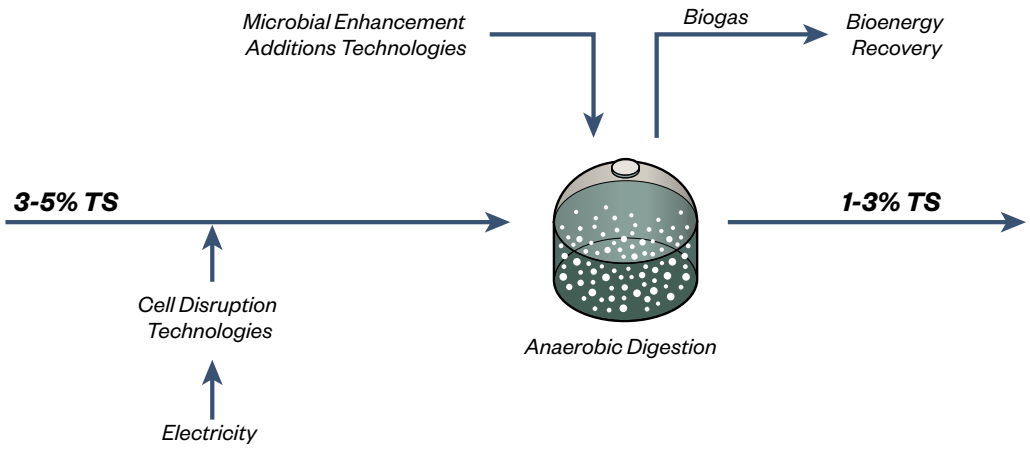
# Enhanced Stabilization Via Hydrolysis

Evaluating Innovative and Sustainable Treatment Options for Biosolids, WRF 5169

THE Water Research FOUNDATION




Unit Process: **Stabilization**

Technology: **Enhanced Stabilization Via Hydrolysis**

Manufacturers: **Novozymes, MicroPoP (EagleRidge Innovations)**

Installations: **Full Scale in Fond de la Pedra, Spain and Springville, Utah, USA**

## Key Features

| | |
|---|---|
| **Reduce Biosolids Quantity** | ✓ |
| **Improve End-Product Quality** | ✓ |
| **Enhance Energy Generation** | ✓ |
| **Reduce Greenhouse Gas Emissions** | ✓ |
| **Address Contaminants of Emerging Concern** | |

## Benefits Compared to Existing Stabilization Technologies

**The Process:** These processes are pre-treatment processes that rupture the microbial cell membranes in waste activated sludge and subsequently improve digester performance [1]. These processes can be grouped between physical, chemical, or biological hydrolysis processes. Biologically, technologies add enzymes to condition anaerobically digested sludge [2,3]. Physically, technologies can break the cell walls of the microbes of WAS by pretreating with a small amount of caustic and then pumping the microbes at extremely high pressure, shearing the microbes and releasing liquid content, improving performance [4]. This technology is broad, as cell breakdown can be induced by a variety of different methods. Major benefits of sludge breakdown prior to or in digesters is the increase of biogas production and improved dewaterability, reducing costs associated with dewatering, reduce the demand for flocculant consumption, and increase cake dryness. These technologies can lead to increased concentrations of phosphorus in the processed solids, that can be recovered and used as fertilizers.

**Energy Consumption:** 0-5 kWh/DT

**Solids Percentage:** 1-3% TS



## Data Sources


1. The Water Research Foundation. WRF TechLink [Internet]. The Water Research Foundation; 2022. Available from: https://wrftechlink.waterrf.org/
2. Manyuchi MM, Mbohwa C, Muzenda E, Masebinu S. Application of Hycura in Municipal Waste Digestion. In Bristol, UK; 2017.
3. Anaerobic Digesters Enhancement - Hycura [Internet]. [cited 2024 Mar 8]. Available from: https://hycura.com/pages/digesters
4. Eagleridge Innovates [Internet]. [cited 2024 Mar 8]. Micropop | British Columbia | Eagleridge Innovations Corporation. Available from: https://www.eagleridgeinnovation.com


March 24, 2024

Hazen | Bucknell University | SYLVIS