



Application Note

USD 3043

Preparing 160 L of a 150 mM Salt Solution Using a LevMixer® System

Mixing system: LevMixer system

Mixing biocontainer: 200 L Mixer biocontainer

Application mixing type: Liquid-liquid

The LevMixer system is a compact and non-invasive single-use mixing system. The heart of this system is a mixing biocontainer incorporating a bottom-mounted levitating impeller designed for powder-liquid and liquid-liquid mixing applications. The impeller is frictionless and generates no particles.

Introduction

Powder-liquid mixing is a common requirement in biopharmaceutical processing. In order to maximize mixing efficiency for powder-liquid applications, a variant of the LevMixer system is available with a large 16.13 cm (6.35 inch) impeller.

In this experiment, a LevMixer system was used to prepare ~160 L of a typical buffer solution.



Experimental

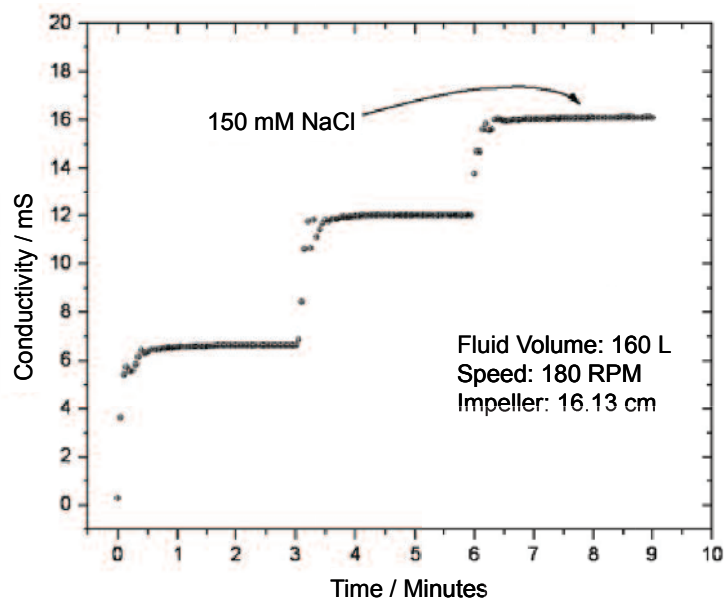
A 200 L LevMixer mixing biocontainer was filled with 160 L of water, and mixing speed was set to 180 rpm. In total, approximately 1.4 kg of sodium chloride (NaCl) powder was added to the mixing biocontainer, resulting in a 150 mM solution. The NaCl additions were made in three increments, each approximately 500 g, at $t=0$ minutes, $t=3$ minutes and $t=6$ minutes. Solution homogeneity was monitored via real-time conductivity readings after each addition.

Results

Figure 1 shows solution homogeneity in the biocontainer during mixing. After each NaCl powder addition, mixing was found to be 95% complete within 30 seconds, and 100% complete within 90 seconds.

Figure 1

Solution homogeneity in the biocontainer during mixing



Conclusions

The LevMixer system is well suited for preparation of buffer salt solutions. A powder-liquid mixing biocontainer, which includes a centrally-mounted, large, levitated impeller, is a good choice for such applications.

Mixing times in the 60-90 second range are typical at the tested volume and salt concentration.



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