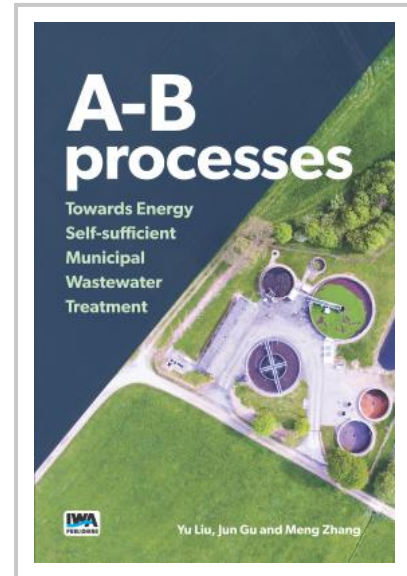


A-B processes: Towards Energy Self-sufficient Municipal Wastewater Treatment

The principle of the conventional activated sludge (CAS) for municipal wastewater treatment is primarily based on biological oxidation by which organic matters are converted to biomass and carbon dioxide. After more than 100 years' successful application, the CAS process is receiving increasing critiques on its high energy consumption and excessive sludge generation. Currently, almost all municipal wastewater treatment plants with the CAS as a core process are being operated in an energy-negative fashion. To tackle such challenging situations, there is a need to re-examine the present wastewater treatment philosophy by developing and adopting novel process configurations and emerging technologies. The solutions going forward should rely on the ways to improve direct energy recovery from wastewater, while minimizing in-plant energy consumption.

This book begins with a critical overview of the energy situation and challenges in current municipal wastewater treatment plants, showing the necessity of the paradigm shift from removal to recovery in terms of energy and resource. As such, the concept of A-B process is discussed in detail in the book. It appears that various A-B process configurations are able to provide possible engineering solutions in which A-stage is primarily designed for COD capture with the aim for direct anaerobic treatment without producing excessive biosludge, while B-stage is designated for nitrogen removal. Making the wastewater treatment energy self-sustainable is obviously of global significance and eventually may become a game changer for the global market of the municipal wastewater reclamation technology.

The principal audiences include practitioners, professionals, university researchers, undergraduate and post-graduate students who are interested and specialized in municipal wastewater treatment and process design, environmental engineering, and environmental biotechnology.



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