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PharMix® SC System Conductivity Testing Tech Data Sheet

X-7366-0

The PharMix® SC System* is a Single Campaign (single-use) mixing system. It is suitable for a wide range of industries utilizing a round, single-use 3D Mixing BioContainer with a self-contained mixing paddle with no seals, bearings or breach of the aseptic boundary. It features a patented* unique, multi-plane mixing motion.

Introduction

The need for flexibility has accelerated the adoption of single-use processing solutions in many industries. One of the most common but difficult tasks are sanitary mixing applications. The common issue with implementing single-use mixing systems is achieving desirable, fast, efficient mixing results and one that can be scalable. One method to prove these attributes is to prepare a salt solution. Salt solution testing can prove the capability of dissolving granular solids into a liquid, especially since the granular salt settles to the bottom.

Experiment Procedure

In this experiment a PharMix SC System was used to mix a 10% (wgt/vol) NaCl solutions, under identical conditions, using the same mixing hardware system. Other than the speed of the agitator, only the disposable Mixing BioContainer and portable holding tank itself were changed for 200L to 1000L capacities.

The protocol was to fill the vessel with the appropriate volume of DI Water, then add the appropriate amount of granular salt with the mixer not running. Upon completion of the salt addition, immediately starting the mixer and running continuously for 10 minutes. Two conductivity probes were installed 4" and 6" deep from the top of the Mixing BioContainer based on CFD analysis showing these as the last mixed location.



Volume	<u>200 L</u>	<u>1000 L</u>
DI Water	190.8 L	953.8 L
Salt	20 kg	100 kg
Probe depth	4"	6"

* US Patent No.8,152,362



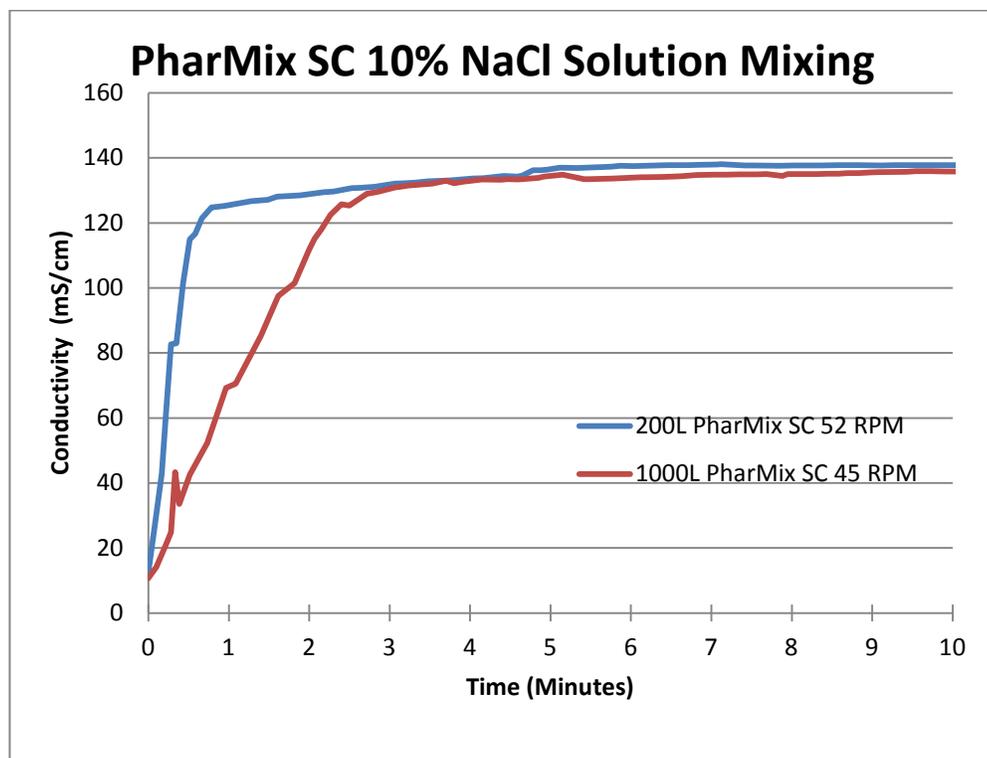
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Results and Discussion

The results were recorded and tabulated and shown in the table below.

Based on the results recorded, and visual observation, it is clear that the solution was dissolved fully and achieved homogeneity in both volumes. Although the curves may not be truly identical, they follow the same trend and are completely mixed in less than 5 minutes, which would meet or exceed the requirements of most processes.



Summary

Based on the conductivity testing, one can see that the PharMix SC System is fully capable of consistently dissolving a 10% salt solution in less than 5 minutes in either a 200L or scaled up 1000L volume. This would meet or exceed the requirements of most processes. This technical data sheet can be used as a reference for many mixing applications, however all specific applications should be evaluated. Contact our specialists for assistance with any PharMix SC System process solution.

Note: temperature correction was not used in charting the data, there was a 2-6 degree C temp fluctuation during testing.

Reference: See TDS X-7367 for PharMix SC System mixing comparison to conventional mixing systems.