Newmix®- Levtech® Application note

Dilution of 25% Salt Solution at the 200L Scale using a LevMixer™

Mixing system: Newmix®- Levtech® LevMixer™
Mixing bag: 200L L-Mix bag
Mixing type: Liquid-liquid

The Newmix-Levtech LevMixer is a compact and non-invasive single-use mixing system. The heart of this system is a mixing bag incorporating a bottom-mounted levitating impeller designed for powder-liquid and liquid-liquid mixing applications. The impeller is frictionless and generates no particles. All product-contacting surfaces are 100% disposable.

Introduction

Liquid-liquid mixing is a common requirement in biopharma processing. In order to maximize mixing speed for liquid-liquid applications, various impeller sizes and locations are available.

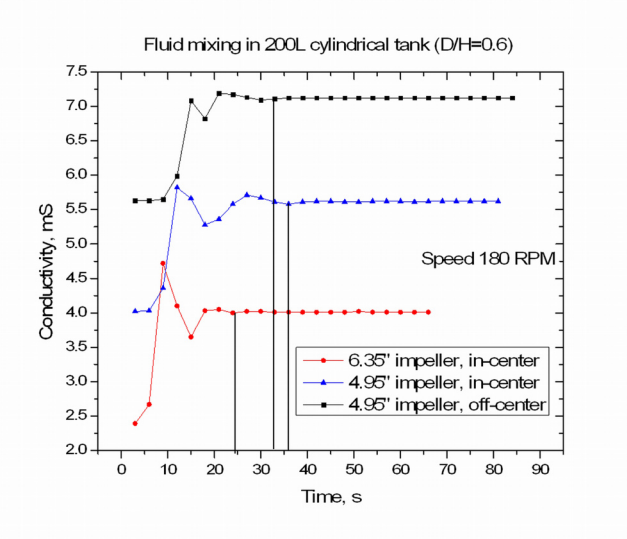
In this experiment, a LevMixer was used to prepare 200L of a dilute salt solution. Three different mixing bag configurations were tested.

Experimental

A 200L LevMixer mixing bag was filled with 197L of water, and mixing speed was set to 180rpm. In total, 3L of a 25% w/v sodium chloride (NaCl) solution was added to the mixing bag, resulting in a 0.375% w/v solution. The NaCl additions were made as quickly as possible, and solution homogeneity was monitored via real-time conductivity readings at a location in the mixing bag opposite the salt addition location.

The experiment was repeated with three different impeller size and location combinations:

- Large, center-mounted impeller
- Small, center-mounted impeller
- Small, off-center impeller



Results

The accompanying chart shows solution homogeneity in the bag during mixing.

The points at which mixing was complete are indicated by the vertical black lines on the chart. Mixing times ranged from 18-33 seconds.

Conclusions

The Newmix-Levtech LevMixer system is well suited to performing rapid dilution of concentrated aqueous solutions. For this application, at the 200L scale, the most efficient bag design is one in which a large (6.35” diameter) impeller is used.

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