

عنوان مقاله:

Simulation of ethylene dichloride thermal cracking process for vinyl chloride monomer production : evaluation of the effect of operating conditions

محل انتشار:

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خلاصه مقاله:

Ethylene dichloride (EDC) thermal cracking process is critical in producing vinyl chloride monomer (VCM). This study simulated the EDC thermal cracking process using Aspen Plus software. This simulation includes a stoichiometric reactor, quench unit, and two Rad-frac columns for separation and purification. The effect of some operating parameters on the output VCM molar flow (Feed molar flow = 111 kmol/h) was investigated. The simulation results showed interesting observations about the influence of different operational parameters on VCM production. The observed behaviors were analyzed considering pressure, reflux ratio and the number of stages in the columns. It was observed that the increase in the number of column trays and the reflux ratio can increase the output VCM flow by about 15 kmol/h, while the pressure increase had a negligible effect. Overall, this simulation-based study investigates the influence of operational variables in the thermal cracking process of EDC to produce VCM. These findings contribute to a better understanding of the process and provide valuable insights for process optimization, plant design and decision-making in the chemical industry

کلمات کلیدی:

Ethylene dichloride, Thermal cracking, Vinyl chloride monomer, Process simulation

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