

HOP QUALITY REPORT CERTIFICATE OF ANALYSIS



To: Wisconsin Hop Exchange

Sample ID: 23VOJ1100-001LH

Variety: Vojvodina

Product: T-90 Pellet

Date : 12/13/2023

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

<u>Method</u>			
Hops-4C	Moisture Analysis	% Moisture	11.8
		% Dry Matter	88.2
AAR	Xanthohumol by HPLC		NT mg/g
Hops-12	Hop Storage Index	HSI	0.255
Hops-13	Essential Oil by Steam Distillation	mL/100g	0.82
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	26.9 (% of Total AA)
ICE-3		% Alpha Acids	5.62
		Colupulone	44.5 (% of Total BA)
		% Beta Acids	5.28
		a/b ratio	1.06
Hops-17	Hop Essential Oil by GC-FID (as is)	% area	mg/100g
		B-Pinene	NT NT
		Myrcene	NT NT
		Linalool	NT NT
		Caryophyllene	NT NT
		Farnesene	NT NT
		Humulene	NT NT
		Geraniol	NT NT

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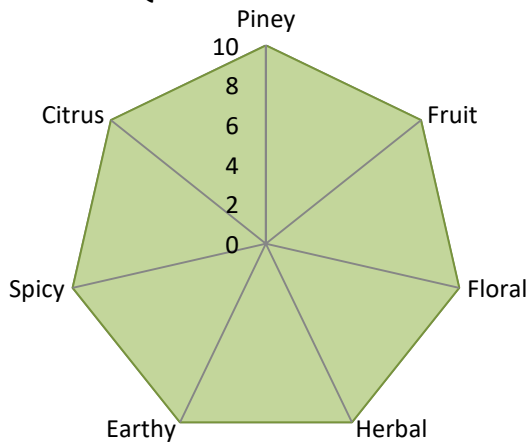
Certifying Officer: Zach Lilla - Lab Manager
TTB Certified Chemist - Member AOAC - ASBC - BJCP

	Typical Range	
% Moisture <input style="width: 80px;" type="text" value="11.8"/>	8 - 12 %	<input checked="" type="checkbox"/>
HOP QUALITY (adjusted to 10% moisture)		
Total Oil ml/100g <input style="width: 80px;" type="text" value="0.83"/>	0.6 - 1.4 mL	<input checked="" type="checkbox"/>
cohumulone <input style="width: 80px;" type="text" value="26.9"/>	28 - 32%	<input type="checkbox" value="↓"/>
Alpha Acids <input style="width: 80px;" type="text" value="5.74"/>	6.0 - 10.5%	<input type="checkbox" value="↓"/>
Beta Acids <input style="width: 80px;" type="text" value="5.39"/>	2.2 - 4.8%	<input type="checkbox" value="↑"/>
Myrcene <input style="width: 80px;" type="text" value="NT"/>	60.00 - 70.00 %	<input type="checkbox"/>

AROMA QUALITY (AQ)

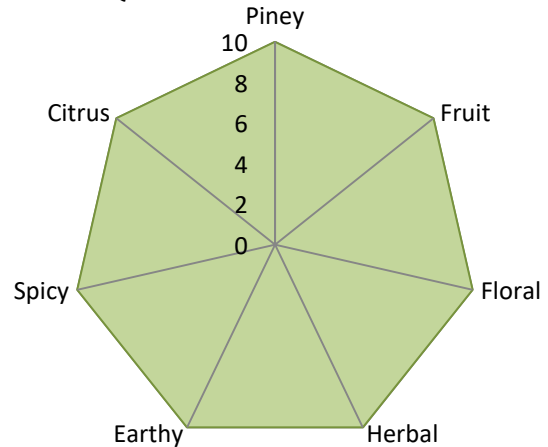
		% Area	mg/mL of Hop Oil		mg/100g of Hops (@10%H2O)	
B-Pinene	NT	0.40 - 1.00 %	NT	4 - 10	NT	2.4 - 14
Myrcene	NT	60.00 - 70.00 %	NT	600 - 700	NT	360 - 980
Linalool	NT	0.50 - 1.00 %	NT	5 - 10	NT	3 - 14
Caryophyllene	NT	4.00 - 6.00 %	NT	40 - 60	NT	24 - 84
Farnesene	NT	0.01 - 1.00 %	NT	0.1 - 10	NT	0.06 - 14
Humulene	NT	10.00 - 14.00 %	NT	100 - 140	NT	60 - 196
Geraniol	NT	0.40 - 1.00 %	NT	4 - 10	NT	2.4 - 14

AQ vs VARIETY SPECS



Aroma Intensity= 100

AQ vs ALL HOP VARIETIES



Aroma Intensity= 100

Signed: _____

Zachary Lilla - Lab Manager - TTB Certified Chemist

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