

HOP QUALITY REPORT CERTIFICATE OF ANALYSIS

To: Wisconsin Hop Exchange

Sample ID: 25SAN1110-01FB

Variety: Santiam

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	11.5
		% Dry Matter	88.5
AAR	Xanthohumol by HPLC		NT mg/g
Hops-12	Hop Storage Index	HSI	0.284
Hops-13	Essential Oil by Steam Distillation	mL/100g	1.52
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	26.2 (% of Total AA)
ICE-3		% Alpha Acids	6.78
		Colupulone	43.9 (% of Total BA)
		% Beta Acids	5.88
		a/b ratio	1.15
Hops-17	Hop Essential Oil by GC-FID (as is)	% area	mg/100g
		B-Pinene	0.44 6.47
		Myrcene	35.38 593.19
		Linalool	0.58 10.02
		Caryophyllene	7.25 111.70
		Farnesene	13.29 252.32
		Humulene	21.00 320.65
		Geraniol	0.39 6.91

NT=NOT TESTED

Signed: 
 Zachary Lilla - Lab Manager - TTB Certified Chemist



AROMA QUALITY (AQ)

HOP QUALITY REPORT



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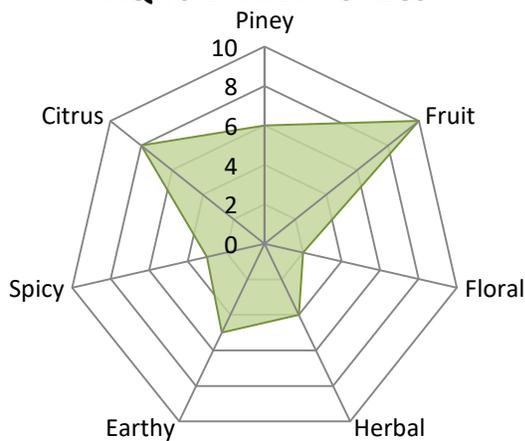
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	Typical Range	
% Moisture 11.5	8 - 12 %	✓
HOP QUALITY (adjusted to 10% moisture)		
Total Oil ml/100g 1.55	1.0 - 2.2 mL	✓
cohumulone 26.2	22 - 24%	↑
Alpha Acids 6.89	6.0 - 8.5%	✓
Beta Acids 5.98	7.0 - 8.0%	↓
Myrcene 35.38	15.00 - 25.00 %	↑

AROMA QUALITY (AQ)

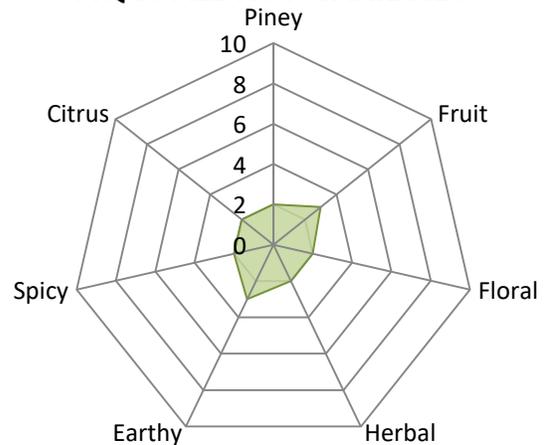
	% Area		mg/mL of Hop Oil			mg/100g of Hops (@10%H2O)			
B-Pinene	0.44	0.10 - 0.50 %	✓	4.25	1 - 5	✓	6.58	1 - 11	✓
Myrcene	35.38	15.00 - 25.00 %	↑	389.04	150 - 250	↑	603.32	150 - 550	↑
Linalool	0.58	0.70 - 1.30 %	↓	6.57	7 - 13	↓	10.19	7 - 28.6	✓
Caryophyllene	7.25	6.00 - 9.00 %	✓	73.26	60 - 90	✓	113.61	60 - 198	✓
Farnesene	13.29	14.00 - 18.00 %	↓	165.48	140 - 180	✓	256.62	140 - 396	✓
Humulene	21.00	20.00 - 30.00 %	✓	210.29	200 - 300	✓	326.12	200 - 660	✓
Geraniol	0.39	0.01 - 0.40 %	✓	4.54	0.1 - 4	↑	7.03	0.1 - 8.8	✓

AQ vs VARIETY SPECS



Aroma Intensity= 28

AQ vs ALL HOP VARIETIES



Aroma Intensity= 5

Signed: _____

Zachary Lilla - Lab Manager - TTB Certified Chemist

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