Application Note

Dilution of 25% Salt Solution at the 2000 L Scale Using a LevMixer® System

Mixing system: LevMixer system
Mixing biocontainer: 2000 L LevMixer biocontainer
Application mixing type: Liquid-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

Liquid-liquid mixing is a common requirement in biopharmaceutical processing.
In this experiment, a LevMixer system was used to prepare 2000 L of a dilute salt solution.

Experimental

A 2000 L LevMixer mixing biocontainer with a 16.13 cm diameter, off-center, levitating impeller, was filled with 1991 L of water, and mixing speed was set to 180 rpm. In total, 9 L of a 25% w/v sodium chloride (NaCl) solution was added to the mixing biocontainer, resulting in a 0.11% w/v solution. The NaCl solution was added in three successive 3 L increments, and mixing effectiveness was verified at three different heights in the mixing vessel. Solution homogeneity was monitored via real-time conductivity readings taken at locations opposite the salt addition location.
Results

Figure 1 shows solution homogeneity in the biocontainer during mixing. It can be seen that mixing was complete in each case within 90 seconds.

Figure 1
Solution homogeneity in the biocontainer during mixing

Conclusions

The LevMixer system is well suited to performing rapid dilution of concentrated aqueous solutions. For this application, at the 2000 L scale, mixing is complete within 90 seconds.