

## The Effect of Mixing Speed on WandMixer™ Efficiency at Small Scale

Mixing system: Newmix®- Levtech® WandMixer™

Mixing bag: 75L W-Mix bag

Mixing type: Powder-liquid

The Newmix-Levtech WandMixer is a compact and non-invasive single-use mixing system. The heart of this system is a mixing bag incorporating an innovative top-mounted impeller capable of providing efficient mixing for all powder-liquid and liquid-liquid mixing applications. The impeller comprises a rotating wand inside an inert polymer sleeve, and is designed to ensure low particle shedding and total containment while serving effectively in a wide variety of mixing tasks. All product-contacting surfaces are 100% disposable.

### Introduction

Powder-liquid mixing is a common requirement in biopharma processing. In order to optimize mixing efficiency for powder-liquid applications, the WandMixer is available with a large, diagonally-mounted helical mixing wand.

In this experiment, a WandMixer was used to prepare 15L of a concentrated salt solution.



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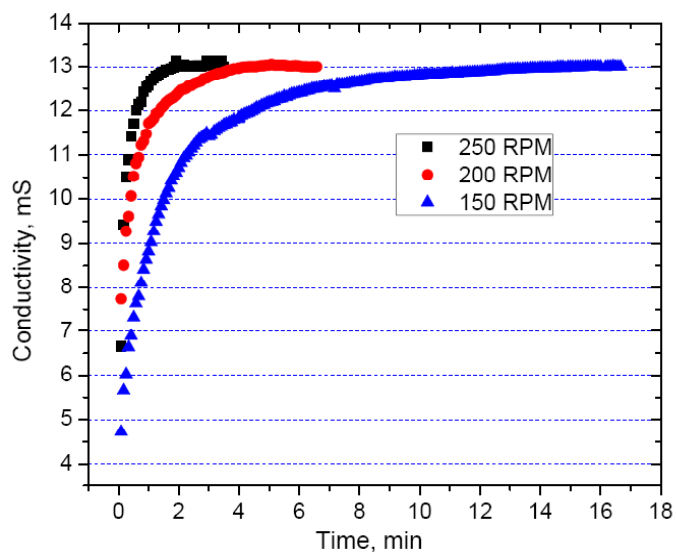
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### Experimental

A 15L WandMixer mixing bag was filled with water, and impeller speed was set to 150rpm. A quantity of sodium chloride (NaCl) powder was added to the mixing bag, and the solution homogeneity was monitored via real-time conductivity readings.

The entire experiment was repeated using impeller speeds of 200rpm and 250rpm.



### Results

The accompanying chart shows solution homogeneity in the bag during mixing; the plateau areas indicate steady state. Impeller speed had a measurable impact on mixing times, which ranged from 2 minutes at 250rpm up to 15 minutes at 150rpm.

At no time during the mixing cycle did the impeller stall or hesitate.

### Conclusions

The Newmix-Levtech WandMixer system is well suited to preparation of concentrated salt solutions. A powder-liquid mixing bag, which includes a top-mounted wand impeller, is a good choice for such applications.

Mixing times are dependent on impeller speed, and so whenever possible the highest available speed should be employed (subject to the robustness of the solvent/solute).