

The study on catalytic performance of
 $\text{La}_{1-x}\text{Sr}_x\text{Cr}_{1-y}\text{Mn}_y\text{O}_{3-\delta}$ catalyst in propane
steam reforming

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Propane is the main component of liquefied petroleum gas (LPG) which has a high potential as hydrogen carrier in the power generation range from a few hundreds of Watts to several Kilowatts due to its easy storage and existing infrastructure and low cost. Several processing routes exist for propane reforming such as partial oxidation, steam reforming and autothermal reforming. One of the reforming processes, the endothermic steam reforming has higher hydrogen content than other reforming routes where oxygen (air) is needed to run the process.

The perovskite oxide which is well known for ABO_3 structure has a several advantage such as stable at high temperature (1000 °C) and across the wide P_{O_2} ranges ($1\sim 10^{-29}$ bars). In this study, a novel catalyst $\text{La}_{1-x}\text{Sr}_x\text{Cr}_{1-y}\text{Mn}_y\text{O}_{3-\delta}$ for propane steam reforming has been tested and its structures were characterized. Catalytic activities and characteristics were performed by G.C, XRD, SEM, BET, H_2 -TPR. The electrical conductivity was measured by four-terminal D.C method in air, H_2 , C_3H_8 atmosphere in order to investigate the possibility for SOFCs electrode.