

HOP CERTIFICATE OF ANALYSIS



Customer : Tim Bulin

Sample ID: Cluster 2021



Variety:

Cluster

Certifying Officer: Zach Lilla - Lab Manager

Date : 9/7/2021

TTB Certified Chemist - Member AOAC - ASBC - BJCP

Method			
Hops-4C	Moisture Analysis	% Moisture	16.5
		% Dry Matter	83.5
AAR	Xanthohumol by HPLC	NT	mg/g
Hops-12	Hop Storage Index	HSI	0.273
Hops-13	Essential Oil by Steam Distillation	mL/100g	NT
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	36.5 (% of Total AA)
ICE-3		% Alpha Acids	7.81
		Colupulone	61.4 (% of Total BA)
		% Beta Acids	5.95
		a/b ratio	1.31
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





HOP QUALITY REPORT

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% Moisture	16.5	Typical Range	8 - 12%	↑
Total Oil ml/100g @ 10%	NT		0.5 - 1.0 mL	
cohumulone	36.5		36 - 41%	✓
Alpha Acids @ 10%	8.42		6.0 - 9%	✓
Beta Acids @ 10%	6.41		4.0 - 6.0%	↑
AROMA QUALITY (AQ)				
	% Area			
B-Pinene	NT	0.40 - 0.80 %		NT
Myrcene	NT	38.00 - 46.00 %		NT
Linalool	NT	0.40 - 0.80 %		NT
Caryophyllene	NT	8.00 - 10.00 %		NT
Farnesene	NT	0.01 - 1.00 %		NT
Humulene	NT	15.00 - 20.00 %		NT
Geraniol	NT	0.50 - 1.00 %		NT
	mg/mL			
B-Pinene	NT	4 - 8		NT
Myrcene	NT	380 - 460		NT
Linalool	NT	4 - 8		NT
Caryophyllene	NT	80 - 100		NT
Farnesene	NT	0.1 - 10		NT
Humulene	NT	150 - 200		NT
Geraniol	NT	5 - 10		NT
	mg/100g @ 10% Moisture			
B-Pinene	NT	2 - 8		NT
Myrcene	NT	190 - 460		NT
Linalool	NT	2 - 8		NT
Caryophyllene	NT	40 - 100		NT
Farnesene	NT	0.05 - 10		NT
Humulene	NT	75 - 200		NT
Geraniol	NT	2.5 - 10		NT

Signed: _____

Zachary Lilla - Lab Manager - TTB Certified Chemist

