

HOP QUALITY REPORT CERTIFICATE OF ANALYSIS

To: Wisconsin Hop Exchange

Sample ID: 25CRY1107-01FB

Variety: Crystal

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	11.8
		% Dry Matter	88.2
AAR	Xanthohumol by HPLC		NT mg/g
Hops-12	Hop Storage Index	HSI	0.273
Hops-13	Essential Oil by Steam Distillation	mL/100g	1.05
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	27.5 (% of Total AA)
ICE-3		% Alpha Acids	3.51
		Colupulone	38.3 (% of Total BA)
		% Beta Acids	5.03
		a/b ratio	0.70
Hops-17	Hop Essential Oil by GC-FID		
	(as is)	% area	mg/100g
		B-Pinene	0.54 5.45
		Myrcene	42.68 485.42
		Linalool	0.49 5.74
		Caryophyllene	8.21 85.76
		Farnesene	0.15 1.89
		Humulene	27.09 280.54
		Geraniol	0.54 6.43

NT=NOT TESTED

Signed: 
 Zachary Lilla - Lab Manager - TTB Certified Chemist



AROMA QUALITY (AQ)

HOP QUALITY REPORT



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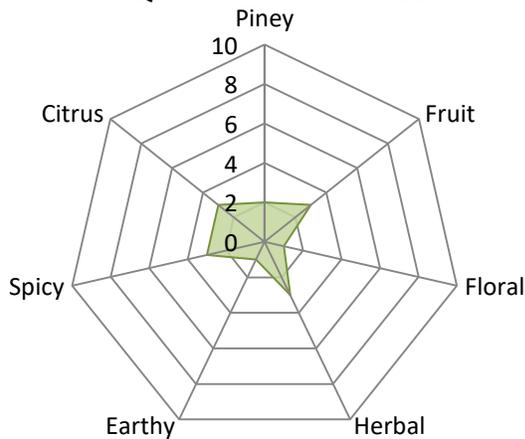
Certifying Officer: Zach Lilla - Lab Manager
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	Typical Range	
% Moisture <input style="width: 100px;" type="text" value="11.8"/>	8 - 12 %	<input checked="" type="checkbox"/>
HOP QUALITY (adjusted to 10% moisture)		
Total Oil ml/100g <input style="width: 100px;" type="text" value="1.07"/>	0.8 - 2.3 mL	<input checked="" type="checkbox"/>
cohumulone <input style="width: 100px;" type="text" value="27.5"/>	23 - 26%	<input type="checkbox" value="↑"/>
Alpha Acids <input style="width: 100px;" type="text" value="3.58"/>	3.0 - 6%	<input checked="" type="checkbox"/>
Beta Acids <input style="width: 100px;" type="text" value="5.13"/>	6.0 - 8.5%	<input type="checkbox" value="↓"/>
Myrcene <input style="width: 100px;" type="text" value="42.68"/>	30.00 - 55.00 %	<input checked="" type="checkbox"/>

AROMA QUALITY (AQ)

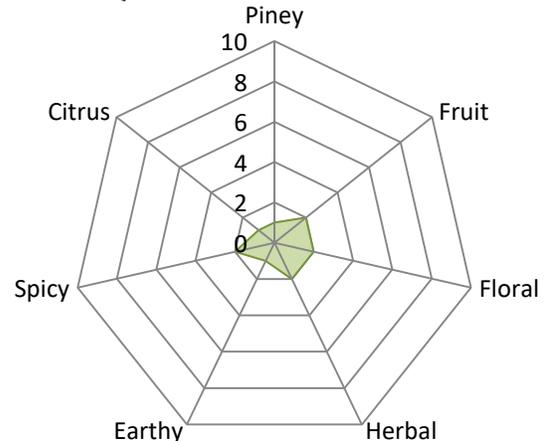
	% Area		mg/mL of Hop Oil			mg/100g of Hops (@10%H2O)		
B-Pinene	0.54	0.40 - 1.00 %	5.18	4 - 10	5.56	3.2 - 23		
Myrcene	42.68	30.00 - 55.00 %	461.38	300 - 550	495.30	240 - 1265		
Linalool	0.49	0.50 - 1.00 %	5.46	5 - 10	5.86	4 - 23		
Caryophyllene	8.21	5.00 - 12.00 %	81.52	50 - 120	87.51	40 - 276		
Farnesene	0.15	0.01 - 1.00 %	1.80	0.1 - 10	1.93	0.08 - 23		
Humulene	27.09	20.00 - 30.00 %	266.65	200 - 300	286.25	160 - 690		
Geraniol	0.54	0.30 - 0.80 %	6.11	3 - 8	6.56	2.4 - 18.4		

AQ vs VARIETY SPECS



Aroma Intensity= 5

AQ vs ALL HOP VARIETIES



Aroma Intensity= 2

Signed: _____

Zachary Lilla - Lab Manager - TTB Certified Chemist

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