

통계적 프로파일 모니터링을 이용한
MBR공정의 막 세척 주기 진단

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MBR (Membrane bioreactor) combined with conventional biological process with physical membrane process has been widely used. But MBR has a disadvantage as fouling which increases operating cost. Therefore, accurate cleaning interval should be detected for efficient and economic MBR operating. This study used TMP (Trans-Membrane Pressure) values of lab-scale MBR process and pilot-scale MBR process. TMP values are converted to TMP/λ by power transform for normality. Then, linear regression model is computed from transformed TMP values according to time. Betas of linear regression model intercept, slope and variance are used for cleaning interval detection by statistical profile monitoring which uses Shewhart control chart. Detected cleaning interval which is out control of Shewhart control chart is corresponded to real MBR process cleaning time. Therefore, this study suggested accurate cleaning interval detection method which is statistical profile monitoring for efficient and economic operating of MBR process.

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