



*Belgian Malts that Make Your Beer So Special*

## COLUMBUS (TOMAHAWK)

### BREWING QUALITY

Generally used for main copper hop in the form of extracts and pellets because of the exceedingly high alpha. Has shown to be very aromatic as late hops in cask ales. Used in US IPA, US Pale Ale, Stout, Barley Wine, Lager.



### ORIGIN / HISTORY

US origin. Columbus, Tomahawk and Zeus, the three hop varieties with very high alpha properties, were all produced at the same time and sold to different grower groups. Since then it has been proven that Columbus and Tomahawk are the same variety (by gas chromatograph) and Zeus is so similar that it is indistinguishable from the other two in the finished product! These hops have taken the USA by storm and the acreage of all other US varieties seems to be suffering because of it. They are all labeled as Super High Alpha.

### AGRONOMICS

High yielding and high alpha with generally good resistance to all pests and disease although showing signs of susceptibility to powdery mildew.

### ACID COMPONENTS

|             |                         |
|-------------|-------------------------|
| Alpha Acids | 14 – 20% w/w            |
| Beta Acids  | 4.5 – 6% w/w            |
| Cohumulone  | 28 - 35% of alpha acids |

Type T90 Hop Pellets



### OIL COMPONENTS

|               |                         |
|---------------|-------------------------|
| Total Oil     | 1.5 – 4.5 mls/100 grams |
| Caryophyllene | 6 - 12% of whole oil    |
| Farnesene     | <1% of whole oil        |
| Humulene      | 9 - 25% of whole oil    |
| Myrcene       | 25 - 55% of whole oil   |

Type Leaf Hops



Possible Substitutions: Nugget, Chinook

**Castle Malting - True Brewers know why!**

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