

Characteristics of  $\text{Sr}_{0.92}\text{Y}_{0.08}\text{Ti}_{0.88}\text{V}_{0.12}\text{Ni}_{0.10}\text{O}_{3-\delta}$  perovskite catalysts as Solid Oxide Fuel cell anode for methane dry reforming

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$\text{Sr}_{0.92}\text{Y}_{0.08}\text{Ti}_{0.88}\text{V}_{0.12}\text{Ni}_{0.10}\text{O}_{3-\delta}$  (SYTVN) with perovskite structure was studied as an alternative anode material for utilizing internal dry reforming of  $\text{CH}_4$  (IDRM). The SYTVN exhibited excellent characteristics as IDRM catalysts. 10 mol.% of Ni was non-stoichiometrically doped in SYTV ( $\text{Sr}_{0.92}\text{Y}_{0.08}\text{Ti}_{0.88}\text{V}_{0.12}\text{O}_{3-\delta}$ ) phase to improve the IDRM catalytic performance. The exsolution of bulk Ni phase was confirmed by XRD analysis. In  $\text{H}_2$ -TPR, the reduction peak showed at 400 °C and confirmed the metal Ni phase. The  $\text{CH}_4$  conversion of the SYTVN showed 100% in comparison to SYTV which showed 80%. The  $\text{H}_2$  selectivity was similar property with Ni/YSZ. Moreover, the carbon formation was 0.886 % in SYTVN and 14.71 % in Ni/YSZ sample. The electrochemical properties were also investigated in impedance analysis, and IV-characteristics, to feasibility as SOFC (Solid Oxide Fuel cell) anode.