Performance of an autotrophic nitrogen removing reactor: Diagnosis through fuzzy logic

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Autotrophic nitrogen removal through nitritation-anammox in one stage SBRs is an energy and cost efficient alternative to conventional treatment methods. Intensification of an already complex biological system challenges our ability to observe, understand, diagnose, and control the system. A fuzzy logic diagnosis tool was developed, utilizing stoichiometric and concentration ratio measurements and removal efficiencies, along with rules derived from process knowledge. The tool could accurately determine the overall performance of the system and can therefore serve as a powerful tool to provide input for future control applications.

General information
State: Published
Organisations: Computer Aided Process Engineering Center, Department of Chemical and Biochemical Engineering, Center for Process Engineering and Technology, Department of Environmental Engineering, Residual Resource Engineering
Number of pages: 5
Publication date: 2013
Peer-reviewed: Yes
Event: Abstract from 11th IWA conference on instrumentation control and automation, Narbonne, France.
Keywords: Fuzzy logic, System diagnosis, Biological wastewater treatment, Nitrogen conversion
Source: dtu
Source-ID: u::9024
Research output: Research - peer-review › Conference abstract for conference – Annual report year: 2013