

STATE-OF-THE-ART, LIMITATIONS, AND DIFFICULTIES IN ANAEROBIC SEWAGE TREATMENT

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ABSTRACT

Since its debut in the mid-1980s, interest in high-rate anaerobic (pre-) treatment of sewage utilizing UASB reactors has gradually grown. Hundreds of full-scale plants are already in operation across the tropical globe, particularly in Latin America and India. The primary benefit of UASB technology is that it uses very little or no energy, resulting in a tenfold reduction in operating expenses when compared to activated sludge. This article provides a literature review with an emphasis on current design criteria and post-treatment alternatives, as well as a comparison of centralized versus decentralized approaches. Temperature, nutrients, pathogen elimination, smell annoyance, operational constrictions, and methane emissions are among the existing limits and restrictions given and addressed. Recent difficulties in energy recovery from biogas, sludge, and scum are also addressed, as well as advancements in dissolved methane recovery and sludge management. Finally, the study offers some predictions regarding future events.

KEYWORDS: *Anaerobic Digestion, Anaerobic Sewage Treatment, Biogas, Domestic Sewage, Wastewater*

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