

Hydrogen Production from Ethanol Steam Reforming at Low Temperature

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Supported Rh catalysts have been prepared to produce H₂ at low temperatures. Ethanol dehydration is favorable over either acidic or basic supports, while ethanol dehydrogenation is more favorable over neutral supports. Rh/CeO₂-ZrO₂ catalysts were found to be especially effective for hydrogen production. A 2%Rh/Ce_{0.8}Zr_{0.2}O₂ catalyst exhibited the highest H₂ yield among various supported Rh catalysts. This is possibly due to both the strong interaction between Rh and Ce_{0.8}Zr_{0.2}O₂ and the high oxygen transfer rate preventing formation of carbonaceous materials.