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Direct Plasma Chemical Conversion of Methane to Methanol (a review)

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Interest in the one-stage conversion of methane, which makes up the majority of natural gas, has been maintained for many years and decades. One of the actively developing areas is the plasma-chemical conversion of methane to methanol. During this time, various laboratory designs of reactors were invented, mainly of a barrier discharge type, the influence of temperature, pressure, flow rates, energy input and other parameters in the reactor on the process efficiency, expressed in the degree of methane conversion, methanol selectivity, methanol yield and specific energy input per unit, was studied. useful product. This review presents the main results obtained by authors around the world over the past 30 years in both experimental and numerical studies of the process of obtaining methanol from methane in one-stage processes.

Keywords: methane conversion, methanol, plasma-chemical conversion, chemical kinetics, modeling, barrier discharge, electron beam.

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