

## عنوان مقاله:

OPTIMAL FIXED BED REACTOR NETWORK CONFIGURATION FOR THE EFFICIENT RECYCLING OF CO<sub>2</sub> INTO METHANOL

## محل انتشار:

دوازدهمین کنگره ملی مهندسی شیمی ایران (سال: 1387)

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## خلاصه مقاله:

An optimal design strategy of a network of fixed bed reactors for Methanol Production (MP) is proposed in this study. Both methanol production and profit spanning on eight years production period have been set as objective functions to find the optimal production network. The conservation of mass and energy laws on a heterogeneous model of a single industrial methanol reactor was first developed. The model was solved numerically and was validated with industrial plant data. Different reactor network arrangements were then simulated in order to find an optimal super structure. It was found that a structure of four reactors (two in series in parallel with another two in series) provide maximum production rate. The application of the more realistic objective function of profit spanning on eight years of operation showed that a configuration of two parallel reactors is the best configuration. This optimal structure produces 92 tons/day methanol more methanol than a single reactor. This is equivalent to 10611,280 USD/year.

## کلمات کلیدی:

methanol reactor, reactor configuration, optimal design, carbon dioxide

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/57875>

