عنوان مقاله:

(Estimate of Thermal Conductivity Coefficient for CFCs by use of cubic equations(TKP Model

محل انتشار:

سومین کنفرانس دوسالانه نفت، گاز و پتروشیمی خلیج فارس (سال: 1399)

تعداد صفحات اصل مقاله: 18

نویسندگان:

Najmeh Dehnavi - *Department of Chemical Engineering, Quchan University of Technology, Quchan, Iran.*

Mojtaba Saei Moghaddam - *Department of Chemical Engineering, Quchan University of Technology, Quchan, Iran.*

Mohammad Fani Kheshti - *University of Applied Science and Technology, Maghsoud Group, Mashhad, Iran.*

خلاصه مقاله:

Although there are many estimates of thermal conductivity in references, these relationships require high or low pressure systems, which sometimes produce poor results compared to laboratory data. The basis for the development of thermal conductivity is the use of the state equation and diagrams P-V-T and T-K -P. A quasi-experimental model based on the Peng-Robinson equation is used. The Peng-Robinson equation is used to determine the compressibility coefficient of gases and liquids and to calculate other physical parameters of fluids. Thermal conductivity and viscosity of this equation are used in a modified form. In this research, we try to obtain the modified Peng-Robenson relationship coefficients to predict the thermal conductivity of CFCs. This relationship has been used for low viscosity gases and fluids, but its use in a wide range of CFC compounds has yielded acceptable results in this study. Therefore, a thermal conductivity calculation model based on the PVT and TKP relationships is used. The results show that there is very little difference between the values of experimental and calculated thermal conductivity and the effect of model correction can be observed in improving the results of calculations and to calculate the thermal conductivity of CFCs, this model can be used. Among the refrigerants studied, the relative error rate of R-۱۳۴a, which was ۰.۰۲%, was the lowest error and R-۱۵۲ was ۰.۱۱%, the highest error. The rate of deviation and absolute error in these two articles is ۰.۲۷ and ۰.۹۹ Percent in all ranges of points used.

کلمات کلیدی:

Thermal Conductivity,R۱۳۴a, R۱۵۲, R۱۲۵,Refrigerant.

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/1303792