

عنوان مقاله:

Study of Hexamethylenetetramine on Polymer Gels Used in Water Shutoff Treatment by Central Composite Design

محل انتشار:

هفتمین کنگره ملی مهندسی شیمی (سال: 1390)

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خلاصه مقاله:

Among the methods available to reduce water production, injecting a gelling system composed of a polymer and a crosslinker has been widely used. In this work, a hydrogel was prepared by crosslinking of an aqueous solution containing hexamethylenetetramine as crosslinker, hydrochloric acid (HCl) as an activator and the co-polymer of 2-acrylamido-2methyl-propanesulfonic-acid sodium salt (AMPS) and acrylamide (PAMPS). In order to indicate the effective factors on the gelation time and also to develop the quadratic mathematical models, central composite design (CCD) was applied. Therefore, the main purpose was to establish functional relationship between the three factors (polymer concentration, hexamethylenetetramine and hydrochloric acid) and a response (gelation time) by using a statistical technique. The results of analysis of variance (ANOVA) of the developed model illustrated that the fitted model was significant in 99% confidence limit. The results showed that hydrochloric acid was identified as the main effect factor on the gelation time and there was also an interaction between hexamethylenetetramine and hydrochloric acid.

کلمات کلیدی:

gelation time, hexamethylenetetramine, central composite design

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