

HOP QUALITY REPORT CERTIFICATE OF ANALYSIS



To: Wisconsin Hop Exchange

Sample ID: 24MIC1087-01LH

Variety: Michigan Copper™

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	0.277
Hops-13	Essential Oil by Steam Distillation	mL/100g	1.78
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	29.9 (% of Total AA)
ICE-3		% Alpha Acids	9.50
		Colupulone	54.9 (% of Total BA)
		% Beta Acids	3.10
		a/b ratio	3.06
Hops-17	Hop Essential Oil by GC-FID	% area	mg/100g
	(as is)	B-Pinene	0.44 7.57
		Myrcene	31.02 610.88
		Linalool	0.32 6.45
		Caryophyllene	9.87 178.54
		Farnesene	0.11 2.47
		Humulene	21.18 379.74
		Geraniol	0.64 13.18

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



Customer : Wisconsin Hop Exchange

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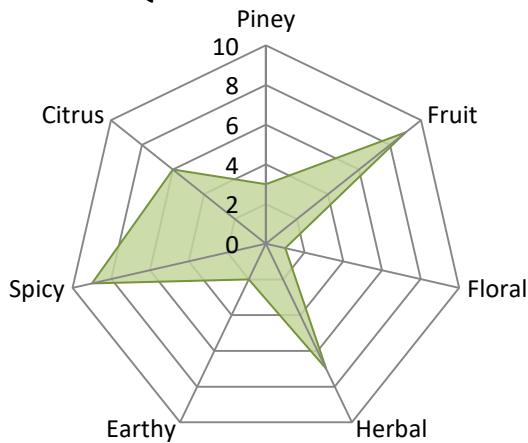
Certifying Officer: Zach Lilla - Lab Manager
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	Typical Range	
% Moisture <input type="text" value="11.7"/>	8 - 12 %	<input checked="" type="checkbox"/>
HOP QUALITY (adjusted to 10% moisture)		
Total Oil ml/100g <input type="text" value="1.82"/>	1.2 - 1.8 ml	<input type="text" value="↑"/>
cohumulone <input type="text" value="29.9"/>	27 - 32%	<input checked="" type="checkbox"/>
Alpha Acids <input type="text" value="9.69"/>	9.0 - 13%	<input checked="" type="checkbox"/>
Beta Acids <input type="text" value="3.16"/>	2.0 - 3.0%	<input type="text" value="↑"/>
Myrcene <input type="text" value="31.02"/>	28.00 - 38.00 %	<input checked="" type="checkbox"/>

AROMA QUALITY (AQ)

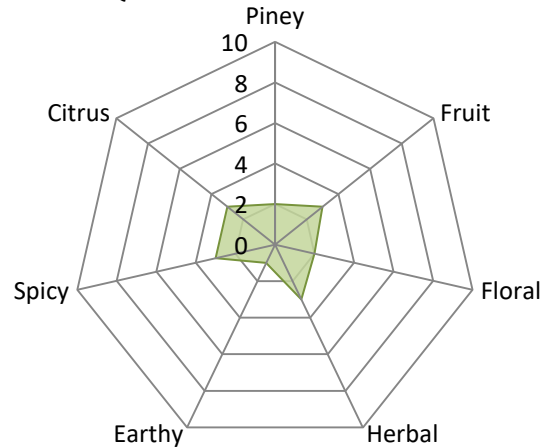
	% Area		mg/mL of Hop Oil			mg/100g of Hops (@10%H2O)			
B-Pinene	0.44	0.40 - 1.00 %	<input checked="" type="checkbox"/>	4.24	4 - 10	<input checked="" type="checkbox"/>	7.72	4.8 - 18	<input checked="" type="checkbox"/>
Myrcene	31.02	28.00 - 38.00 %	<input checked="" type="checkbox"/>	342.27	280 - 380	<input checked="" type="checkbox"/>	622.81	336 - 684	<input checked="" type="checkbox"/>
Linalool	0.32	0.6 - 1.20 %	<input type="text" value="↓"/>	3.61	6 - 12	<input type="text" value="↓"/>	6.57	7.2 - 21.6	<input type="text" value="↓"/>
Caryophyllene	9.87	9.00 - 12.00 %	<input checked="" type="checkbox"/>	100.04	90 - 120	<input checked="" type="checkbox"/>	182.03	108 - 216	<input checked="" type="checkbox"/>
Farnesene	0.11	0.01 - 1.00 %	<input checked="" type="checkbox"/>	1.38	0.1 - 10	<input checked="" type="checkbox"/>	2.52	0.12 - 18	<input checked="" type="checkbox"/>
Humulene	21.18	17.00 - 23.00 %	<input checked="" type="checkbox"/>	212.76	170 - 230	<input checked="" type="checkbox"/>	387.15	204 - 414	<input checked="" type="checkbox"/>
Geraniol	0.64	0.60 - 1.00 %	<input checked="" type="checkbox"/>	7.39	6 - 10	<input checked="" type="checkbox"/>	13.44	7.2 - 18	<input checked="" type="checkbox"/>

AQ vs VARIETY SPECS



Aroma Intensity= 21

AQ vs ALL HOP VARIETIES



Aroma Intensity= 6

Signed: _____

Zachary Lilla - Lab Manager - TTB Certified Chemist

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