



Application Note

USD 3044

Preparing 400 L of a 128 mM Salt Solution Using a LevMixer® System

Mixing system: LevMixer system

Mixing biocontainer: 500 L LevMixer biocontainer

Application mixing type: Powder-liquid

The LevMixer system is a compact 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. The LevMixer system is available with a 16.13 cm diameter, centrally-located impeller.

In this experiment, a LevMixer system was used to prepare 400 L of a typical buffer solution.



Experimental

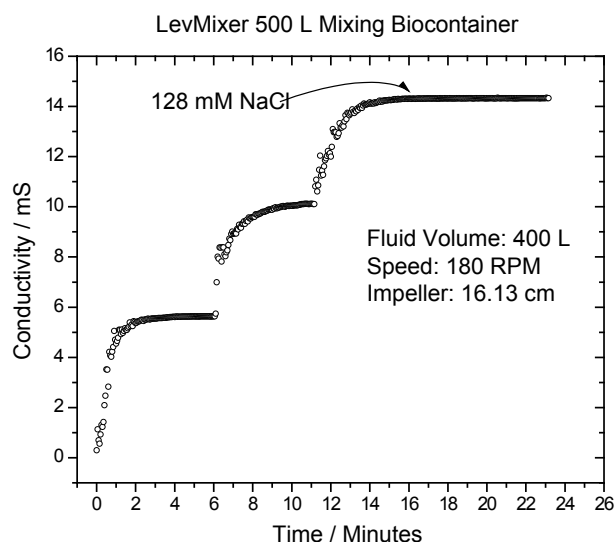
A 500 L LevMixer mixing biocontainer was filled with 400 L of water, and mixing speed was set to 180 rpm. In total, 3 kg of sodium chloride (NaCl) powder was added to the mixing biocontainer, resulting in a 128 mM solution. The NaCl additions were made in three increments, each 1000 g, at t=0 minutes, t=6 minutes and t=12 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 complete within 240 seconds. At no time during the mixing cycle did the impeller stall or hesitate.

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 sub-240 second range are typical at the tested volume and salt concentration.



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