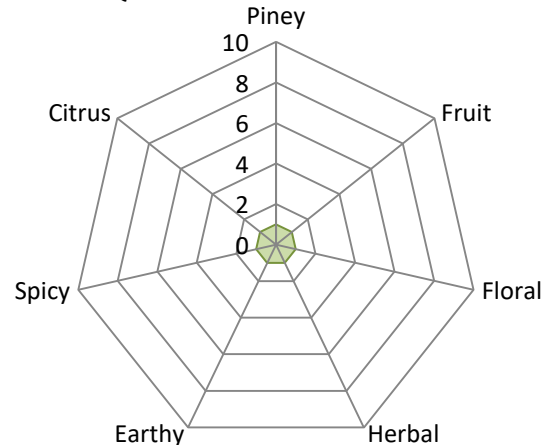
	% Area		mg/mL of Hop Oil			mg/100g of Hops (@10%H2O)			
B-Pinene	0.39	0.30 - 0.80 %	✓	3.35	3 - 8	✓	0.74	1.2 - 6.4	↓
Myrcene	30.79	30.00 - 50.00 %	✓	298.93	300 - 500	↓	66.14	120 - 400	↓
Linalool	0.55	0.20 - 0.40 %	↑	5.58	2 - 4	✓	1.23	0.8 - 3.2	✓
Caryophyllene	11.57	7.00 - 10.00 %	↑	103.18	70 - 100	↑	22.83	28 - 80	↓
Farnesene	0.28	0.01 - 100 %	✓	3.06	0.1 - 100	✓	0.68	0.04 - 80	✓
Humulene	1.51	4.00 - 8.00 %	↓	13.38	40 - 80	↓	2.96	16 - 64	↓
Geraniol	0.30	0.02 - 0.20 %	↑	3.08	0.2 - 2	↑	0.68	0.08 - 1.6	✓

AQ vs VARIETY SPECS



Aroma Intensity= 2

AQ vs ALL HOP VARIETIES



Aroma Intensity= 1

Signed: _____

Zachary Lilla - Lab Manager - TTB Certified Chemist

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