

## HOP QUALITY REPORT CERTIFICATE OF ANALYSIS



To: Wisconsin Hop Exchange

Sample ID: 24TET1104-01LH

Variety: Tettngang

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	10.9
		% Dry Matter	89.1
AAR	Xanthohumol by HPLC		<b>NT</b> mg/g
Hops-12	Hop Storage Index	HSI	0.279
Hops-13	Essential Oil by Steam Distillation	mL/100g	<b>1.03</b>
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	33.9 (% of Total AA)
ICE-3		<b>% Alpha Acids</b>	<b>5.68</b>
		Colupulone	51.0 (% of Total BA)
		<b>% Beta Acids</b>	<b>4.72</b>
		a/b ratio	1.20
Hops-17	Hop Essential Oil by GC-FID (as is)	<b>% area</b>	<b>mg/100g</b>
		B-Pinene	0.52 4.88
		Myrcene	42.28 448.29
		Linalool	0.45 4.97
		Caryophyllene	8.53 83.06
		Farnesene	5.38 64.54
		Humulene	17.67 170.62
		Geraniol	0.35 3.92

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

Sample ID: 24TET1104-01LH

Variety: Tettang

Product: T-90 Pellet

Date : 3/15/2025



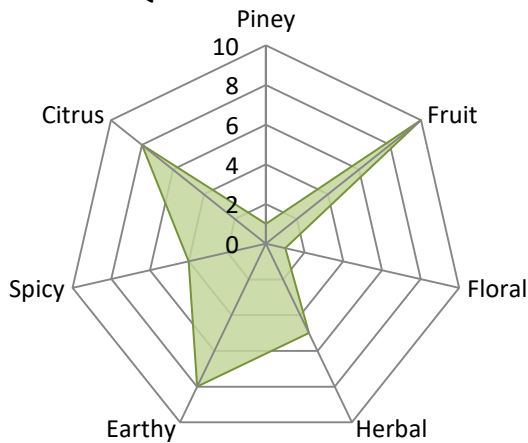
Certifying Officer: Zach Lilla - Lab Manager  
TTB Certified Chemist - Member AOAC - ASBC - BJCP

	Typical Range	
% Moisture <span style="border: 1px solid black; padding: 2px;">10.9</span>	8 - 12 %	<span style="background-color: green; color: white; padding: 2px;">✓</span>
<b>HOP QUALITY (adjusted to 10% moisture)</b>		
Total Oil ml/100g <span style="border: 1px solid black; padding: 2px;">1.04</span>	0.4 - 1.0 mL	<span style="border: 1px solid black; padding: 2px;">↑</span>
cohumulone <span style="border: 1px solid black; padding: 2px;">33.9</span>	25 - 28%	<span style="border: 1px solid black; padding: 2px;">↑</span>
Alpha Acids <span style="border: 1px solid black; padding: 2px;">5.74</span>	4.0 - 6%	<span style="background-color: green; color: white; padding: 2px;">✓</span>
Beta Acids <span style="border: 1px solid black; padding: 2px;">4.77</span>	2.5 - 4.0%	<span style="border: 1px solid black; padding: 2px;">↑</span>
Myrcene <span style="border: 1px solid black; padding: 2px;">42.28</span>	30.00 - 40.00 %	<span style="border: 1px solid black; padding: 2px;">↑</span>

### AROMA QUALITY (AQ)

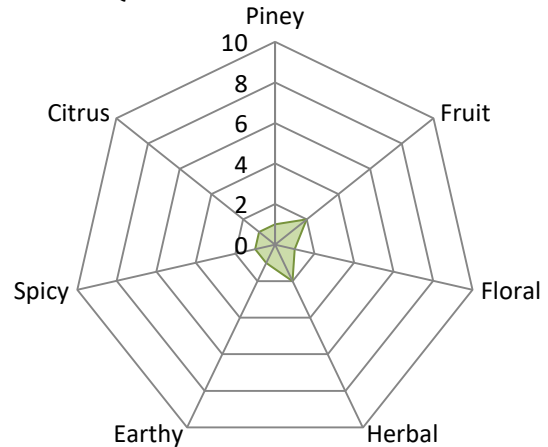
	% Area		mg/mL of Hop Oil			mg/100g of Hops (@10%H2O)			
B-Pinene	0.52	0.20 - 0.60 %	✓	4.74	2 - 6	✓	4.93	0.8 - 6	✓
Myrcene	42.28	30.00 - 40.00 %	↑	435.03	300 - 400	↑	453.01	120 - 400	↑
Linalool	0.45	0.50 - 0.90 %	↓	4.82	5 - 9	↓	5.02	2 - 9	✓
Caryophyllene	8.53	10.00 - 14.00 %	↓	80.60	100 - 140	↓	83.93	40 - 140	✓
Farnesene	5.38	5.00 - 8.00 %	✓	62.63	50 - 80	✓	65.22	20 - 80	✓
Humulene	17.67	25.00 - 30.00 %	↓	165.57	250 - 300	↓	172.42	100 - 300	✓
Geraniol	0.35	0.20 - 0.50 %	✓	3.81	2 - 5	✓	3.97	0.8 - 5	✓

### AQ vs VARIETY SPECS



**Aroma Intensity= 20**

### AQ vs ALL HOP VARIETIES



**Aroma Intensity= 2**

Signed: \_\_\_\_\_

Zachary Lilla - Lab Manager - TTB Certified Chemist

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