

HOP QUALITY REPORT CERTIFICATE OF ANALYSIS

To: Wisconsin Hop Exchange

Sample ID: 23CRY1093-01LH

Variety: Crystal

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	9.0
		% Dry Matter	91.0
AAR	Xanthohumol by HPLC		NT mg/g
Hops-12	Hop Storage Index	HSI	0.231
Hops-13	Essential Oil by Steam Distillation	mL/100g	1.31
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	19.6 (% of Total AA)
ICE-3		% Alpha Acids	5.68
		Colupulone	32.1 (% of Total BA)
		% Beta Acids	7.26
		a/b ratio	0.78
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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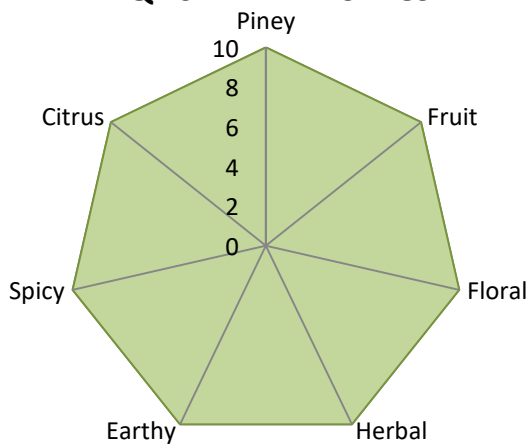
TTB Certified Chemist - Member AOAC - ASBC - BJCP

	Typical Range	
% Moisture <input type="text" value="9.0"/>	8 - 12 %	<input checked="" type="checkbox"/>
HOP QUALITY (adjusted to 10% moisture)		
Total Oil ml/100g <input type="text" value="1.29"/>	0.8 - 2.3 mL	<input checked="" type="checkbox"/>
cohumulone <input type="text" value="19.6"/>	23 - 26%	<input type="checkbox" value="↓"/>
Alpha Acids <input type="text" value="5.61"/>	3.0 - 6%	<input checked="" type="checkbox"/>
Beta Acids <input type="text" value="7.17"/>	6.0 - 8.5%	<input checked="" type="checkbox"/>
Myrcene <input type="text" value="NT"/>	30.00 - 55.00 %	<input type="checkbox"/>

AROMA QUALITY (AQ)

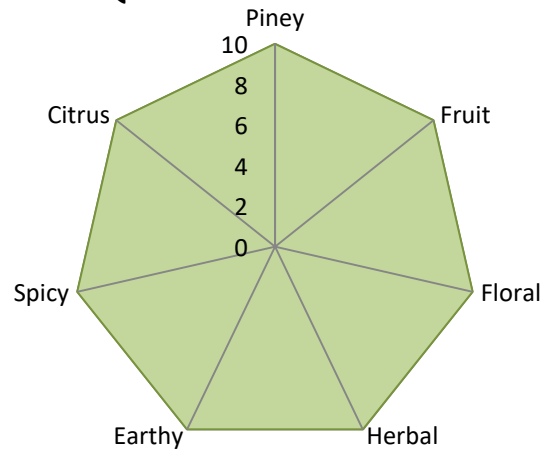
	% Area		mg/mL of Hop Oil		mg/100g of Hops (@10%H2O)	
B-Pinene	NT	0.40 - 1.00 %	NT	4 - 10	NT	3.2 - 23
Myrcene	NT	30.00 - 55.00 %	NT	300 - 550	NT	240 - 1265
Linalool	NT	0.50 - 1.00 %	NT	5 - 10	NT	4 - 23
Caryophyllene	NT	5.00 - 12.00 %	NT	50 - 120	NT	40 - 276
Farnesene	NT	0.01 - 1.00 %	NT	0.1 - 10	NT	0.08 - 23
Humulene	NT	20.00 - 30.00 %	NT	200 - 300	NT	160 - 690
Geraniol	NT	0.30 - 0.80 %	NT	3 - 8	NT	2.4 - 18.4

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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2517 Advance Rd Ste. A Madison WI 53718

info@aarlab.com

www.aarlab.com



608-622-7522