Newmix®- Levtech® Application note

The Effect of Mixing Speed on WandMixer™ Efficiency at Medium Scale

Mixing system: Newmix®- Levtech® WandMixer™
Mixing bag: 75L W-Mix bag
Mixing type: Powder-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

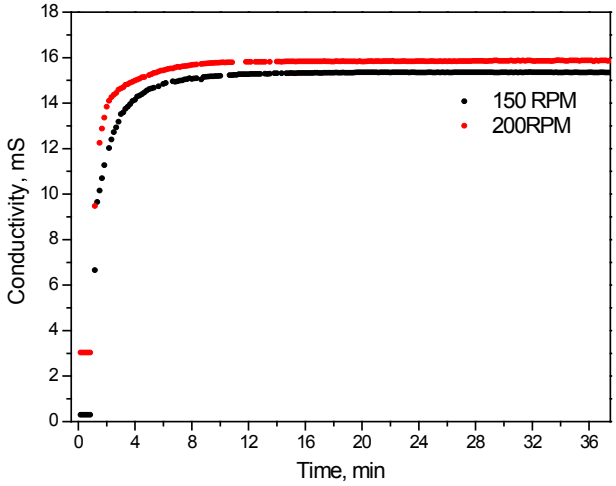
Powder-liquid mixing is a common requirement in biopharma processing. In order to optimize mixing efficiency for powder-liquid applications, the WandMixer is available with a large, diagonally-mounted helical mixing wand.

In this experiment, a WandMixer was used to prepare 75L of a concentrated salt solution.

Experimental

A 75L WandMixer mixing bag was filled with water, and impeller speed was set to 150rpm. A quantity of sodium chloride (NaCl) powder was added to the mixing bag, and the solution homogeneity was monitored via real-time conductivity readings.

The entire experiment was repeated using an impeller speed of 200rpm.



Results

The accompanying chart shows solution homogeneity in the bag during mixing; the plateau areas indicate steady state. Impeller speed had a modest but measurable impact on mixing times, which ranged from 10 minutes at 200rpm up to 15 minutes at 150rpm.

At no time during the mixing cycle did the impeller stall or hesitate.

Conclusions

The Newmix-Levtech WandMixer system is well suited to preparation of concentrated salt solutions. A powder-liquid mixing bag, which includes a top-mounted wand impeller, is a good choice for such applications.

Mixing times are dependent on impeller speed and so, whenever possible, the highest available speed should be employed (subject to the robustness of the solvent/solute).

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