

Preface

The application of anaerobic technology in pulp and paper industry is gaining acceptance as a cost-effective treatment alternative. Compared to conventional aerobic methods, the anaerobic wastewater treatment concept offers a number of important benefits. These include lower energy requirements and operating costs as well as production of a useful energy by-product in the form of methane gas. Additionally, anaerobic treatment systems reduce considerably the volume of excess sludge produced due to the low cell yields of anaerobic bacteria. The low excess sludge production makes anaerobic treatment methods particularly attractive since waste sludge disposal is becoming a major problem for aerobic treatment systems. The low nutrient requirements of anaerobic bacteria is also an advantage in the treatment of nutrient deficient wastewaters such as those from pulp and paper mills. Furthermore, anaerobic treatment methods can potentially be combined with post-treatment methods by which valuable products like ammonia or sulphur can be recovered.

Anaerobic treatment of pulp and paper wastewater is now applied in several pilot and full-scale plants as alternative to aerobic treatment. Development of the various high-rate anaerobic processes and much more concentrated pulp mill effluents (due to extensive water recycling) make the economic benefit from anaerobic treatment more significant which in turn increases the interest in the use of this technology. This e-book presents the state-of-the-art report on treatment of pulp and paper industry effluents with anaerobic technology. Coverage ranges from basic reasons for anaerobic treatment, comparison between anaerobic and aerobic treatment, effluent types suitable for anaerobic treatment, design considerations for anaerobic treatment, anaerobic reactor configurations applied for treatment of pulp and paper industry effluents, present status of anaerobic treatment in pulp and paper industry, economic aspects, examples of full-scale installations and future trends.

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