



Wastewater Application: Sludge Holding Tank Odor Control

Sludge Tank Odor Control Through Oxygenation

Removal of Hydrogen Sulfide from Sludge by Adding Trace Amounts of Pure Dissolved Oxygen

High levels of hydrogen sulfide (H_2S) exist in Primary and Waste Activated Sludge. This presents a problem in the sludge holding tanks and solids handling facilities, where the H_2S gas causes foul odors and equipment deterioration due to its highly corrosive properties.

Traditional treatment options include gas scrubbing and coarse bubble aeration. Collecting and scrubbing foul gasses from the sludge holding tank and sludge handling facility can eliminate odors but does not prevent corrosion, and is a costly option. Coarse bubble aeration achieves only 5% absorption of the oxygen diffused, resulting in stripping of the volatile, odorous H_2S compounds. In fact, for every 100 ft^3 of air bubbled through the sludge tank, only one cubic foot of oxygen is absorbed and 99 ft^3 of odorous off gas escapes to the air.

The ECO_2 sludge treatment alternative involves adding a small amount of high purity oxygen on a sidestream, using a Speece Cone. Although sludge has a very high oxygen demand, the reaction to oxidize H_2S has a much faster rate of oxygen demand than that of carbonaceous BOD. With the ECO_2 oxygenation process, the sludge is maintained under micro-aerophilic conditions (D.O. near zero) by supplementing dissolved oxygen (D.O.) at a rate less than the total uptake rate. In this environment, the biological conversion of H_2S stops at elemental sulfur rather than being oxidized all the way to sulfate, resulting in a low cost, low maintenance method of eliminating the odorous and corrosive H_2S compounds common to all wastewater sludge holding tanks and solids handling facilities.

Pure Oxygen Injection

Oxidizes Sulfide to Sulfur

95% Absorption Efficiency

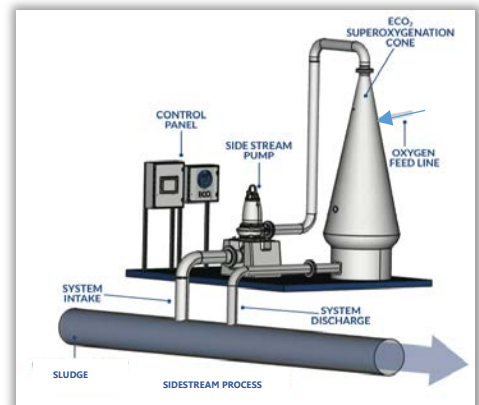
Reduces O&M Costs

Eliminates Odor & Corrosion

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ECO_2 Oxygenation Process