



HOP CERTIFICATE OF ANALYSIS

Customer : Wisconsin Hop Exchange

Sample ID: 21MIC1087-01LH



Variety: Michigan Copper

Certifying Officer: Zach Lilla - Lab Manager

Date : 10/8/2021

TTB Certified Chemist - Member AOAC - ASBC - BJCP

Method			
Hops-4C	Moisture Analysis	% Moisture	9.0
		% Dry Matter	91.0
AAR	Xanthohumol by HPLC		NT mg/g
Hops-12	Hop Storage Index	HSI	0.289
Hops-13	Essential Oil by Steam Distillation	mL/100g	1.72
Hops-14 ICE-3	Alpha and Beta Acids by HPLC	Cohumulone	30.1 (% of Total AA)
		% Alpha Acids	10.39
		Colupulone	55.8 (% of Total BA)
		% Beta Acids	3.15
		a/b ratio	3.30
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

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% Moisture	<input type="text" value="9.0"/>	Typical Range 8 - 12%	<input type="text" value="✓"/>
Total Oil ml/100g @ 10%	<input type="text" value="1.70"/>	1.2 - 1.8 ml	<input type="text" value="✓"/>
cohumulone	<input type="text" value="30.1"/>	27 - 32%	<input type="text" value="✓"/>
Alpha Acids @ 10%	<input type="text" value="10.27"/>	9.0 - 13%	<input type="text" value="✓"/>
Beta Acids @ 10%	<input type="text" value="3.11"/>	2.0 - 3.0%	<input type="text" value="↑"/>
AROMA QUALITY (AQ)			
	% Area		
B-Pinene	<input type="text" value="NT"/>	0.40 - 1.00 %	<input type="text" value="NT"/>
Myrcene	<input type="text" value="NT"/>	28.00 - 38.00 %	<input type="text" value="NT"/>
Linalool	<input type="text" value="NT"/>	0.6 - 1.20 %	<input type="text" value="NT"/>
Caryophyllene	<input type="text" value="NT"/>	9.00 - 12.00 %	<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"/>	17.00 - 23.00 %	<input type="text" value="NT"/>
Geraniol	<input type="text" value="NT"/>	0.60 - 1.00 %	<input type="text" value="NT"/>
	mg/mL		
B-Pinene	<input type="text" value="NT"/>	4 - 10	<input type="text" value="NT"/>
Myrcene	<input type="text" value="NT"/>	280 - 380	<input type="text" value="NT"/>
Linalool	<input type="text" value="NT"/>	6 - 12	<input type="text" value="NT"/>
Caryophyllene	<input type="text" value="NT"/>	90 - 120	<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"/>	170 - 230	<input type="text" value="NT"/>
Geraniol	<input type="text" value="NT"/>	6 - 10	<input type="text" value="NT"/>
	mg/100g @ 10% Moisture		
B-Pinene	<input type="text" value="NT"/>	4.8 - 18	<input type="text" value="NT"/>
Myrcene	<input type="text" value="NT"/>	336 - 684	<input type="text" value="NT"/>
Linalool	<input type="text" value="NT"/>	7.2 - 21.6	<input type="text" value="NT"/>
Caryophyllene	<input type="text" value="NT"/>	108 - 216	<input type="text" value="NT"/>
Farnesene	<input type="text" value="NT"/>	0.12 - 18	<input type="text" value="NT"/>
Humulene	<input type="text" value="NT"/>	204 - 414	<input type="text" value="NT"/>
Geraniol	<input type="text" value="NT"/>	7.2 - 18	<input type="text" value="NT"/>

Signed: 
 Zachary Lilla - Lab Manager - TTB Certified Chemist