

## PRODUCT INFORMATION SHEET

**PRODUCT NAME:** YC-Type 90 Hop Pellets

**MANUFACTURER:** Yakima Chief, Inc.  
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### **DESCRIPTION:**

YC-Hop Pellets are a type 90 pellet made from dried and ground hops packaged and marketed in granular form. The pellets typically are 0.5" to 1" long with 3/16" diameter. Yakima Chief's pelletization process best preserves the soft resin portion of hops by continuous cooling of the pelletization dies with liquid Nitrogen. The use of new processing and packaging technologies ensures that fresh hop aroma and flavor characteristics will not change during processing or after extended periods of storage.

YC-Type 90 Hop Pellets can be made from any hop variety. Detailed technical data sheets for these hop varieties are available upon request.

### **APPLICATION:**

YC-Type 90 Hop Pellets are primarily used as kettle hop ingredients to *provide bitterness and hop character* to beer.

Traditionally, kettle hopping with leaf hops, pellets or extract will also lead to improved trub formation and improved antimicrobial and antifoaming properties.

### **ADDITION PROCEDURE:**

Add the Type 90 Hop Pellets into wort early during kettle boil for bitterness and late during kettle boil for aroma. Pellets either are thrown in the brew kettle during kettle boil or added to custom designed dosing systems through which wort is back-flushed, taking away the pellets to the brew kettle. Pellets can also be added both during and after fermentation.

### **USE RATE CALCULATIONS:**

Addition during early kettle boil to achieve average bitterness in high gravity wort/beer will typically lead to the extraction and isomerization of about 35% of the alpha acids in the finished beer. Addition rate is thus calculated as follows:

$$\text{KgA} = \text{BU} \times \text{HI} / 3500$$

Where:

KgA = Kg of alpha acids to add in the brew kettle  
BU = Is the desired amount of bitter units in the finished beer  
HI = HI of finished beer

Use rates may vary depending on the brewing process and the desired hopping level.

Addition during kettle boil to provide bitterness and/or aroma will be dependent on the time of addition and the desired hop character in the finished beer. Hop formulation and addition rates will be determined on a

case by case basis. Also, addition rate during or post-fermentation to reinforce aroma in beer will be determined on a case-by-case basis.

**AROMA:**

The aroma is described as herbal, floral, piney or citrus. Aromatic notes will be variety specific. Perception of hoppy character and various related notes in beer will be variety specific, and will depend on the quantity of pellets added and the time of addition during kettle boil.

**PACKAGING:**

YC-Type 90 Hop Pellets are packaged inside polyethylene pouches and metallic polyester foils within cardboard boxes ranging from 5 Kg to 130 Kg capacities. Type 90 Pellets are packaged based on Kg Net Weight or Kg Alpha Acids. A complete list of packaging information can be obtained upon request.

Packaging is done with a nitrogen flush and vacuum sealing.

**STORAGE:**

YC-Type 90 Hop Pellets are stored at 26 to 29°F to minimize oxidation of the alpha acids.