

HOP QUALITY REPORT CERTIFICATE OF ANALYSIS

To: Wisconsin Hop Exchange

Sample ID: 22PAR1087-01LH

Variety: Paradigm™

Whole Cone ☐

Date : 12/3/2022

Pellet ☒



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

Method		
Hops-4C	Moisture Analysis	
	% Moisture	10.4
	% Dry Matter	89.6
AAR	Xanthohumol by HPLC	NT mg/g
Hops-12	Hop Storage Index	HSI 0.313
Hops-13	Essential Oil by Steam Distillation	mL/100g 2.09
Hops-14	Alpha and Beta Acids by HPLC	
ICE-3		
	Cohumulone	37.2 (% of Total AA)
	% Alpha Acids	7.57
	Colupulone	60.3 (% of Total BA)
	% Beta Acids	4.70
	a/b ratio	1.61
Hops-17	Hop Essential Oil by GC-FID	
	(as is)	
	% area	mg/100g
	B-Pinene	NT NT
	Myrcene	NT NT
	Linalool	NT NT
	Caryophyllene	NT NT
	Farnesene	NT NT
	Humulene	NT NT
	Geraniol	NT 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

Customer : Wisconsin Hop Exchange

Sample ID: 22PAR1087-01LH

Variety: Paradigm™

Whole Cone ☐

Pellet ☒

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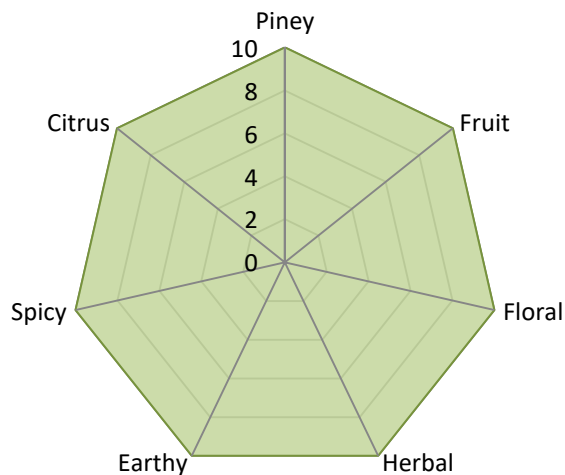
Certifying Officer: Zach Lilla - Lab Manager
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% Moisture	10.4	Typical Range	8 - 12%	☒
HOP QUALITY (adjusted to 10% moisture)				
Total Oil ml/100g	2.10		1.5 - 2.5 mL	☒
columulone	37.2		33 - 37%	☐
Alpha Acids	7.61		8.0 - 11.7 %	☐
Beta Acids	4.73		3.9 - 6.3%	☒

AROMA QUALITY (AQ)

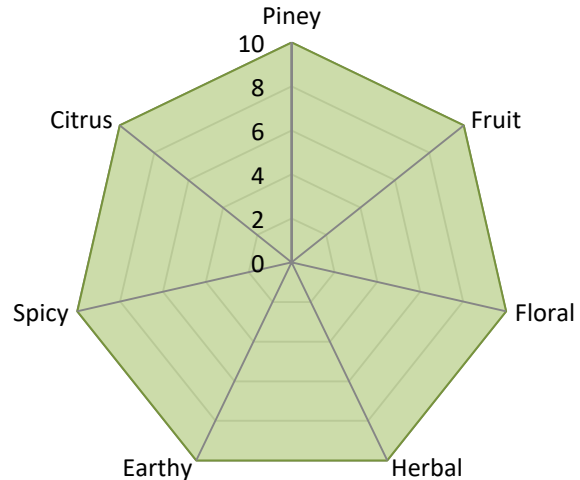
	% Area		mg/mL of Hop Oil			mg/100g of Hops (@10%H2O)		
B-Pinene	NT	0.40 - 1.00 %	NT	4 - 10		NT	6 - 25	
Myrcene	NT	35.00 - 45.00 %	NT	350 - 450		NT	525 - 1125	
Linalool	NT	0.50 - 1.00 %	NT	5 - 10		NT	7.5 - 25	
Caryophyllene	NT	4.00 - 6.00 %	NT	40 - 60		NT	60 - 150	
Farnesene	NT	0.01 - 1.00 %	NT	0.1 - 10		NT	0.15 - 25	
Humulene	NT	4.00 - 6.00 %	NT	40 - 60		NT	60 - 150	
Geraniol	NT	0.01 - 1.00 %	NT	0.1 - 10		NT	0.15 - 25	

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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