

### Preparation of perovskite-based catalysts for decreasing carbon deposition in diesel reforming

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Autothermal reforming(ATR) processes of hydrocarbon liquids such as diesel fuels are spotlighted as methods to produce hydrogen for Fuel cell. However, the use of heavy hydrocarbons as feedstocks for hydrogen production causes some problems which increase the catalyst deactivation by the carbon deposition. Coking can be inhibited by increasing the water dissociation on the catalyst surface. This results in catastrophic failure of whole system. Performance degradation of diesel autothermal reforming leads to increase of undesirable hydrocarbons at reformed gases and subsequently decrease the performance.

In this study, perovskites-based catalysts were investigated as alternatives to substitute the noble metal catalyst for the ATR of diesel. The investigated perovskite structure was based on  $\text{LaCrO}_3$ . And metals were added at the A-site to enhance oxygen ion mobility, transition metals were doped on the B-site to enhance the reformation. Substituted Lanthanum chromium perovskites were made by aqueous combustion synthesis, which can produce high surface area conveniently.