



HOP CERTIFICATE OF ANALYSIS

Customer : Wisconsin Hop Exchange

Sample ID: 21NUGWI03-01LH



Variety: Nugget US

Certifying Officer: Zach Lilla - Lab Manager

Date : 11/5/2021

TTB Certified Chemist - Member AOAC - ASBC - BJCP

Method			
Hops-4C	Moisture Analysis	% Moisture	8.7
		% Dry Matter	91.3
AAR	Xanthohumol by HPLC		NT mg/g
Hops-12	Hop Storage Index	HSI	0.315
Hops-13	Essential Oil by Steam Distillation	mL/100g	1.62
Hops-14 ICE-3	Alpha and Beta Acids by HPLC	Cohumulone	23.9 (% of Total AA)
		% Alpha Acids	12.83
		Colupulone	50.4 (% of Total BA)
		% Beta Acids	4.02
		a/b ratio	3.19
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





HOP QUALITY REPORT

Customer : Wisconsin Hop Exchange

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% Moisture	<input type="text" value="8.7"/>	Typical Range 8 - 12%	<input type="text" value="✓"/>
Total Oil ml/100g @ 10%	<input type="text" value="1.60"/>	1.0 - 3.0 mL	<input type="text" value="✓"/>
cohumulone	<input type="text" value="23.9"/>	22 - 26%	<input type="text" value="✓"/>
Alpha Acids @ 10%	<input type="text" value="12.65"/>	13.5 - 16%	<input type="text" value="↓"/>
Beta Acids @ 10%	<input type="text" value="3.96"/>	4.4 - 5.5%	<input type="text" value="↓"/>
AROMA QUALITY (AQ)			
	% Area		
B-Pinene	<input type="text" value="NT"/>	0.30 - 0.90 %	<input type="text" value="NT"/>
Myrcene	<input type="text" value="NT"/>	40.00 - 50.00 %	<input type="text" value="NT"/>
Linalool	<input type="text" value="NT"/>	0.70 - 1.00 %	<input type="text" value="NT"/>
Caryophyllene	<input type="text" value="NT"/>	9.00 - 11.00 %	<input type="text" value="NT"/>
Farnesene	<input type="text" value="NT"/>	0.01 - 1.00 %	<input type="text" value="NT"/>
Humulene	<input type="text" value="NT"/>	18.00 - 22.00 %	<input type="text" value="NT"/>
Geraniol	<input type="text" value="NT"/>	0.01 - 0.30 %	<input type="text" value="NT"/>
	mg/mL		
B-Pinene	<input type="text" value="NT"/>	3 - 9	<input type="text" value="NT"/>
Myrcene	<input type="text" value="NT"/>	400 - 500	<input type="text" value="NT"/>
Linalool	<input type="text" value="NT"/>	7 - 10	<input type="text" value="NT"/>
Caryophyllene	<input type="text" value="NT"/>	90 - 110	<input type="text" value="NT"/>
Farnesene	<input type="text" value="NT"/>	0.1 - 10	<input type="text" value="NT"/>
Humulene	<input type="text" value="NT"/>	180 - 220	<input type="text" value="NT"/>
Geraniol	<input type="text" value="NT"/>	0.1 - 3	<input type="text" value="NT"/>
	mg/100g @ 10% Moisture		
B-Pinene	<input type="text" value="NT"/>	3 - 27	<input type="text" value="NT"/>
Myrcene	<input type="text" value="NT"/>	400 - 1500	<input type="text" value="NT"/>
Linalool	<input type="text" value="NT"/>	7 - 30	<input type="text" value="NT"/>
Caryophyllene	<input type="text" value="NT"/>	90 - 330	<input type="text" value="NT"/>
Farnesene	<input type="text" value="NT"/>	0.1 - 30	<input type="text" value="NT"/>
Humulene	<input type="text" value="NT"/>	180 - 660	<input type="text" value="NT"/>
Geraniol	<input type="text" value="NT"/>	0.1 - 9	<input type="text" value="NT"/>

Signed: 
 Zachary Lilla - Lab Manager - TTB Certified Chemist