

## عنوان مقاله:

Application of microreactors for free radical polymerization of acrylate monomers

## محل انتشار:

دهمین سمینار بین المللی علوم و تکنولوژی پلیمر (سال: 1391)

تعداد صفحات اصل مقاله: 2

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## خلاصه مقاله:

Recently chemical processes by using microfluidic systems like microreactors, have gained a lot of interest, due to their advantages like excellent heat transfer, effective mass transfer, fast mixing, and precise control of residence time [1]. Microreactors have been used in different polymerization reactions such as free radical polymerization, controlled radical polymerization, ionic polymerization and photopolymerization [2]. Among these, free radical polymerization has the most industrial application, however fast kinetics and high heat of reaction make it difficult to be controlled. In bulk and solution free radical polymerization, viscosity increase leads to difficult heat transfer and hot spots formation, so an appropriate control over molecular weight and its distribution would not be achieved. In such cases, usage of microreactors by virtue of fast heat transfer, may lead to enhanced control of the reaction. Iwasaki and Yoshida [3] with application of tubular microreactor have achieved significant improve in control of molecular weight distribution in free radical polymerization of highly exothermic acrylate monomers, in comparison to conventional batch reactors. In this study, free radical polymerization of n-butyl acrylate and methyl methacrylate is conducted in a microreactor system and compared to batch macroreactor.

## کلمات کلیدی:

لینک ثابت مقاله در پایگاه سیویلیکا:

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