

# Novozymes BioSpikes<sup>®</sup> 1000

Biological alternative to  
dredging pulp and paper lagoons



BioSpikes 1000 offer a new way to minimize settled sludge volume and reduce solids handling costs in pulp and paper wastewater lagoons. BioSpikes are made via a process that creates a dense spike that rapidly sinks to the bottom of a lagoon, even when applied at the water's surface. This makes dosing easy and ensures contact between the microorganisms and the sludge. It is also easily applied to problem build-up areas to eliminate short-circuiting.

## **BioSpikes 1000: Reduce dredging costs and improve system efficiency in wastewater lagoons**

BioSpikes sink to the bottom of the lagoon and release billions of microorganisms, powerful enzymes, and essential micronutrients directly into the sludge layer. This combination ensures rapid stimulation of biological activity and reduction of the sludge layer. This reduces the dredging frequency, increases hydraulic retention time, and improves overall lagoon performance.

### **The benefits of using BioSpikes 1000**

#### **Lower operating cost**

- Reduces dredging frequency
- Reduces volume of sludge to be dredged

#### **Improved plant efficiency**

- Improves hydraulic retention time
- Increases operating lagoon time
- Minimizes short-circuiting

#### **Simplified operations**

- Can be applied directly to hot spots
- Reduces sludge without interrupting treatment

Novozymes is the world leader in bioinnovation. Together with customers across a broad array of industries we create tomorrow's industrial biosolutions, improving our customers' business and the use of our planet's resources.

1

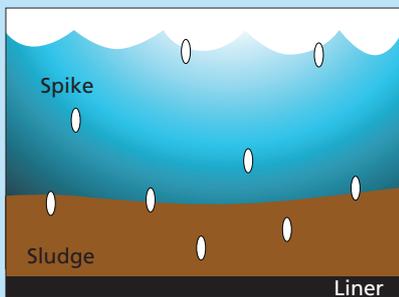


Fig. 1. Novozymes BioSpikes® are dropped at the water's surface and sink directly into the sludge layer

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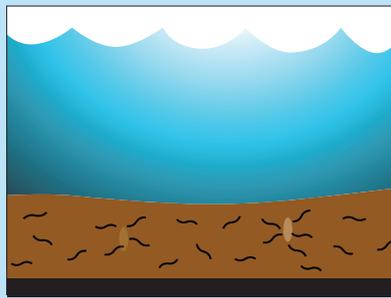


Fig. 2. Microorganisms permeate throughout the sludge layer.

3

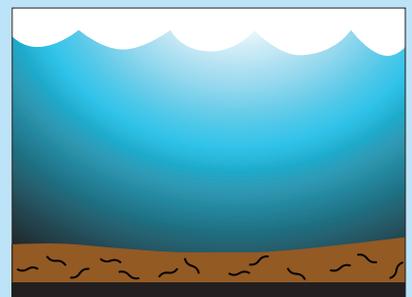


Fig. 3. Microorganisms, enzymes, and nutrients stimulate biological activity and reduce the sludge layer.

## Enhancing your business is our business

Team up with Novozymes for innovative biosolutions to reduce costs, improve water quality, and capitalize on renewable energy opportunities. Unique products, experience with beneficial microorganisms and enzymes, and our commitment to improve our business are just three reasons to choose Novozymes as your bioinnovation partner.

For more information please visit [www.novozymes.com](http://www.novozymes.com)

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