



Certificate of Analysis

Description / Lot: Glacier Hops Ranch CTZ19-1

Variety: CTZ (Lot 1)

Sample ID: 19496

Analysis Date: 10/26/2019

Inventory Lot #: 19WA363CTZ1

Production Date: Sept 26, 2019

Best Before Date: Sept 26, 2024

Brewing Values by UV Spectrophotometer and Total Oil by Steam Distillation

% Alpha Acids	% Beta Acids	Hop Storage Index	% Total Oil
N/T	N/T	N/T	N/T

Brewing Values by HPLC

% Alpha Acids	% Beta Acids	% CoHumulone	% CoLupulone
N/T	N/T	N/T	N/T

Oil Components by GC-FID

Compound	% of Sample	Compound	% of Sample
α -Pinene	0.16	Citral	0.00
Citronellene	0.00	2-Undecanone	0.41
β -Pinene	1.61	Geranyl acetate 1	0.01
Myrcene	85.03	Geranyl acetate 2	0.21
Limonene	0.33	Caryophyllene	2.09
Methyl Heptanoate	0.55	Farnesene	0.36
Ocimene	0.55	Humulene	2.68
Terpinolene	0.03	Methyl Laurate	0.00
Methyl Octanoate	0.07	b-Ionone	0.04
Linalool	0.26	Nerolidol 1	0.05
Methyl Thio Hexanoate	0.23	Nerolidol 2	0.00
Citronellol	0.01	Caryophyllene oxide	0.02
Nerol	0.00	Unidentified	5.39
Geraniol	0.03		

N/T = Not Tested

Methods of Analysis

ASBC Hops 6a – α -acids/ β -acids by Spectrophotometry

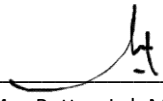
ASBC Hops 12 – Hops Storage Index (HSI)

ASBC Hops 13 – Total Oil by Steam Distillation

ASBC Hops 14 – α -acids/ β -acids by HPLC

ASBC Hops 17 – Hops Essential Oils by GC-FID

Approved by: _____


 Max Rutter, Lab Manager

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