



## Application Note

USD 3037

# Dilution of 25% Salt Solution at the 200 L Scale using a LevMixer® System

**Mixing system:** LevMixer system

**Mixing biocontainer:** 200 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 200 L of a dilute salt solution. Three different mixing biocontainer configurations were tested.

### Experimental

A 200 L LevMixer mixing biocontainer was filled with 197 L of water, and mixing speed was set to 180 rpm. In total, 3 L of a 25% w/v sodium chloride (NaCl) solution was added to the mixing biocontainer, resulting in a 0.375% w/v solution. The NaCl additions were made as quickly as possible, and solution homogeneity was monitored via real-time conductivity readings at a location in the mixing biocontainer opposite the salt addition location.

The experiment was repeated with three different impeller size and location combinations:

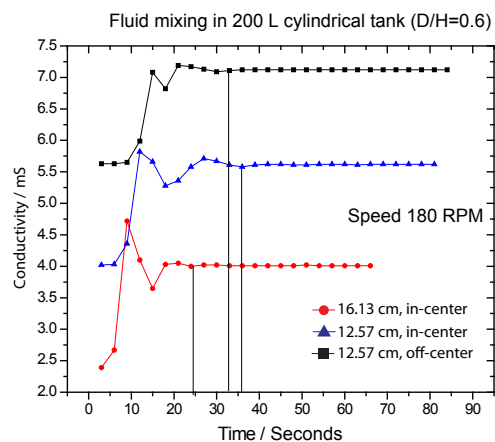
- Large, center-mounted impeller
- Small, center-mounted impeller
- Small, off-center impeller



## Results

Figure 1 shows solution homogeneity in the biocontainer during mixing. The points at which mixing was complete are indicated by the vertical black lines on the chart. Mixing times ranged from 18-33 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 200 L scale, the most efficient biocontainer design is one in which a large (16.13 cm diameter) impeller is used.



Life Sciences

### Corporate Headquarters

Port Washington, NY, USA  
+1.800.717.7255 toll free (USA)  
+1.516.484.5400 phone  
biopharm@pall.com e-mail

### European Headquarters

Fribourg, Switzerland  
+41 (0)26 350 53 00 phone  
LifeSciences.EU@pall.com e-mail

### Asia-Pacific Headquarters

Singapore  
+65 6389 6500 phone  
sgcustomerservice@pall.com e-mail

*Filtration. Separation. Solution.<sup>SM</sup>*

Visit us on the Web at [www.pall.com/mixing](http://www.pall.com/mixing)

E-mail us at [allegro@pall.com](mailto:allegro@pall.com)

### International Offices

Pall Corporation has offices and plants throughout the world in locations such as: Argentina, Australia, Austria, Belgium, Brazil, Canada, China, France, Germany, India, Indonesia, Ireland, Italy, Japan, Korea, Malaysia, Mexico, the Netherlands, New Zealand, Norway, Poland, Puerto Rico, Russia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, the United Kingdom, the United States, and Venezuela. Distributors in all major industrial areas of the world. To locate the Pall office or distributor nearest you, visit [www.pall.com/contact](http://www.pall.com/contact).

The information provided in this literature was reviewed for accuracy at the time of publication. Product data may be subject to change without notice. For current information consult your local Pall distributor or contact Pall directly.

© 2015, Pall Corporation. Pall, and LevMixer are trademarks of Pall Corporation. ® indicates a trademark registered in the USA and TM indicates a common law trademark. *Filtration.Separation.Solution.* is a service mark of Pall Corporation.