

High Viscosity Mixing with WandMixer™

Mixing system: Newmix®- Levtech® WandMixer™

Mixing bag: 200L W-Mix bag

Mixing type: Liquid-liquid

The Newmix-Levtech WandMixer is a compact and non-invasive single-use mixing system. The heart of this system is a mixing bag incorporating an innovative top-mounted impeller capable of providing efficient mixing for all powder-liquid and liquid-liquid mixing applications. The impeller comprises a rotating wand inside an inert polymer sleeve, and is designed to ensure low particle shedding and total containment while serving effectively in a wide variety of mixing tasks. All product-contacting surfaces are 100% disposable.

Introduction

High-viscosity materials can present a formidable mixing challenge, yet they also serve to illustrate the relative strengths and weakness of different mixing technologies. In this experiment, a WandMixer was used to perform liquid-liquid mixing in a highly viscous matrix - high fructose corn syrup 90% at a viscosity of 1200 centipoise.



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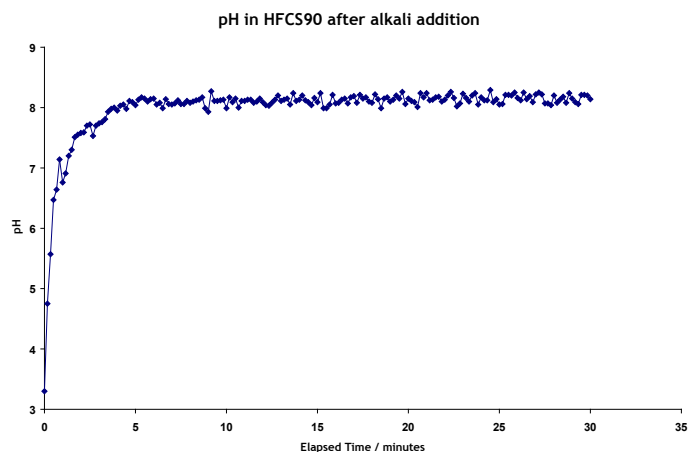
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Application note XA304E 0903rev1

Experimental

A 200L WandMixer mixing bag was filled with 200L of ADM Cornsweet®90 high fructose corn syrup (HFCS90), and mixing speed was set to 250rpm. A 60ml aliquot of dilute sodium hydroxide solution (8M NaOH) was then added, via a top-mounted inoculation port, to the surface of the HFCS90. Solution homogeneity was monitored via a pH sensor mounted in the top of the bag.



Results

The accompanying chart shows solution homogeneity in the bag during mixing. After the NaOH addition, mixing was found to be complete within approximately 5 minutes.

At no time during the mixing cycle did the impeller stall or hesitate. Video of this experiment is available upon request.

Conclusions

The WandMixer mixing system can perform effectively at viscosity up to 1200cP. The 5 minute mixing time in this experiment surpasses the speed of most other single-use mixers in the ATMI product portfolio, and makes WandMixer an excellent choice when high-viscosity liquid-liquid mixing is the primary intended purpose.