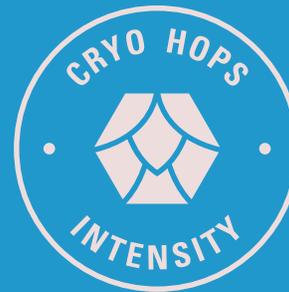




**YAKIMA CHIEF HOPS®**



# TRI-2304CR BLEND

## PRODUCT OVERVIEW

### IDENTIFYING SURVIVABLE COMPOUNDS

Yakima Chief Hops has pioneered the use of cutting-edge hop lab analysis techniques to further unlock the maximum potential of aroma hops. This new technique was created by the Yakima Chief Hops Lab Team to explore the aroma potential of novel hop compounds—specifically those that survive the brewing process. The Yakima Chief Hops R&D Lab is one of the few labs worldwide with the capability to analyze hops via GC-QTOF and SCD technology in order to study previously undetectable aromatic components.

This technology allows us to identify hop compounds that work synergistically to amplify specific flavors and aromas and have a greater potential of showing up more pronounced in the end product. The data is utilized to engineer a pellet with hop varieties that contain the most beer-soluble aromatic components—monoterpene alcohols, esters, and polyfunctional thiols. The result is a supercharged pellet that provides brewers with a dynamic solution for many applications, showing massive tropical, stonefruit, and citrus aromas.

### WHAT IS TRI-2304CR?

In 2017, Yakima Chief Hops launched a line of innovative hop products known as Cryo Hops® using a cryogenic hop-processing technology that separates whole cones into two components—concentrated lupulin and bract. These concentrated lupulin pellets provide brewers with maximum aroma impact while reducing the negative effects often experienced with today's high hopping rates.

We combined this novel process with our hop compound analysis technology to create TRI-2304CR. This is a Cryo Hops® pellet blend that is loaded with compounds that survive harsh brewing processes including heat, fermentation and CO2 scrubbing. By maximizing concentrations of the most impactful and complementary hop compounds, we offer an incredibly powerful hop pellet that creates a true 'pop' of aromas in finished beers.

### USING TRI-2304CR IN THE BREWING PROCESS

TRI-2304CR is an ideal solution for a number of brewing applications. It can be utilized anywhere whole-leaf hops and hop pellets are traditionally applied. As a starting point for recipe formulation or modification, the estimated dosing rate of TRI-2304CR is 40-50% of a traditional T90 pellet addition.

**SINGLE-HOP BEERS** – Because TRI-2304CR has already been engineered with specific component ratios in mind, it can be used for 100% of the hop bill as an all-in-one solution for brewers desiring juicy peach, pineapple, grapefruit, and daiquiri-like aromas. It provides such powerful and dynamic aroma and flavor profiles that it can create a robust "single hop" beer with the use of one hop blend.

**BLEND AMPLIFIER** – TRI-2304CR can be used to amplify the character of other existing hop combinations. When used as a 20-40% portion of a hop bill, TRI-2304CR will elevate levels of geraniol, linalool, esters, and polyfunctional thiols, enhancing and elevating the characteristics of other hop varieties.

**BIOTRANSFORMATION** – Recent research suggests that high levels of monoterpene alcohols and polyfunctional thiols in a wort stream can create the conditions necessary for the yeast metabolism of hop-derived compounds, otherwise known as "biotransformation." TRI-2304CR is a perfect choice for loading whirlpool and active fermentation dry hop additions with these components, thus creating a dynamic environment for yeast and hops to provide maximum aroma expression.

### APPLICATION AND USAGE

**KETTLE:** Late additions only; early kettle additions should be avoided to prevent boiling out the intense aroma characteristics.

**KNOCKOUT:** Due to fine particle size, there is low risk of clogging heat exchangers.

**WHIRLPOOL:** Whirlpool additions are an excellent way to increase aroma and reduce trub load from large, late additions.

**FERMENTER:** Use in the fermenter is an excellent way to increase aroma while reducing trub loss. TRI-2304CR will settle out during normal conditioning and can be fined, filtered or centrifuged as normal.

### AROMA PROFILE

Due to the complexities of biotransformation, the expected aroma profile of TRI-2304CR will vary depending on where in the brewing process it is used, providing brewers with a diverse array of options.

**WHIRLPOOL** – Orange/Tangerine, Geranium, Peach Skin, Cedar

**MID-FERMENTATION DRY HOP** – Creamy Citrus, Peach, Pineapple, Piña Colada, Floral

**POST-FERMENTATION DRY HOP** – Orange/Grapefruit, Geranium/Fresh Flowers, Ripe Pineapple, Coconut, Cedar