

# COMPREHENSIVE HOP PROFILE CERTIFICATE OF ANALYSIS



ADVANCED ANALYTICAL RESEARCH

Customer : Barntalk Hops - Jenny Napier

Sample ID: Edesem - Bob

Variety:

Certifying Officer: Zach Lilla - Lab Manager

Date : 9/13/2019

Method			
Hops-4C	Moisture Analysis	% Moisture	9.2
		% Dry Matter	90.8
Hops-6A	Alpha and Beta Acids by SPEC	<b>% Alpha Acids</b>	<b>NT</b>
		<b>% Beta Acids</b>	<b>NT</b>
		a/b ratio	NT
Hops-12	Hop Storage Index	HSI	0.264
Hops-13	Essential Oil by Steam Distillation	<b>mL/100g</b>	<b>1.53</b>
Hops-14	Alpha and Beta Acids by HPLC	Cohumulone	42.9 (% of Total AA)
ICE-3		<b>% Alpha Acids</b>	<b>10.06</b>
		Colupulone	64.2 (% of Total BA)
		<b>% Beta Acids</b>	<b>3.45</b>
		a/b ratio	2.92
Hops-17	Hop Essential Oil by GC-FID (as is)		
		% area	mg/100g
		B-Pinene	0.46      8.10
		Myrcene	32.17      566.68
		Linalool	1.14      20.05
		Caryophyllene	6.93      122.13
		Farnesene	0.31      5.46
		Humulene	13.77      242.59
		Geraniol	0.65      11.51

NT=NOT TESTED

Signed: \_\_\_\_\_  
Zachary Lilla - Lab Manager - TTB Certified Chemist

# COMPREHENSIVE HOP PROFILE

## HOP QUALITY REPORT



ADVANCED ANALYTICAL RESEARCH

Customer : Barntalk Hops - Jenny Napier

Sample ID: Edesem - Bob

Variety: 0

Certifying Officer: Zach Lilla - Lab Manager

Date : 9/13/2019

% Moisture	9.2	Typical Range 8 - 12%	✓
Total Oil ml/100g @ 10%	1.52	#N/A	#N/A
cohumulone	42.9	#N/A	#N/A
Alpha Acids @ 10%	9.97	#N/A	#N/A
Beta Acids @ 10%	3.42	#N/A	#N/A
<b>AROMA QUALITY (AQ)</b>			
	% Area		
B-Pinene	0.46	#N/A	#N/A
Myrcene	32.17	#N/A	#N/A
Linalool	1.14	#N/A	#N/A
Caryophyllene	6.93	#N/A	#N/A
Farnesene	0.31	#N/A	#N/A
Humulene	13.77	#N/A	#N/A
Geraniol	0.65	#N/A	#N/A
	mg/mL		
B-Pinene	5.29	#N/A	#N/A
Myrcene	369.80	#N/A	#N/A
Linalool	13.08	#N/A	#N/A
Caryophyllene	79.70	#N/A	#N/A
Farnesene	3.56	#N/A	#N/A
Humulene	158.31	#N/A	#N/A
Geraniol	7.51	#N/A	#N/A
	mg/100g @ 10% Moisture		
B-Pinene	8.03	#N/A	#N/A
Myrcene	561.77	#N/A	#N/A
Linalool	19.87	#N/A	#N/A
Caryophyllene	121.07	#N/A	#N/A
Farnesene	5.41	#N/A	#N/A
Humulene	240.49	#N/A	#N/A
Geraniol	11.41	#N/A	#N/A

