

# Steam reforming of shale gas over Al<sub>2</sub>O<sub>3</sub> supported Ni-Cu nano-catalysts

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Abstract:

Hydrogen is a clean energy carrier that does not exist in nature in its pure form and should be acquired from other fossil fuels and organic materials. In this article, an experimental study was done to evaluate the potential of steam reforming of shale gas over Al<sub>2</sub>O<sub>3</sub> supported Ni-Cu nano-catalysts for hydrogen production. By increasing reaction temperature, the shale gas conversion continuously increased. The introduction of additional steam to reactor had a positive impact on hydrogen yield, but its impact was not as significant as reaction temperature. As a result, the catalytic activity of Ni-Cu/Al<sub>2</sub>O<sub>3</sub> prepared by impregnation was higher than the Ni-Cu/Al<sub>2</sub>O<sub>3</sub> prepared by co-precipitation method.