



# KICK Carrageenan Dose Rate Optimization Trial

*This trial will determine the effective dose rate required when utilizing KICK Carrageenan in the kettle. Effective dose rates are typically unique to each beer style.*



## Required Materials

KICK Carrageenan  
Boiling wort sample  
Turbidimeter  
Hot/Stir plate  
250 mL beaker  
250 mL screwcap bottles  
50 mL screwcap tubes  
1 mL pipette and tips  
5 mL pipette and tips (optional)  
Ice



## Preparation of Carrageenan Solution

- 1.1 Bring 200 mL water to a low boil using a 250 mL beaker.
- 1.2 Add 1g of KICK Carrageenan G, T, or Micro-T to the beaker. If using KICK Carrageenan T or Micro-T, stir for 5 minutes. If using KICK Carrageenan G, stir for 20 minutes.

## Preparation of Samples

- 2.1 Label a set of 250 mL screwcap bottles with each dose rate you wish to trial. A typical trial will consist of a control (no carrageenan added), 10 ppm, 20 ppm, 30 ppm, 40 ppm, 50 ppm, and 60 ppm, for a total of 7 samples.
- 2.2 Label a set of 50 mL screwcap tubes with the same dose rate information.
- 2.3 Take a sample of boiling wort, before the addition of kettle finings.
- 2.4 Fill each 250 mL screwcap bottle with 200 mL of hot wort. *Use caution when handling hot wort.*
- 2.5 With exception to the control sample, add carrageenan solution to each sample. 400  $\mu$ L is equivalent to 10 ppm. If following the typical trial example above, add 400  $\mu$ L to the 10 ppm sample, 800  $\mu$ L to the 20 ppm sample, 1.2 mL to the 30 ppm sample, 1.6 mL to the 40 ppm sample, 2.0 mL to the 50 ppm sample, and 2.4 mL to the 60 ppm sample.

**Note:** If using KICK Carrageenan G, make sure to pipette away from any solid material.

## Sample Analysis

- 3.1 Swirl samples by hand for 10 seconds and allow samples to rest for 10 minutes.
- 3.2 Note the appearance of the hot break.
- 3.3 Transfer 50 mL of clear wort from each sample to its respective 50 mL screwcap tube.
- 3.4 Record the turbidity of each sample using a turbidimeter. If a turbidimeter is not available, qualitatively compare the samples by eye to determine the best clarity. Do not discard the samples.
- 3.5 Tighten each tube cap and immerse each sample into an ice water bath for 10 minutes.
- 3.6 Allow samples to settle overnight.
- 3.7 Record the amount of cold break formed.
- 3.8 Measure the turbidity of clear wort from each sample.

**Note:** For samples with large cold break volumes, make sure to analyze only the clear fraction. If a turbidimeter is not available, qualitatively compare the samples.

## Interpretation of Results

- 4.1 Determine the dose rate that provides the best clarity while only generating 10-15% cold break volume. This is your optimal dose rate.

## Dosage Rate Video

For clarification of any of these steps please refer to our KICK Carrageenan Dosage Rate Optimization Trial video or contact your local Gusmer representative.

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