عنوان مقاله:

Oxidative Coupling of Methane by High-Frequency Pulse Plasma

محل انتشار:

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خلاصه مقاله:

In this study, oxidative coupling of methane(OCM)in pulse corona plasma reactor at atmospheric pressure and room temperature is investigated. Pulsed corona discharge is generated between 10 point, one plate electrode in a quartz tube. The effect of five parameters including molar ratio ofCH4/O2, feed flow rate, input voltage, gap distance and pulse frequency on methane conversion and C2 product selectivity and yield were also investigated. A statistical method of experimental design, Taguchi method, was applied to optimize process conditions. From the results of fourlevel Taguchi method(L16 array), we can conclude that maximum conversion and yield of C2product as 35.4% and 23.64% respectively was obtained at low level of CH4/O2 =4:1, flowrate=100ml/min, gap distance=7mm, high level voltage=18kv and pulse frequency=5000Hz. Maximum selectivity of C2 product was also obtained at highest acceptable level of this five parameters.

کلمات کلیدی:

Oxidative coupling of methane, Pulse corona plasma, Methane conversion,Selectivity, Yield of C2 product, Taguchi method