Innovation. In our raw materials. In our solutions.

LFQ – A Study in Low Temperature Cleaning

Issue

Electricity rates continue to rise. From parts washing to CIP applications energy usage is now making up a larger portion of the cost of cleaning, putting strain on operating costs and margins.

For example, in the U.S dairy industry, more than half of a milk processing plant's energy use is devoted to cleaning equipment and pipes!

Challenge

Many low foam cleaning solutions rely on low foam surfactants which are dependent upon elevated temperatures (above 150F) to suppress foam.

Traditional methods of defoaming at ambient through the use of silicones are not preferred as they can cause coatability and rinsing issues.

The challenge was to develop a material with the superior wetting and detergency of Vitech's Q3 surfactant, but without the foam and temperature dependence.

Solution

Vitech developed LFQ to meet this challenge.

We conducted internal testing to confirm performance and enlisted a third party lab to provide independent testing comparing the LFQ solution to a leading low foam parts wash solution, where pH and alkalinity were equal, as well as comparing LFQ with traditional temperature dependent surfactants such as EO/PO and leading capped AE blends.

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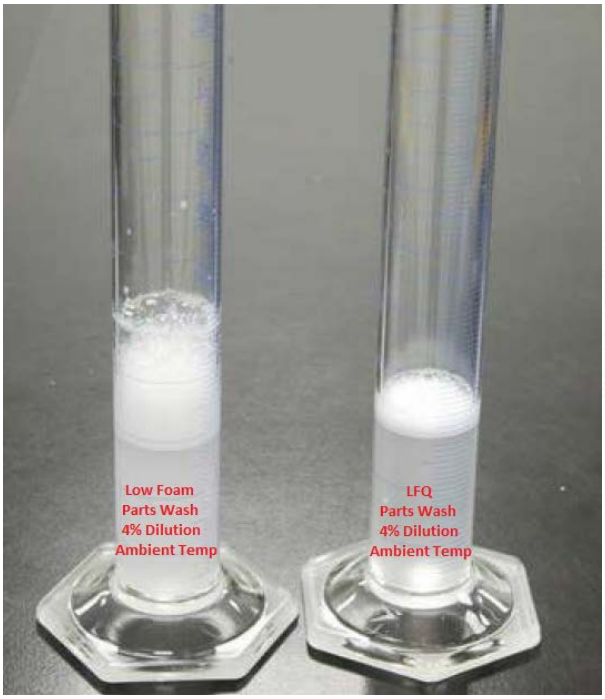
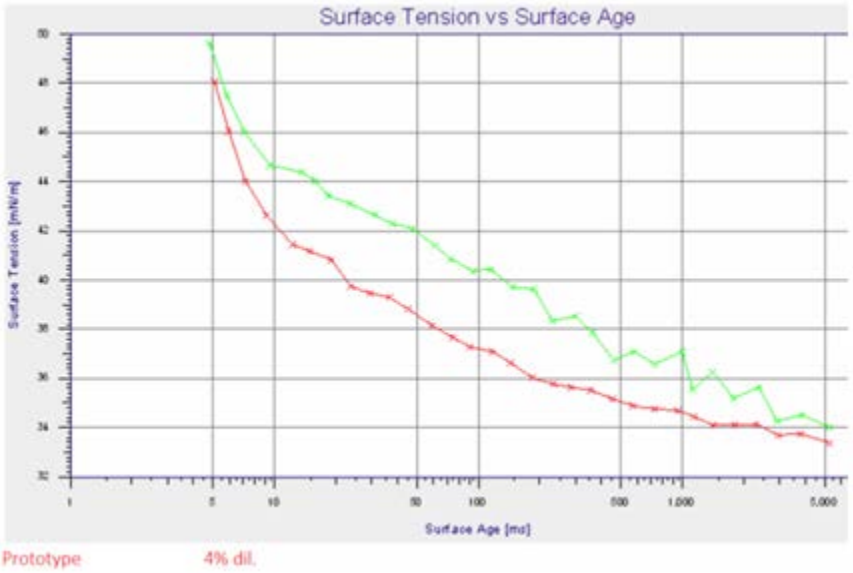
Result

At elevated temperature, our LFQ solution performed equally to the leading solution tested.

At ambient temperature however, **we maintained cleaning performance *and* low foam**. The leading solution tested did not and therefore could not be used due to the much higher foam.





Application

Vitech is now able to provide a material which helps our customers' meet their customers' needs, allowing them to lower their costs and energy usage by not requiring as elevated a temperature to achieve effective cleaning while maintaining low foam. They can further save on time and labor costs by not having to wait as long to reach needed temperatures.

How much potential savings?

When heating water from ambient (70F) to an operating temperature of 150F, and with the electricity required to heat being constant, this means that for **every 10F reduction** in required temperature **offers a savings of 12.5% on energy** usage! (10/80)