

# CRYO™ PELLETS CURB HOP CREEP

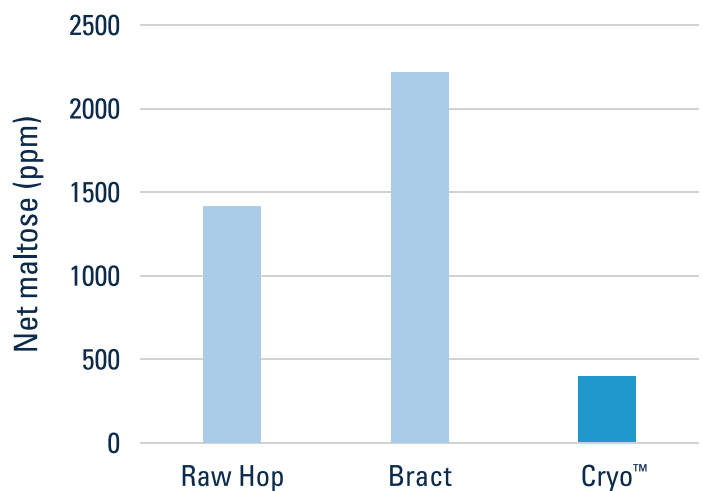


## HOP CREEP IS THE OCCURRENCE OF REFERMENTATION AFTER A DRY HOP ADDITION.

This refermentation takes place when diastatic enzymes in hops are introduced to the beer during dry hopping. Those enzymes can break down unfermentable dextrans, creating a fresh round of fermentable sugars for yeast to consume. This refermentation can distort the brewers desired specifications regarding alcohol, diacetyl, and CO<sub>2</sub>. Mitigating the effects of Hop Creep safeguards your beer from over-attenuation, excessive CO<sub>2</sub> production, and drawn-out diacetyl rests.

Trials comparing diastatic activity of raw hop, bract only, and lupulin enriched matter confirm industry assumptions that most of the diastatic enzymes found in hops are found in the bract.

To measure the diastatic enzymes in different components of hops, a single lot of CTZ was run through the Cryo Hops® pelleting process. Samples were taken from the raw hop material, the concentrated lupulin, and the bract fractions. The concentrated lupulin (Cryo™) fraction showed roughly 25% of the diastatic activity found in the raw hop material. The bract only fraction was significantly elevated. Removing the bract removes the bulk of diastatic enzymes, ergo using a greater proportion of Cryo™ in the dry hop charge will lead to a reduction in the effects of Hop Creep.

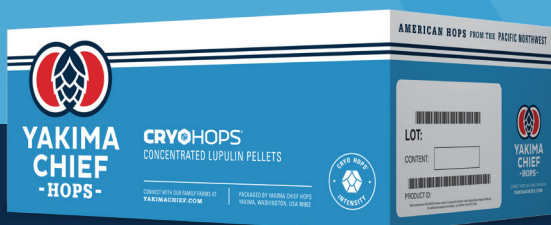


**DIASTATIC ACTIVITY COMPARISON OF RAW HOP, BRACT & LUPULIN-ENRICHED FRACTIONS (CRYO™)**

### References:

1. Ring, R., Saldana, G., Jensen, P. 2022. Factors Affecting the Diastatic Activity of Hops. Brewing Summit, August 14-16, 2022.
2. Brewers Association. (2022a, September 13). Hop Creep – Technical Brief | Brewers Association. <https://www.brewersassociation.org/educational-publications/hop-creep-technical-brief/>

# CRYO™



Yakima Chief Hops patented cryogenic hop pelleting technology separates whole hops into two components – concentrated lupulin, and bract. The concentrated lupulin is formed into Cryo Hops® pellets, and the bract is repurposed downstream.

### BENEFITS TO THE BREWER:

- ❖ Lessens the risk & effects of post dry hop refermentation.
- ❖ Nearly twice the resin content of traditional T-90 pellets.
- ❖ Increased intensity of hop flavor & aroma.
- ❖ Reduction in grassy & vegetal characteristics.
- ❖ Increased yield through reduction of brewhouse & cellar trub.

