

Ru doped  $\text{Sr}_{0.92}\text{Y}_{0.08}\text{TiO}_3$  catalyst for methane dry reforming

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$\text{Sr}_{0.92}\text{Y}_{0.08}\text{Ti}_{0.98}\text{Ru}_{0.02}\text{O}_3-\delta$ (SYTRu) catalyst and Ru loaded  $\text{Sr}_{0.92}\text{Y}_{0.08}\text{TiO}_3-\delta$  (Ru/SYT) were synthesized by pechiniand impregnation methods for catalytic methane dry reforming, respectively, which catalysts contain the same amount of ruthenium. Catalytic activity tests for dry reforming showed ruthenium metal species(Ru/SYT) are easily deactivated under 850 oC. However, ruthenium species inserted in SYT(SYTRu) presented a very stability and promoted catalytic activity under 900 to 750 oC. Substituted ruthenium was incorporated uniformly in SYT lattice, which decreased the oxygen formation energy and led the high activity of lattice oxygen. The results demonstrate that rearranged SYT with trace ruthenium performed better in dry reforming compared to Ru/SYT which is heterogeneous type.