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Modeling of Oligomerization of Ethylene in a Falling film Reactor for the Production of Linear Alpha Olefins

Authors : Adil A. Mohammed, Seif-Eddeen K. Fateen, Tamer S. Ahmed, Tarek M. Moustafa

Abstract : Falling film were widely used for gas-liquid absorption and reaction process. Modeling of falling film for oligomerization of ethylene reaction to linear alpha olefins is developed. Although there are many researchers discuss modeling of falling film in many processes, there has been no publish study the simulation of falling film for the oligomerization of ethylene reaction to produce linear alpha olefins. The Comsol multiphysics software was used to simulate the mass transfer with chemical reaction in falling film absorption process. The effect of concentration profile absorption of the products through falling thickness is discussed. The effect of catalyst concentration, catalyst/co-catalyst ratio, and temperature is also studied. For the effect of the temperature, as it increase the concentration of C4 increase. For catalyst concentration and catalyst/co-catalyst ratio as they increases the concentration of C4 increases, till it reached almost constant value.

Keywords : falling film, oligomerization, comsol mutiphysics, linear alpha olefins
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