Signed: \_\_\_\_\_

Zachary Lilla - Lab Manager - TTB Certified Chemist

# COMPREHENSIVE HOP PROFILE CERTIFICATE OF ANALYSIS



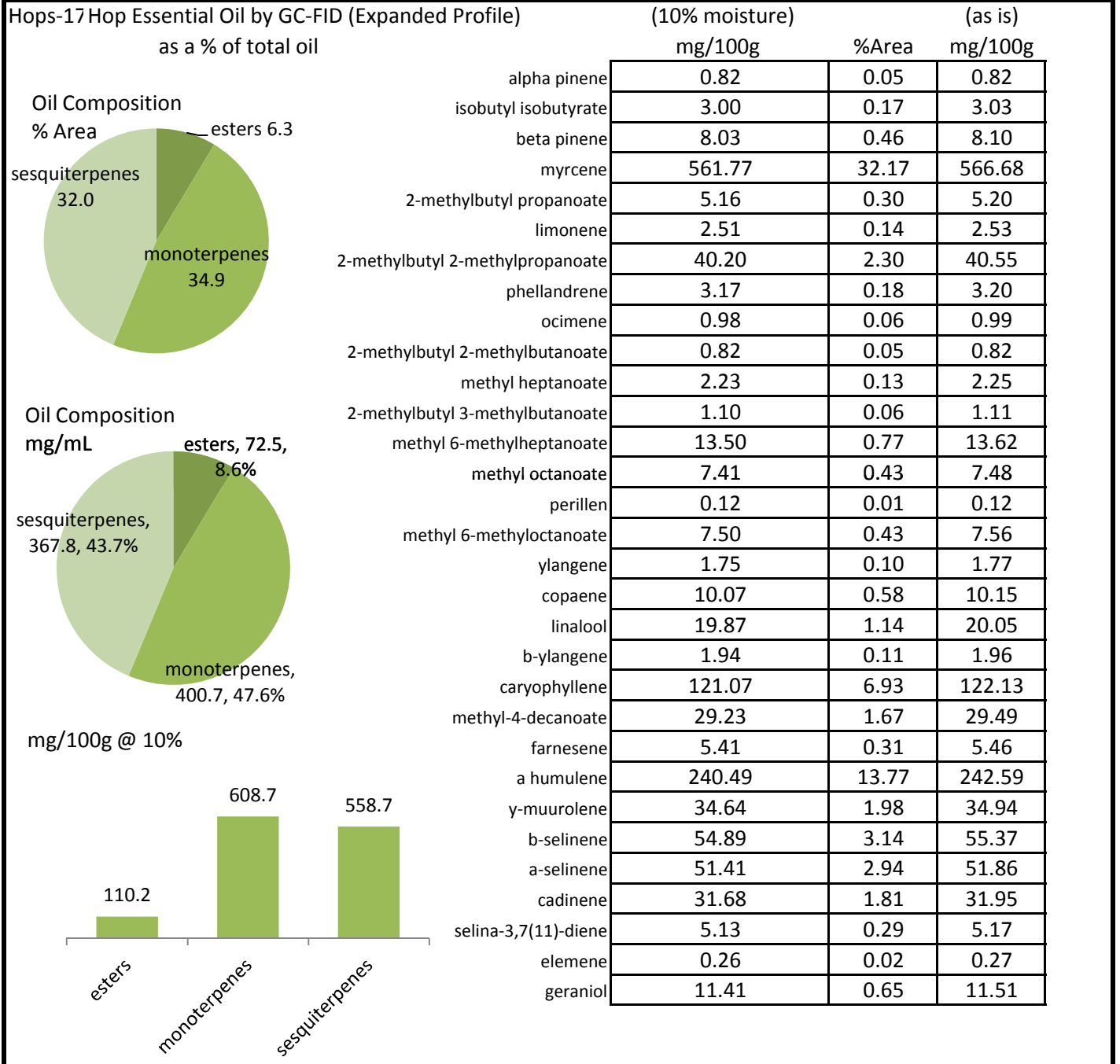
ADVANCED ANALYTICAL RESEARCH

Customer : Barntalk Hops - Jenny Napier

Sample ID: Edesem - Bob

Certifying Officer: Zach Lilla - Lab Manager

Date : 9/13/2019



Signed: \_\_\_\_\_

Zachary Lilla - Lab Manager - TTB Certified Chemist