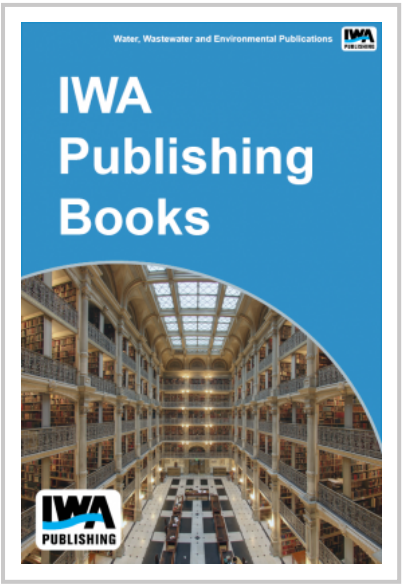
Effect of Aluminum and Iron on Odors, Digestion Efficiency, and Dewatering Properties



This study was designed to be a follow up of the WERF Phase III odor study (Biosolids Processing Modifications for Cake Odor Reductions, 03-CTS-9T) odor study. The Phase III study found that iron and aluminum appeared to play important roles in odor generation so some additional data was sought to determine the role these play in determining odor generation from dewatered biosolids. In this portion of the study, the impact of iron and aluminum in sludges on both digestion and odors was investigated. Three distinct locations for the iron and/or aluminum were studied. First, the impact of iron and aluminum in the raw sludges on digestion and odors was evaluated. Second, the impact of the addition of iron or aluminum for chemical phosphorus removal in the activated sludge process was studied. Third, the direct addition of iron to the feed to an anaerobic digester was evaluated. All studies were conducted in the lab using a variety of sludges collected from seven wastewater utilities. In addition to digestion and odors, data were collected for sludge dewatering properties as indicated by the polymer conditioning dose requirements and dewatered cake solids.

- Provides a determination that iron may play a role in determining odors from dewatered and anaerobically digested sludge cakes.
- Demonstrates that iron addition to the feed to a digester is an important tool for the reduction of volatile organic sulfur compounds from dewatered sludge cakes.
- Demonstrates that iron addition to the digester feed will also reduce polymer conditioning requirements and increase dewatered cake solids.
- Demonstrates that iron is preferred over aluminum for phosphorus removal based on volatile solids reduction in the digester, cakes solids and odor generation.

Publication Date: 10/03/2010
ISBN13: 9781843392835
eISBN: 9781780403557
Pages: 60

Print:
Standard price: £29 / €36 / $44
Member price: £22 / €27 / $33

eBook:
Standard price: £29 / €38 / $50
Member price: £22 / €29 / $38