**عنوان مقاله:**

Evaluation of Reactor volume for a certain conversion in styrene monomer production And assessing the influence of the catalyst effectiveness factor

**محل انتشار:**

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

تعداد صفحات اصل مقاله: 1

**نویسندگان:**

Y Malekzadeh - *Petrochemical Synthesis Group/ Iran Polymer and Petrochemical Institute (IPPI), Tehran, Iran*

M.E Zeynali - *Petrochemical Synthesis Group/ Iran Polymer and Petrochemical Institute (IPPI), Tehran, Iran*

A.S Pirayeshfar - *Petrochemical Synthesis Group/ Iran Polymer and Petrochemical Institute (IPPI), Tehran, Iran*

**خلاصه مقاله:**

Despite of many problems such as having accurate control on reactor and decreasing the energy assumption during increase of rate of production nowadays, high amount of styrenemonomer is produced in petrochemical plants. Noting that, the principle method to produce styrene is dehydrogenation ofethyl-benzene in the presence of catalyst that basically composed of potassium ferrite with porous structure. The reactor volume is affected by catalyst characteristics such aspore size distribution, so in this paper, we have determined the reactor volume as a function of the catalyst pore size. For thispurpose, the diffusion coefficient of each of substances which participate in the reaction, specially ethyl-benzene, styrene andhydrogen as main reactants and products was calculated. Then, the effectiveness factor of catalyst for various pore size distributions such as unimodal and bimodal was calculated byorthogonal collocation technique. The effectiveness factor of catalyst presents the effects of diffusion processes on theoverall reaction rate. At lower effectiveness factor the required volume for the reactor to obtain certain degree of conversion will be high.

**کلمات کلیدی:**

**لینک ثابت مقاله در پایگاه سیویلیکا:**

https://civilica.com/doc/579756