

## عنوان مقاله:

Enhancement of Methanol Production in a Single-Type Reactor with CO Injection

## محل انتشار:

ششمین کنگره بین المللی مهندسی شیمی (سال: 1388)

تعداد صفحات اصل مقاله: 7

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## خلاصه مقاله:

Dynamic simulation of a single-type industrial methanol reactor with CO-rich feed that supplied from the reactor output, has been studied in the presence of long term catalyst deactivation. In this work, the one-dimensional heterogeneous dynamic model has been considered. A single-type methanol reactor is basically a vertical shell and tube heat exchanger. The catalyst is packed in vertical tubes and surrounded by the boiling water. The methanol synthesis reactions are carried out over commercial CuO/ZnO/Al<sub>2</sub>O<sub>3</sub> catalyst. The heat of exothermic reactions is transferred to the boiling water and steam is produced. We investigated the performance of reactor with CO injection to feed entrance and compared productm and reactant mole fraction profiles of aforesaid reactor with that of conventional single type (CMR) and membrane methanol reactor (MMR). The simulation results represent 14.24% and 22.93% enhancement in the yield of methanol production in comparison with MMR and CMR, respectively while 5% CO was injected into the 95% of feed. On the other hand, CO is an important cause of pollution and a hazardous material in many industrial processes which must be removed and this method is a suitable method for this case.

## کلمات کلیدی:

Dynamic simulation, single-type reactor, methanol production, CO injection

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/77485>

