



## Application Note

USD 3047

# Dilution of an Acid Solution at the 1000 L Scale using a LevMixer® System

**Mixing system:** LevMixer system

**Mixing biocontainer:** 1000 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 1000 L of a dilute acid solution.

### Experimental

A 1000 L LevMixer system biocontainer with a 16.13 cm diameter, off-center, levitating impeller, was filled with 1000 L of water, and mixing speed was set to 175 rpm. In a single dose, 100 mL of 10% w/w hydrochloric acid (HCl) solution was added to the mixing biocontainer. Solution homogeneity was monitored via real-time pH readings taken at the top of the mixing biocontainer, opposite the acid addition location.

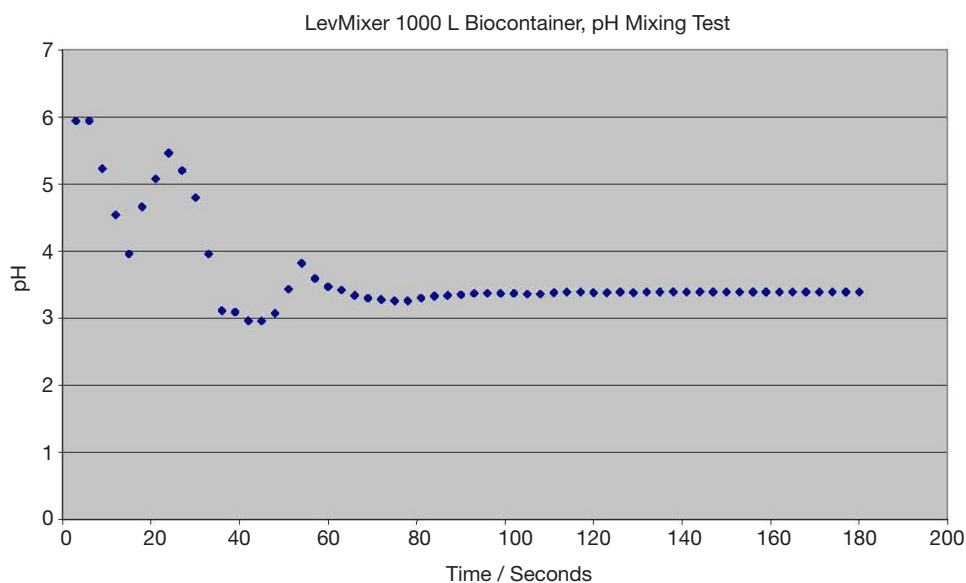


## Results

Figure 1 shows solution homogeneity in the biocontainer during mixing. It can be seen that mixing was complete within 90 seconds.

**Figure 1**

*Shows solution homogeneity in the biocontainer during mixing*



## Conclusions

The LevMixer system is well suited to performing rapid dilution of concentrated acid solutions. For this application, at the 1000 L scale, mixing is complete within 90 seconds.



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

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)

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