

Hydrogen and Carbon Production by Catalytic Decomposition of Methane

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Hydrogen has emerged as a promising energy source because of its high efficiency and applicability of various industrial fields in coming future. In addition, hydrogen has been considered as one of the most environmentally friendly energy sources since there is almost no CO₂ emission during its usage. Presently, hydrogen has been producing via steam reforming and partial oxidation, which emitted CO₂ simultaneously. This work focuses on the catalytic decomposition of methane into hydrogen and carbon black without emitting carbon dioxide. Methane decomposition was carried out over zeolite-supported metal catalyst under various conditions and investigated which factors affect the catalytic activities. And also carbon formed during the reaction was characterized using various analytical tools.