

عنوان مقاله:

Intensification of Liquid Fuel Production Using Nano Fe Catalyst in GTL Process

محل انتشار:

مجله تکنولوژی گاز، دوره 5، شماره 1 (سال: 1399)

تعداد صفحات اصل مقاله: 11

نویسندگان:

Mohammad Irani - GAS Doctor of Engineering, Research Institute of Petroleum Industry (RIPI), Tehran, Iran

Asghar Alizadehdakhel - Rasht Branch, Islamic Azad, Rasht, Iran

Yahya Zamani - Research Institute of Petroleum Industry (RIPI), Tehran, Iran

خلاصه مقاله:

An experimental and computational fluid dynamic (CFD) investigation was carried out to intensify the production of gasoline in a bench-scale Fischer –Tropsch Synthesis (FTS) process. A cylindrical reactor with one preheating and one reaction zone was employed. The reactor temperature was controlled using a heat jacket around the reactor's wall and dilution of the catalyst in the entrance of the reaction zone. An axi-symmetric CFD model was developed and the non-ideality of the gas mixture was considered using Peng-Robinson equation of state. A kinetic model based on ۲۵ chemical species and ۲۳ reactions was utilized. The model validated against experimental measurements and the validated model employed to investigate the effects of operating conditions on the performance of the reactor. The optimum values of operating conditions including pressure, reactor temperature, GHSV and H₂/CO ratio were determined for maximum reactor performance.

کلمات کلیدی:

Fischer–Tropsch Synthesis, GTL, Fixed bed reactor, Nano Fe Catalyst, CFD

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1823916>

