

Natural Gas Reforming over Heat-Transfer Enhanced Metal Structured Catalyst

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Steam reforming of natural gas (NG) has been conducted over heat-transfer enhanced metal structured catalysts. 2%Ru/Al₂O₃ catalyst having high intrinsic activity has been loaded on FeCrAlloy substrates. The prepared metal structured catalyst has been employed for steam reforming of NG to increase effectiveness factor through efficient heat-transfer. Comparing with pellet catalyst (2%Ru/Al₂O₃), metal structured catalyst exhibits higher catalytic performance. Even though catalyst loading amount is 2.4g on the metal structured catalyst, CH₄ conversion is higher than that over pellet catalyst of which catalyst weight is 6.9g at the same furnace temperature (T > 700°C) and GHSV. This is mainly due to enhanced heat-transfer via metal structured catalyst.