

# DRY HOPPING LOW IBU BEERS AND ITS EFFECT ON BEER BITTERNESS

| TECHNICAL SUPPORT |

Low IBU beers (20 ppm of isoalpha acids or less) that are heavily dry hopped, with 1 lb of hops per barrel (0,381 kg/hl) or more, can experience significant changes in hop acid composition.

Unlike high IBU beers, low IBU beers that are dry hopped loose very little isoalpha acids yet gain significant amounts of humulinones and alpha acids. Humulinones are reported to be 66% as bitter as isoalpha acids and alpha acids about 1/10th as bitter as isoalpha acids. The below table contains the HPLC analysis of a control beer dry hopped with 0.5 lbs, 1.0 lbs, and 2.0 lbs of Cascade hop pellets for three days at 16 °C. The Cascade hops assayed 0.26% humulinone and 5.6% alpha acids.

Dry hopping under these conditions caused a slight drop in isoalpha acid concentration but caused a large increase in alpha acid concentration and humulinone concentration. This change in hop acid composition increases the bitterness intensity of the beer.

By taking into account the relative bitterness of all three hop acids one can “calculate the bitterness” of these beers to better estimate what the perceived sensory bitterness will be.

Hop (lbs) per barrel	kg/hl	Iso (ppm)	α-acids (ppm)	Humulinone (ppm)	Calculated Bitterness*
0	0	15	0	0	15
0.5	0,191	12	8	9	19
1.0	0,381	11	14	18	24
2.0	0,762	10	26	28	31

\*Calculated bitterness = ppm isoalpha acids + (ppm α-acids x 0.1) + (ppm Humulinone x 0.66)

Depending on the variety used, this means dry hopping low IBU beers will make beers taste more bitter. This is the complete opposite of what happens when one dry hops a high IBU beer. To see what happens when one dry hops a high IBU beer, see February 2017 Newsletter.

To learn more please do not hesitate to contact us.

*Simon H. Steiner, Hopfen, GmbH*    *S. S. Steiner, Inc.*

Newsletter, March 2017

SAVE THE DATE!

## EVENTS MARCH

MARCH, 6<sup>TH</sup>

[104. Brau- und maschinentechnische Arbeitstagung](#)

MARCH, 22<sup>ND</sup>

[Bier-Quer-Denker](#)

MARCH, 22<sup>ND</sup> - 24<sup>TH</sup>

[RMI Analytics](#)

MARCH, 28<sup>TH</sup> - 30<sup>TH</sup>

[Brewers Forum St. Petersburg](#)

## EVENTS APRIL

APRIL, 10<sup>TH</sup> - 12<sup>TH</sup>

[CBC Washington](#)

APRIL, 17<sup>TH</sup>

[Trends in Brewing](#)

APRIL, 21<sup>ST</sup>

[Beer Craft Bozen](#)

APRIL, 27<sup>TH</sup>

[Dresdner Brauertag](#)

JOIN US!



WWW.FACEBOOK.COM  
@TEAMHOPSTEINER



WWW.TWITTER.COM  
@TEAMHOPSTEINER



WWW.INSTAGRAM.COM/  
HOPSTEINER\_EUROPE/



COMMITTED TO THE BREWER