Beer Quality: Monitoring the Filtration Process

INTRODUCTION

Removal of unwanted particulates is essential to improving beer clarity, speeding up production, reducing waste, minimising batch losses, and extending shelf-life.

Figura Analytics novel particle characterisation and counting technology, the Figura Analyser ™, was put to the test, looking at real-world samples supplied by a large brewery chain. The company wanted to gain information on their treatment process to ensure clarity of their end product and understand when their filtration system was starting to fail.

FILTRATION EFFICACY

A drink batch was analysed before and after filtration (Figure 1), to determine the efficacy of the in-process filtration step.
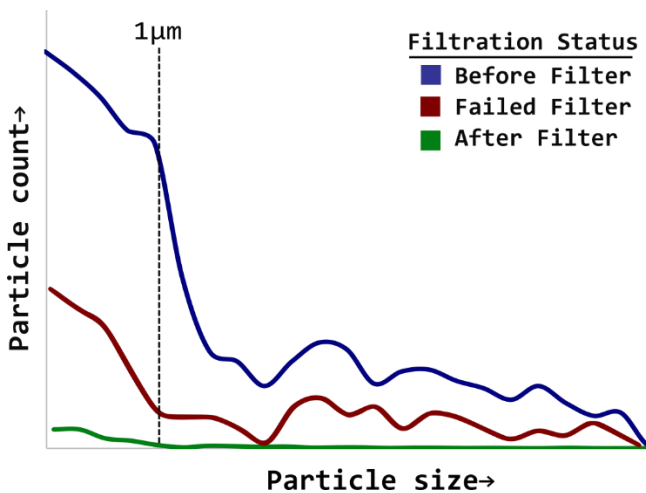

Figure 1: Particle profiles of samples from the drinks manufacture process, before and after filtration, as well as during a filter failure event.

It was shown that the majority of larger particles were removed from the brew, with some (< 1 μm) particles still present, which was expected given the filter size used. A failing filter was also detected (red line), where particles were no longer being efficiently removed. Collecting this data on a routine basis could provide information on when to change filters during processing.

ADDITION OF CLARIFYING AGENTS

Another method of removing particulates is adding clarifying agents such as enzymes to beer, with the efficacy of this process monitored in Figure 2. An overall decrease in particles present was observed after addition of clarifying agent, enabling dosage requirements to be calculated.
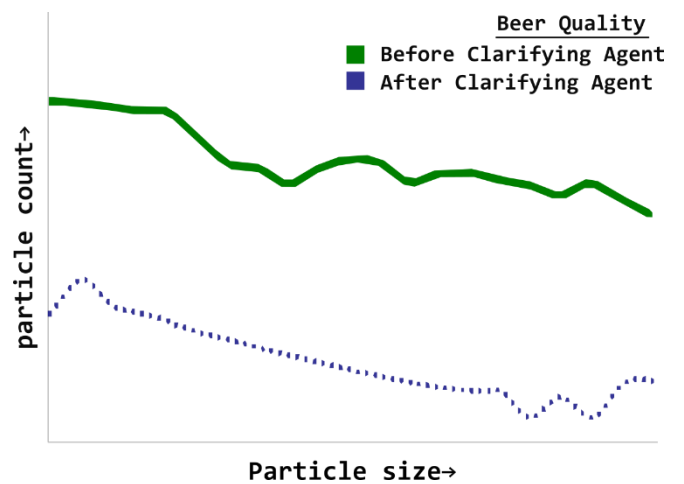

Figure 2: Particle count from beer sample from bright beer tank before and after the addition of clarifying agent.

CONCLUSION

Our customer was able to make cost-saving decisions about filter replacements, as well as adjust clarifying agent dosage for optimum product clarity. Long-term use can provide details on filter replacement timelines and assist filter replacement contingency planning.

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