



# HOP CERTIFICATE OF ANALYSIS

Customer : Wisconsin Hop Exchange

Sample ID: 210081093-01LH



Variety: USDA 008

Certifying Officer: Zach Lilla - Lab Manager

Date : 12/9/2021

TTB Certified Chemist - Member AOAC - ASBC - BJCP

| Method  |  |                      |                      |
|---------|--|----------------------|----------------------|
| Hops-4C | Moisture Analysis                      | % Moisture           | 10.0                 |
|         |  | % Dry Matter         | 90.0                 |
| AAR     | Xanthohumol by HPLC                    |                      | NT mg/g              |
| Hops-12 | Hop Storage Index                      | HSI                  | 0.317                |
| Hops-13 | Essential Oil by Steam Distillation    | mL/100g              | 1.61                 |
| Hops-14 | Alpha and Beta Acids by HPLC           | Cohumulone           | 25.3 (% of Total AA) |
| ICE-3   |  | <b>% Alpha Acids</b> | <b>10.06</b>         |
|         |  | Colupulone           | 51.6 (% of Total BA) |
|         |  | <b>% Beta Acids</b>  | <b>3.13</b>          |
|         |  | a/b ratio            | 3.22                 |
| Hops-17 | Hop Essential Oil by GC-FID<br>(as is) |                      |                      |
|         |  | <b>% area</b>        | <b>mg/100g</b>       |
|         |  | 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="10.0"/>  | Typical Range<br>8 - 12% | <input checked="checked" type="checkbox"/> |
| Total Oil ml/100g @ 10%   | <input type="text" value="1.61"/>  | 1.4 - 1.8 mL             | <input checked="checked" type="checkbox"/> |
| cohumulone                | <input type="text" value="25.3"/>  | 23 - 26%                 | <input checked="checked" type="checkbox"/> |
| Alpha Acids @ 10%         | <input type="text" value="10.06"/> | 10 - 12%                 | <input checked="checked" type="checkbox"/> |
| Beta Acids @ 10%          | <input type="text" value="3.13"/>  | 2.0 - 4.0%               | <input checked="checked" type="checkbox"/> |
| <b>AROMA QUALITY (AQ)</b> |                                    |                          |  |
|                           | % Area                             |                          |  |
| B-Pinene                  | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Myrcene                   | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Linalool                  | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Caryophyllene             | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Farnesene                 | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Humulene                  | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Geraniol                  | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
|                           | mg/mL                              |                          |  |
| B-Pinene                  | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Myrcene                   | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Linalool                  | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Caryophyllene             | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Farnesene                 | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Humulene                  | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Geraniol                  | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
|                           | mg/100g @ 10% Moisture             |                          |  |
| B-Pinene                  | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Myrcene                   | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Linalool                  | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Caryophyllene             | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Farnesene                 | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Humulene                  | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |
| Geraniol                  | <input type="text" value="NT"/>    | 0                        | <input type="text" value="NT"/>            |

Signed:   
 Zachary Lilla - Lab Manager - TTB Certified Chemist