# Recommendations for rapid concentration of spoilers in Hazy Beers using the Concentrating Pipette

Ales are harder to filter or concentrate to begin with, and Hazy styles are even harder, due to filter fouling. Of the many intriguing varieties of Hazys, between 45% and 75% feature a stable protein haze and can be concentrated following adjustment of the pH to 8.5 using sodium hydroxide (NaOH).

Prepare 2 molar NaOH by slowly and gently adding 8 grams of sodium hydroxide pellets to 100 mL filtered water while stirring, or purchase it ready made.

1. Degas a full can or bottle of beer (sample) using the InnovaPrep Be Flat™ Degassing Jar or other method.
2. Add a few mL of 2M NaOH to pH 8.5 while stirring. Measure using pH paper or a meter.
3. Chill in the Be Flat Jar for 5 to 20 minutes.
4. Concentrate bacteria from the sample using the Concentrating Pipette with the 0.2 or 0.45 micron pipette tips.

For 355 mL of sample, the addition of approximately 11 – 12 mL of NaOH should result in the proper pH to "break" a protein haze into two layers. A bright layer, comprising approximately 2/3 of the sample volume, will be apparent on top of a lower turbid layer. Approximately 2/3 of the bacteria will be in the top (bright) layer, and 1/3 in the lower layer.

The sample can be concentrated directly from the jar and lower the tip into the top layer of the sample. To determine the volume that can be concentrated, the jar can be weighed before and after concentration and the difference determined by subtraction. 100 mL can usually be concentrated, although the actual amount will depend on the particular brand and style of the beverage. The sample can then be used for PCR or other analysis methods - The pH change should not harm the bacteria in the case that the user wants to plate and count samples.

Carbohydrate and polyphenols can also contribute to hazes, and they are resistant to clearing via pH change. PVPP can be added to assist with clearing those hazes if the pH change alone is not sufficient for concentrating the sample. No two Hazys taste the same, and by the same token, there is no single recipe or method for rendering them all concentratable. Some experimentation may be necessary to maximize success.