

HOP QUALITY REPORT CERTIFICATE OF ANALYSIS

To: Wisconsin Hop Exchange

Sample ID: 22NUG1092-01LH

Variety: Nugget US

Whole Cone

Date : 1/19/2023

Pellet



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

<u>Method</u>			
Hops-4C	Moisture Analysis	% Moisture	9.6
		% Dry Matter	90.4
AAR	Xanthohumol by HPLC		NT mg/g
Hops-12	Hop Storage Index	HSI	0.309
Hops-13	Essential Oil by Steam Distillation	mL/100g	1.65
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	25.1 (% of Total AA)
ICE-3		% Alpha Acids	12.55
		Colupulone	52.7 (% of Total BA)
		% Beta Acids	4.51
		a/b ratio	2.78
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
 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: 22NUG1092-01LH

Variety: Nugget US

Whole Cone

Pellet

Date : 1/19/2023

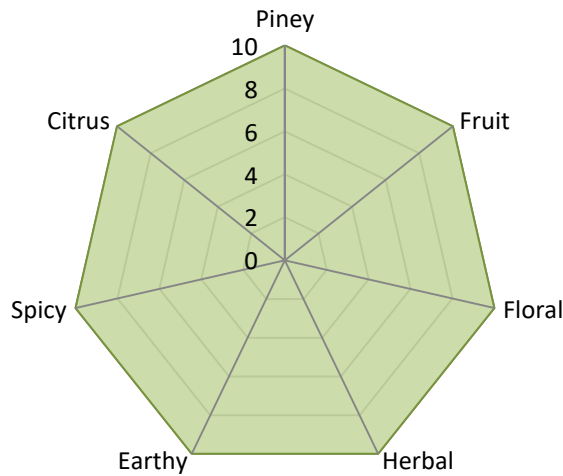
Certifying Officer: Zach Lilla - Lab Manager
TTB Certified Chemist - Member AOAC - ASBC - BJCP

% Moisture	9.6	Typical Range	8 - 12%	<input checked="" type="checkbox"/>
HOP QUALITY (adjusted to 10% moisture)				
Total Oil ml/100g	1.64		1.0 - 3.0 mL	<input checked="" type="checkbox"/>
cohumulone	25.1		22 - 26%	<input checked="" type="checkbox"/>
Alpha Acids	12.49		13.5 - 16%	<input type="checkbox"/>
Beta Acids	4.49		4.4 - 5.5%	<input checked="" type="checkbox"/>

AROMA QUALITY (AQ)

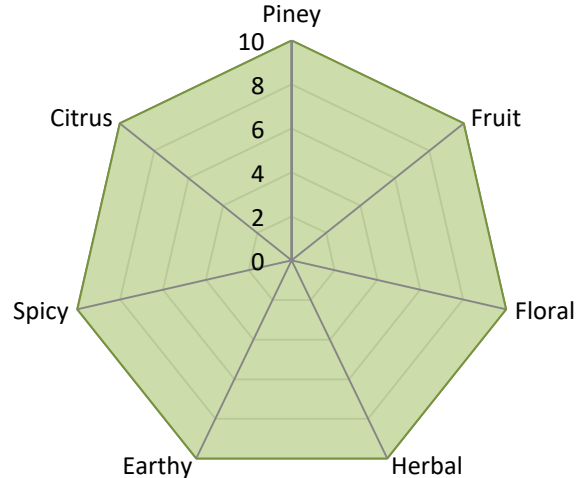
	% Area		mg/mL of Hop Oil		mg/100g of Hops (@10%H2O)	
B-Pinene	NT	0.30 - 0.90 %	NT	3 - 9	NT	3 - 27
Myrcene	NT	40.00 - 50.00 %	NT	400 - 500	NT	400 - 1500
Linalool	NT	0.70 - 1.00 %	NT	7 - 10	NT	7 - 30
Caryophyllene	NT	9.00 - 11.00 %	NT	90 - 110	NT	90 - 330
Farnesene	NT	0.01 - 1.00 %	NT	0.1 - 10	NT	0.1 - 30
Humulene	NT	18.00 - 22.00 %	NT	180 - 220	NT	180 - 660
Geraniol	NT	0.01 - 0.30 %	NT	0.1 - 3	NT	0.1 - 9

AQ vs VARIETY SPECS



Aroma Intensity= 100

AQ vs ALL HOP VARIETIES



Aroma Intensity= 100

Signed:
Zachary Lilla - Lab Manager - TTB Certified Chemist

