

عنوان مقاله:

Prediction of effluent products temperature from mixed reactors of methane chlorination

محل انتشار:

دهمین کنگره ملی مهندسی شیمی ایران (سال: 1384)

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خلاصه مقاله:

Methane can adiabatically react in a mixed reactor . Reactor feed temperature is 25 C o and the residence time is enough for the existing chlorine in the feed to be changed into chlorinated products . In the calculations , the assumption was that the gaseous mixture was ideal and all reactions were irreversible. We used from heat of formation data to calculate heat of reactions per each mole of chlorine while reactioning in 25 C o . We assumed that the reactor volume was proper for the chlorine to be consumed in the reaction . Our main intention was to determine following parameters in the calculations : rate equations , stoichiometric correlations and energy balance equation . An average heat capacity for feed components of 4 CH and 2 Cl was used in the calculations . We used the linear interpolation method in which T performs as an independent variable . Then a modified T was obtained via the linear interpolation on the temperature function of heat capacity . In the first guess , the calculations were based on 100 moles of the feed . The same procedure was used for the second estimation . At last we considered the third guess in order to calculate the output temperature and the final results were obtained

کلمات کلیدی:

Chlorination of methane ; Mixed & adiabatic reactors ; Chlorinated products ; Heat of formation ; Rate equations ; Stoichiometric correlations ; Energy balance equation ; Specific heat

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