

# Neutralizer<sup>®</sup>



# Neutralizer®



The BCR Neutralizer® has become the most installed Class A/EQ (Exceptional Quality)\* onsite biosolids treatment system in the state of Florida for good reason: it is a simple, safe, PFRP-certified and cost-effective solution for wastewater treatment plants up to 12 MGD.



The Neutralizer® treats waste activated sludge using advanced oxidation technology in a two-stage patented chemical injection system.



In just eight hours, biosolids are converted into a treated, virtually odor-free, residual, which can be registered as a commercial fertilizer.

## Why choose Neutralizer®?

### The BCR Neutralizer® is the right choice when you want:

- Enhanced regulatory compliance – meeting Class A/EQ biosolids standards
- Reduced capital costs compared with traditional digestion systems
- Lower energy consumption and other operating costs
- Lower polymer usage
- Odor elimination
- Consistent product quality with higher nutrient retention
- Expanded disposal options including distribution as a commercial fertilizer

### Product Specifications:

- Each Neutralizer® unit can process up to 3,650 dry tons per year
- The entire Neutralizer® process uses approximately 10% of the energy expended by a single traditional digester, making it cost effective and reducing the carbon footprint of the plant. These improved operational efficiencies save both financial and natural resources.
- Chemicals used in the process are common in the food processing industry. They include:
  - sodium chlorite ( $\text{NaClO}_2$ )
  - sulfuric acid ( $\text{H}_2\text{SO}_4$ )
  - sodium nitrite ( $\text{NaNO}_2$ )
  - sodium hydroxide ( $\text{NaOH}$ )
  - ferric sulfate ( $\text{Fe}_2(\text{SO}_4)_3$ )
- BCR's real-time SCADA system provides improved operational efficiencies and compliance with monitoring capabilities.

## How does it work?:

The proven safe BCR Neutralizer® process completes biosolids treatment in just eight hours.

**Step One:** Sludge is fed into the receiving and polymer addition skid at a controlled rate. Ferric sulfate ( $\text{Fe}_2(\text{SO}_4)_3$ ) is added, bonding to the phosphorus in the residuals and creating iron phosphate. The sludge is thickened from 1–2% solids to 4% solids, then sent to the sludge hopper and fed to the processing tanks.

**Step Two:** Sludge is then injected with chlorine dioxide ( $\text{ClO}_2$ ), using BCR's patented on-site chlorine dioxide generating system, and retained in batch processing tanks for at least one hour.

**Step Three:** To lower the pH to an optimal level, sulfuric acid ( $\text{H}_2\text{SO}_4$ ) is pumped into the tanks, then sodium nitrate ( $\text{NaNO}_2$ ) is added and allowed six hours of contact time to ensure pathogen reduction and volatile solids reduction requirements are met. Once disinfected, the sludge pH is raised to meet the end user's needs, using sodium hydroxide ( $\text{NaOH}$ ).

**Step Four:** The Class A/EQ residuals are dewatered using standard technology such as a centrifuge, screw press or belt press. The dewatered residuals retain the iron phosphate, resulting in an extremely low P index (measurement of phosphorus leachability).

## Requirements:

**Footprint:** The Neutralizer process building is typically 20 x 35 meters. This will accommodate the process equipment, chemical storage, and batch process tanks.

**Energy source:** Electrical grid

**Reuse connection:** – 60 psi and  $\geq$  80 gpm

Neutralizer® Installations	State
Clay County Utility Authority	FL
City of Deltona	FL
Haines City	FL
Martin County	FL
City of Pembroke Pines	FL

\*Complies with Title 40 CFR Part 503



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