

عنوان مقاله:

Modeling of Heat Transfer and Fluid Flow Characteristics of Helicoidal Double-Pipe Heat Exchangers Using CFD Simulation

محل انتشار:

هفتمین کنگره ملی مهندسی شیمی (سال: 1390)

تعداد صفحات اصل مقاله: 9

نویسندگان:

e Gandomkar - Department of Chemical Engineering, Isfahan University of Technology, ۸۴۱۵۶۸۳۱۱۱, Isfahan, Iran

m Aliakbari - Department of Chemical Engineering, Isfahan University of Technology, ۸۴۱۵۶۸۳۱۱۱, Isfahan, Iran

m Haghshenas Fard - Department of Chemical Engineering, Isfahan University of Technology, ۸۴۱۵۶۸۳۱۱۱, Isfahan, Iran

خلاصه مقاله:

Computational Fluid Dynamic (CFD) technique has been used for investigation of heat transfer and fluid flow in a helicoidal double pipe heat exchanger. Overall heat transfer coefficient (U_o) and pressure drop (ΔP) are modeled with respect to the variation of dean number (De), Prandtl number (Pr) and pitch of coil (B) which are defined as input (design) variables. The CFD predictions are compared to the experimental data and ANFIS network data. Then, we divided these data into train and test sections in order to accomplish modeling. The CFD simulations were in agreement with the experimental data. The agreement with the experimental of overall heat transfer coefficient value was well within 20%.

کلمات کلیدی:

helicoidal double-pipe, CFD simulation, Modeling, overall heat transfer coefficient

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/341051>

