

HOP QUALITY REPORT CERTIFICATE OF ANALYSIS

To: Wisconsin Hop Exchange

Sample ID: 24BIG1087-01LH

Variety: Bitter Gold

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	0.286
Hops-13	Essential Oil by Steam Distillation	mL/100g	1.23
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	36.1 (% of Total AA)
ICE-3		% Alpha Acids	10.50
		Colupulone	56.5 (% of Total BA)
		% Beta Acids	5.20
		a/b ratio	2.02
Hops-17	Hop Essential Oil by GC-FID (as is)	% area	mg/100g
		B-Pinene	0.61 6.96
		Myrcene	45.62 589.14
		Linalool	0.36 4.77
		Caryophyllene	10.27 121.78
		Farnesene	1.19 17.37
		Humulene	17.42 204.88
		Geraniol	0.22 2.93

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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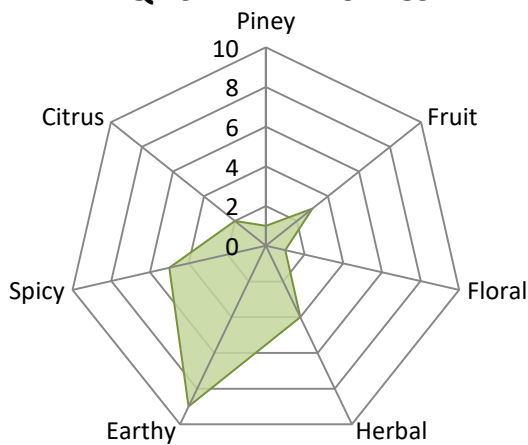
Certifying Officer: Zach Lilla - Lab Manager
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	Typical Range	
% Moisture 11.7	8 - 12 %	✓
HOP QUALITY (adjusted to 10% moisture)		
Total Oil ml/100g 1.26	1.0 - 2.0 mL	✓
cohumulone 36.1	36 - 41%	✓
Alpha Acids 10.70	12 - 14.5%	↓
Beta Acids 5.30	4.5 - 6.0%	✓
Myrcene 45.62	45.00 - 55.00 %	✓

AROMA QUALITY (AQ)

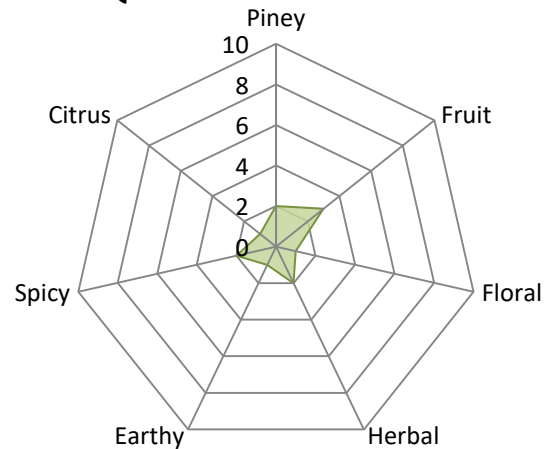
	% Area		mg/mL of Hop Oil			mg/100g of Hops (@10%H2O)			
B-Pinene	0.61	0.60 - 0.90 %	✓	5.65	6 - 9	↓	7.09	6 - 18	✓
Myrcene	45.62	45.00 - 55.00 %	✓	478.03	450 - 550	✓	600.35	450 - 1100	✓
Linalool	0.36	0.40 - 0.70 %	↓	3.87	4 - 7	↓	4.86	4 - 14	✓
Caryophyllene	10.27	7.00 - 11.00 %	✓	98.82	70 - 110	✓	124.10	70 - 220	✓
Farnesene	1.19	0.01 - 1.00 %	↑	14.10	0.1 - 10	↑	17.71	0.1 - 20	✓
Humulene	17.42	10.00 - 18.00 %	✓	166.24	100 - 180	✓	208.78	100 - 360	✓
Geraniol	0.22	0.01 - 1.00 %	✓	2.38	0.1 - 10	✓	2.98	0.1 - 20	✓

AQ vs VARIETY SPECS



Aroma Intensity= 15

AQ vs ALL HOP VARIETIES



Aroma Intensity= 3

Signed: _____

Zachary Lilla - Lab Manager - TTB Certified Chemist

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