

Application Note

USD 3025

Preparing 200 L of 10x PBS Buffer Concentrate using a Pall® Magnetic Mixer

Mixing system: Pall Magnetic Mixer

Mixing biocontainer: 200 L Mixer biocontainer

Mixing type: Powder-liquid

The Pall Magnetic Mixer is a compact single-use mixing system. The heart of this system is a mixing biocontainer 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 high powder loads in large liquid volumes.

Introduction

Powder-liquid mixing is a common requirement in pharmaceutical processing. In order to maximize mixing efficiency for powder-liquid applications, the Magnetic Mixer is available with a 16.13 cm (6.35 inch) impeller.

In this experiment, a Magnetic Mixer was used to prepare a quantity of a 10x concentrated solution of phosphate buffered saline (PBS), a buffer that is ubiquitous in downstream bioprocess steps.



Experimental

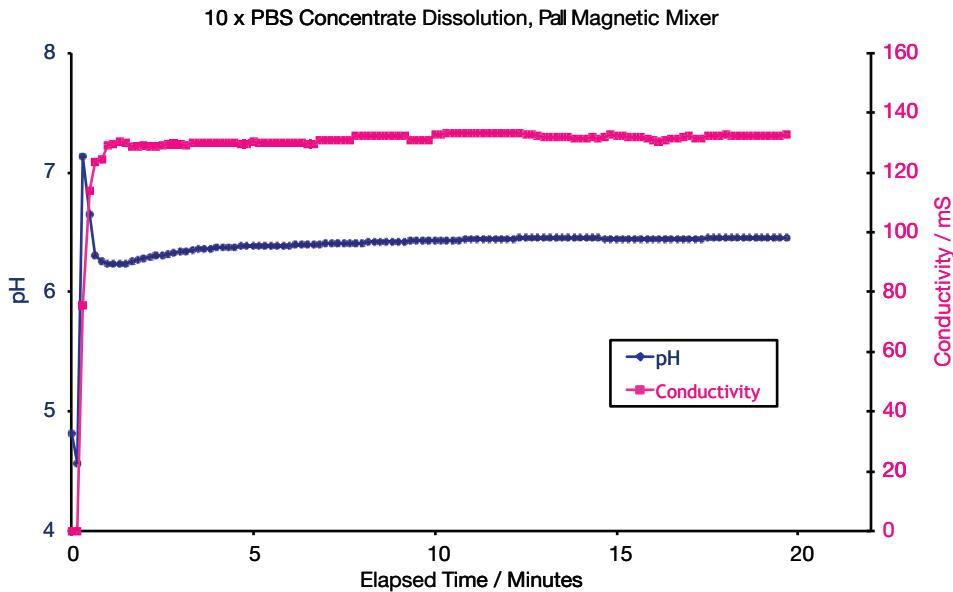
A 200 L Magnetic Mixer biocontainer was filled with 160 L of water, and mixing speed was set to 300 rpm. Powder buffer components were added all at once via a Pall powder bag; 16 kg NaCl + 0.4 kg KCl + 2.88 kg Na₂HPO₄.12H₂O + 0.48 kg KH₂PO₄. The solution homogeneity was monitored via real-time conductivity and pH readings.

Results

After the buffer powder addition, conductivity and pH data indicated that mixing was complete within approximately 10 minutes.

Figure 1

Solution homogeneity in the biocontainer during mixing



Conclusions

The Pall Magnetic Mixer system is well suited to preparation of high-concentration buffer solutions. A powder-liquid mixing biocontainer, which includes a large, bearing-mounted magnetic impeller, is a good choice for such applications. Mixing times in the 10 minute range are typical at the tested volume and concentration.



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