

Preparing 2,000L of an 8g/L Salt Solution using a Magnetic Mixer

Mixing system: Newmix®- Levtech® Magnetic Mixer

Mixing bag: 2,000L M-Mix bag

Mixing type: Powder-liquid

The Newmix-Levtech Magnetic Mixer is a compact and non-invasive single-use mixing system. The heart of this system is a mixing bag incorporating an innovative bottom-mounted magnetically-driven impeller capable of providing efficient high-torque mixing for all powder-liquid and liquid-liquid mixing applications. The impeller rides on a low-friction, inert bearing assembly designed to ensure low particle shedding while allowing mixing of very high powder loads in large liquid volumes. All product-contacting surfaces are 100% disposable.

Introduction

Powder-liquid mixing is a common requirement in biopharma processing. In order to maximize mixing efficiency for powder-liquid applications, the Magnetic Mixer is available with a large (6.35"), centrally-located magnetic impeller.

In this experiment, a Magnetic Mixer was used to prepare a large volume of a highly concentrated salt solution in a single batch.



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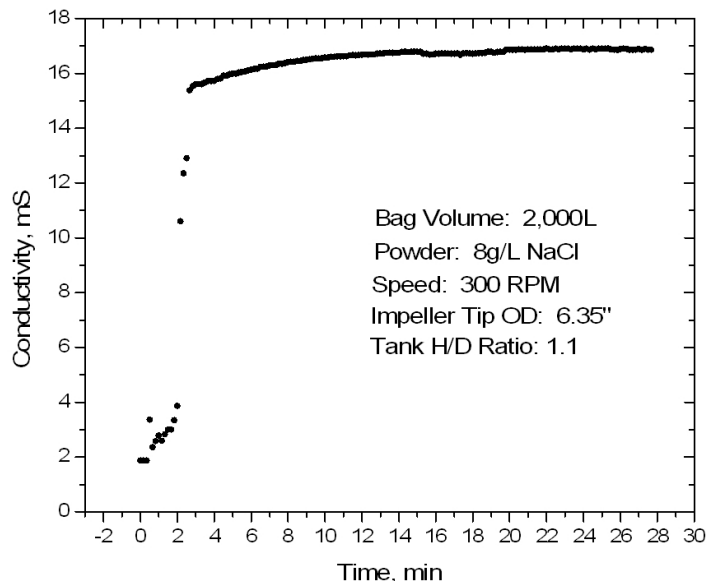
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Application note XA400E 0903rev2

Experimental

A 2,000L Magnetic Mixer mixing bag was filled with 2,000L of water, and mixing speed was set to 300rpm. A single 16kg addition of sodium chloride (NaCl) powder was made to the mixing bag, resulting in an 8g/L solution. The solution homogeneity was monitored via real-time conductivity readings.



Results

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

After the NaCl powder addition, mixing was found to be 95% complete within approximately 6 minutes, and 100% complete within approximately 15 minutes. At no time during the mixing cycle did the impeller stall or hesitate.

Conclusions

The Newmix-Levtech Magnetic Mixer system is well suited to preparation of large volumes of high-concentration buffer salt solutions. A powder-liquid mixing bag, which includes a centrally-located, large, bearing-mounted magnetic impeller, is a good choice for such applications.

Mixing times in the 6-15 minute range are typical at the tested volume and salt concentration.