

## BEST PRACTICES

# RECOMMENDED BRUT IPA PROCEDURE

Brut IPA is a beer style honouring characteristics from one of the world's best-loved sparkling wines, Champagne. "Brut" is one of the driest forms of champagne wine and heavily influences the conventions of this modern IPA; pale in colour, dry finish and highly aromatic. Residual sugars, malt character and complexity are not desired but an extra dry finish is complimented with a highly intense aroma, derived from significant late and dry hop additions whilst minimizing bitterness. The key and defining character of the Brut IPA is full attenuation, which can be achieved with the addition of ABV Glucoamylase 400 (AMG enzyme) throughout the brewing process as per our recommended procedure below.



## MASH

- Single infusion mash at recommended 63-70°C (149-158°F)
- Addition of AB Vickers Glucoamylase 400 (AMG) at rate of 2- 4L/mt during the mash, ensuring effective mixing.
- Ensure a minimum mash stand time of 60 minutes



## LAUTER

- Wort separation into kettle



## WORT BOILING

- Standard wort boiling, c.60 minutes.
- No bittering hops added during the boil.



## ADDITION OF AROMA HOPS

- Addition of aroma hops in kettle or whirlpool post boil



## TRANSFER TO FV

- Transfer > FV following aroma hop addition and whirlpool stand



## FERMENTATION

- Addition of ABV Glucoamylase 400 (AMG) at rate of 10ml/hL added to FV.
- Recommended yeast strains include BRY97 West Coast Ale strain and CBC-1 Champagne yeast.
- At standard primary fermentation pitching rates and temperatures continue to monitor fermentation rate and gravity, 3-5 days being typical fermentation time.
- Expected terminal gravity using ABV Glucoamylase 400 (AMG) is 0.998 – 1.002 SG
- Addition of dry hops directly to FV nearing terminal gravity or post fermentation.



## CONDITIONING

- Allow sufficient conditioning time to ensure stable gravity and enzymatic activity has ceased.



## GLUCOAMYLASE 400 (GAG 511)

Glucoamylase 400 is a GMO free food grade saccharifying glucoamylase or amyloglucosidase enzyme derived from a selected strain of *Aspergillus niger*.

It is an exoglucosidase capable of hydrolyzing both the  $\alpha$ -1,6 and  $\alpha$ -1,4 glucosidic linkages of starch, liberating single glucose units.

### BENEFITS

Maximizes the conversion of starch containing substrates to fermentable sugars, increasing extract potential.

Minimizes residual carbohydrates.

Provides a high degree of attenuation desirable for Brut IPA style beers

### DOSE RATE & APPLICATION

A typical dosage of:

2 – 4 L/mt of grist added in the brew house.

10 ml/hl wort added during fermentation.

Glucoamylase 400 (AMG) can be used to produce Brut IPA style beers. In this application it can be added directly to the mash vessel at the mashing-in stage. Alternatively, it can be added to cooled wort in the FV, or a combination of the two additions to ensure maximum attenuation.

### PHYSICAL & CHEMICAL

**PHYSICAL FORM:** Liquid with a SG of 1.0-1.2

**COLOR:** Brown (color may vary from batch to batch)

**ACTIVITY:** Minimum 475 AMGP/g

One AMG unit is defined as the amount of enzyme which hydrolyses  $1\mu\text{mol/min}$  of p-nitrophenyl  $\alpha$ -glucopyranoside at 37°C and pH 4.4

Note: If the enzyme is added during fermentation ensure full attenuation has been reached and enzyme activity has ceased prior to packaging. Denaturing of the enzyme can be achieved with pasteurization.

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