

## Hydrogen Production from Ethanol Steam Reforming in a Membrane Reactor with Catalytic Membranes

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An ethanol reforming membrane reactor (ERMR) with catalytic Knudsen membranes was investigated to achieve the improvement of ethanol conversion and hydrogen yield. The prepared catalytic membranes have high permeabilities and reaction activities for the water-gas shift (WGS) reaction. The ethanol reforming-membrane reactor showed ethanol conversion improvement of 7.4 ~ 14.4 % in comparison with a conventional reactor (CR). Hydrogen yield improvement of 4.2 ~ 10.5 % was also observed in ERMR with catalytic membranes in whole reaction temperature range. In addition, CO concentration was considerably reduced via water-gas shift reaction during the permeation.