

## Dissolution of Sodium Bicarbonate Powder using a LevMixer™

Mixing system: Newmix®- Levtech® LevMixer™

Mixing bag: 200L 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 maximize mixing speed for powder-liquid applications, various impeller sizes and locations are available.

In this experiment, a LevMixer was used to prepare 200L of a buffer solution typically encountered in bioprocess facilities.



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### Experimental

A 200L LevMixer mixing bag, fitted with a large (6.35") centrally-mounted impeller, was filled with 200L of water, and mixing speed was set to 214rpm. Once a vortex had formed, 400g of sodium bicarbonate (NaHCO<sub>3</sub>) powder was added to the mixing bag, resulting in a 2g/L solution.

### Results

Powder dissolution was observed visually. After 3 minutes, all of the NaHCO<sub>3</sub> powder was seen to have dissolved.

### Conclusions

The Newmix-Levtech LevMixer system is well suited to preparation of buffer salt solutions such as sodium bicarbonate. A powder-liquid mixing bag, which includes a centrally-mounted, large, levitated impeller, is a good choice for such applications.

Mixing times in the sub-180 second range are typical at the tested volume and salt concentration.