

HOP QUALITY REPORT CERTIFICATE OF ANALYSIS



To: Wisconsin Hop Exchange

Sample ID: 25MAG1107-01FB

Variety: Magnum

Product: T-90 Pellet

Date : 2/23/2026

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

<u>Method</u>			
Hops-4C	Moisture Analysis	% Moisture	11.0
		% Dry Matter	89.0
AAR	Xanthohumol by HPLC		NT mg/g
Hops-12	Hop Storage Index	HSI	0.267
Hops-13	Essential Oil by Steam Distillation	mL/100g	0.97
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	22.1 (% of Total AA)
ICE-3		% Alpha Acids	14.95
		Colupulone	38.9 (% of Total BA)
		% Beta Acids	6.35
		a/b ratio	2.36
Hops-17	Hop Essential Oil by GC-FID (as is)	% area	mg/100g
		B-Pinene	0.39 3.90
		Myrcene	29.89 335.65
		Linalool	0.25 2.88
		Caryophyllene	11.72 120.87
		Farnesene	0.04 0.54
		Humulene	38.80 396.74
		Geraniol	0.29 3.37

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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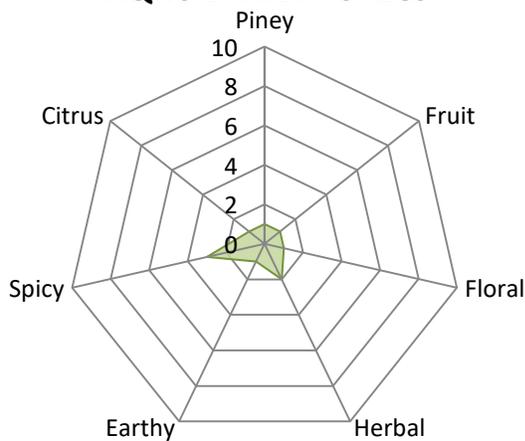
Certifying Officer: Zach Lilla - Lab Manager
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	Typical Range	
% Moisture <input style="width: 100px;" type="text" value="11.0"/>	8 - 12 %	<input checked="checked" style="width: 40px; height: 20px;" type="checkbox"/>
HOP QUALITY (adjusted to 10% moisture)		
Total Oil ml/100g <input style="width: 100px;" type="text" value="0.98"/>	1.0 - 3.0 mL	<input style="width: 40px; height: 20px;" type="checkbox" value=""/>
cohumulone <input style="width: 100px;" type="text" value="22.1"/>	23 - 28%	<input style="width: 40px; height: 20px;" type="checkbox" value=""/>
Alpha Acids <input style="width: 100px;" type="text" value="15.11"/>	12 - 15.5%	<input checked="checked" style="width: 40px; height: 20px;" type="checkbox"/>
Beta Acids <input style="width: 100px;" type="text" value="6.41"/>	5.5 - 8.0%	<input checked="checked" style="width: 40px; height: 20px;" type="checkbox"/>
Myrcene <input style="width: 100px;" type="text" value="29.89"/>	30.00 - 40.00 %	<input style="width: 40px; height: 20px;" type="checkbox" value=""/>

AROMA QUALITY (AQ)

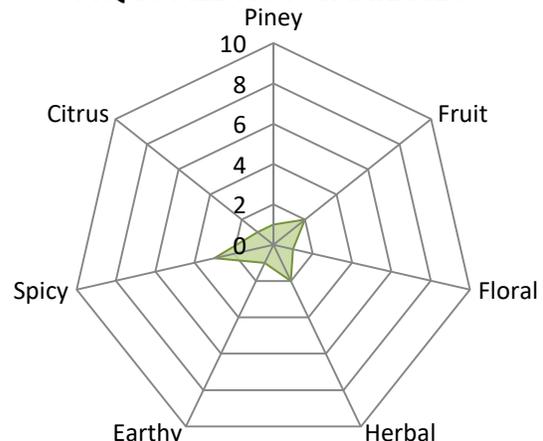
	% Area		mg/mL of Hop Oil			mg/100g of Hops (@10%H2O)			
B-Pinene	0.39	0.40 - 0.90 %	↓	4.01	4 - 9	✓	3.94	4 - 27	↓
Myrcene	29.89	30.00 - 40.00 %	↓	345.13	300 - 400	✓	339.29	300 - 1200	✓
Linalool	0.25	0.30 - 0.80 %	↓	2.96	3 - 8	↓	2.91	3 - 24	↓
Caryophyllene	11.72	7.00 - 12.00 %	✓	124.28	70 - 120	↑	122.18	70 - 360	✓
Farnesene	0.04	0.01 - 1.00 %	✓	0.55	0.1 - 10	✓	0.54	0.1 - 30	✓
Humulene	38.80	25.00 - 30.00 %	↑	407.94	250 - 300	↑	401.03	250 - 900	✓
Geraniol	0.29	0.20 - 0.70 %	✓	3.47	2 - 7	✓	3.41	2 - 21	✓

AQ vs VARIETY SPECS



Aroma Intensity= 2

AQ vs ALL HOP VARIETIES



Aroma Intensity= 2

Signed: _____

Zachary Lilla - Lab Manager - TTB Certified Chemist

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