

**Proton exchange membranes prepared by radiation-induced graft copolymerization  
from binary monomer mixtures**

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To synthesize proton exchange membrane graft copolymerization of sodium styrenesulfonate and acrylic acid monomers onto poly(tetrafluoroethylene-co-hexafluoropropylene) film has been carried out from binary monomer mixtures by applying electron beam pre-irradiation method in air. The influence of co-monomer composition, absorbed dose, Mohr's salt additive on monomer mixture grafting process has been investigated. The kinetics of the grafting process at 50 and 70oC has been studied, and the Fourier transform infrared spectra of the appropriate samples have been analyzed. Total ion-exchange capacity and sulfonate group density were evaluated to vary within 1.0-1.55 and 0.7-0.9 mEq/g, correspondingly for synthesized membranes with a medium grafting degree (90-130 %). Few proton exchange membranes have been tested with respect to the methanol fuel cell performance.