عنوان مقاله:
Natural Gas Decomposition to Hydrogen and Black Carbon in a Plasma Reactor

محل انتشار:
ثمان‌میلی‌متری‌های سیمی ایران (سال: 1397)

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خلاصه مقاله:
Natural gas decomposition is carried out in a plasma reactor in order to produce hydrogen and solid carbon. Implementation of a parallel set of helix and rod-like electrodes leads to 3-dimensional movement of plasma zone in the axial and angular directions as well as arc elongation. The effect of arc elongation and movement is investigated on the reactor performance in terms of natural gas conversion, hydrogen production rate, hydrogen selectivity and energy efficiency. Hydrogen production rate of 130 ml/min with an energy efficiency of 51% was achieved at stable operation. Solid carbon deposited with average particle size of 4 nm.

کلمات کلیدی:
Natural gas decomposition, Hydrogen, Plasma reactor, Arc elongation

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