

Scalability of the LevMixer™

Mixing system: Newmix®- Levtech® LevMixer™

Mixing bag: 50L - 1000L L-Mix bag

Mixing type: Powder-liquid

The Newmix-Levtech LevMixer is a compact and non-invasive single-use mixing system. The heart of this system is a mixing bag incorporating a bottom-mounted levitating impeller designed for powder-liquid and liquid-liquid mixing applications. The impeller is frictionless and generates no particles. All product-contacting surfaces are 100% disposable.

Introduction

Powder-liquid mixing is a common requirement in biopharma processing. In order to be most useful, a mixer should be scalable from small to large volumes. Where possible, scalability should be predictable, with comparable mixing efficiency as the working volume grows.

In this experiment, a LevMixer was used to prepare various volumes of a typical buffer salt solution, and the mixing times were compared to demonstrate scalability.



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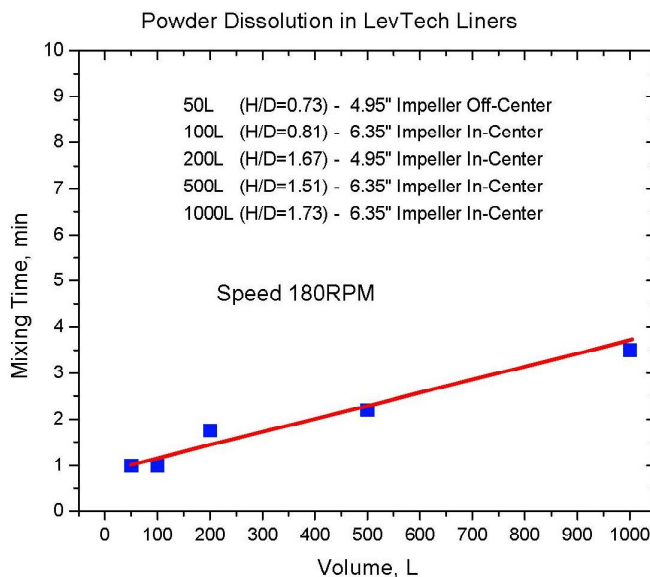
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Application note XA209E 0807rev1

Experimental

LevMixer mixing bags of 50L, 100L, 200L, 500L and 1000L were filled with to standard capacity with water, and mixing speed was set to 180rpm. Each bag was then charged with sufficient sodium chloride powder to make an 8.8g/L (150mM) solution.

Solution homogeneity was monitored via real-time conductivity readings.



Results

The accompanying chart shows mixing time as a function of bag volume. Mixing times ranged from 60 to 210 seconds, depending on volume.

It can be seen that the relationship between working volume and mixing time is a linear one, making for a predictable scalability model.

Conclusions

The Newmix-Levtech LevMixer system is well suited to preparation of buffer salt solutions at scales ranging from 50L to 1000L. The predictable relationship between volume and mix time can simplify the scale-up process.