

HOP QUALITY REPORT CERTIFICATE OF ANALYSIS

To: Wisconsin Hop Exchange

Sample ID: 23BIG1087-01LH

Variety: Bitter Gold

Product: T-90 Pellet

Date : 12/4/2023



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

<u>Method</u>			
Hops-4C	Moisture Analysis	% Moisture	10.8
		% Dry Matter	89.2
AAR	Xanthohumol by HPLC		NT mg/g
Hops-12	Hop Storage Index	HSI	0.277
Hops-13	Essential Oil by Steam Distillation	mL/100g	1.76
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	36.5 (% of Total AA)
ICE-3		% Alpha Acids	12.45
		Colupulone	60.4 (% of Total BA)
		% Beta Acids	5.49
		a/b ratio	2.27
Hops-17	Hop Essential Oil by GC-FID (as is)	% area	mg/100g
		B-Pinene	NT
		Myrcene	NT
		Linalool	NT
		Caryophyllene	NT
		Farnesene	NT
		Humulene	NT
		Geraniol	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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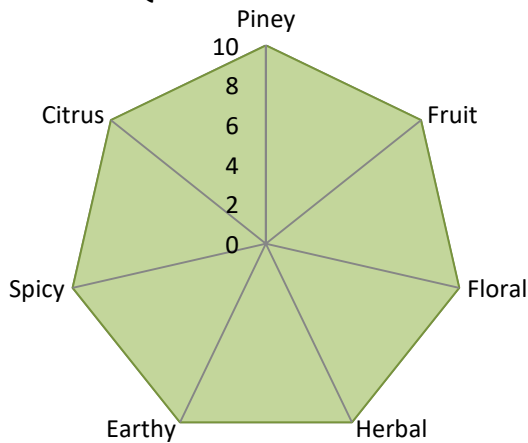
Certifying Officer: Zach Lilla - Lab Manager
TTB Certified Chemist - Member AOAC - ASBC - BJCP

		Typical Range	
% Moisture	10.8	8 - 12 %	<input checked="" type="checkbox"/>
HOP QUALITY (adjusted to 10% moisture)			
Total Oil ml/100g	1.78	1.0 - 2.0 mL	<input checked="" type="checkbox"/>
cohumulone	36.5	36 - 41%	<input checked="" type="checkbox"/>
Alpha Acids	12.57	12 - 14.5%	<input checked="" type="checkbox"/>
Beta Acids	5.54	4.5 - 6.0%	<input checked="" type="checkbox"/>
Myrcene	NT	45.00 - 55.00 %	<input type="checkbox"/>

AROMA QUALITY (AQ)

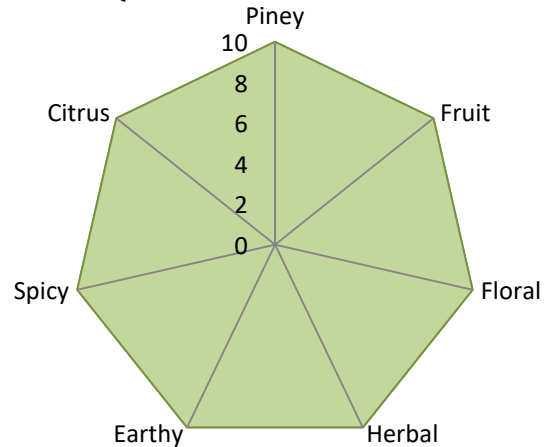
		% Area	mg/mL of Hop Oil			mg/100g of Hops (@10%H2O)		
B-Pinene	NT	0.60 - 0.90 %	NT	6 - 9	NT	6 - 18		
Myrcene	NT	45.00 - 55.00 %	NT	450 - 550	NT	450 - 1100		
Linalool	NT	0.40 - 0.70 %	NT	4 - 7	NT	4 - 14		
Caryophyllene	NT	7.00 - 11.00 %	NT	70 - 110	NT	70 - 220		
Farnesene	NT	0.01 - 1.00 %	NT	0.1 - 10	NT	0.1 - 20		
Humulene	NT	10.00 - 18.00 %	NT	100 - 180	NT	100 - 360		
Geraniol	NT	0.01 - 1.00 %	NT	0.1 - 10	NT	0.1 - 20		

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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