

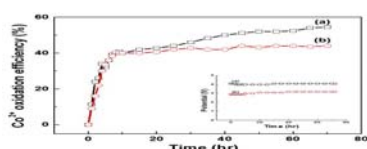
Evaluation of a divided tubular electrochemical reactor with MFI-type zeolite membrane through Co^{3+} homogeneous mediator generation

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Mediator generation by plate and frame divided electrochemical reactor is common in environmental pollution reduction, but robustness and high volumetric conversion performance of tubular electrochemical reactor is limited to plate and frame reactor. In the present investigation, a tubular MFI-type zeolite coated membrane was tested in a plug flow type tubular electrochemical cell for Co^{2+} oxidation efficiency in high acid medium. As shown in below figure, 57% of Co^{2+} oxidation was achieved in 72 h, which is 15% higher than the commonly used Nafion324 membrane in planar arrangement. Additional conditions such as different temperatures (10, 30 and 50°C), current density were performed.



Key words: Zeolite membrane, ceramic membrane, tubular membrane, tubular electrochemical cell