

عنوان مقاله:

A Correlation for the Thermal Conductivity of Liquid Hydrocarbons and Aromatics

محل انتشار:

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خلاصه مقاله:

Thermal conductivity is necessary for most heat-transfer calculations or industrial equipments such as heat exchangers. Unfortunately, this property is an extremely difficult property to be measured due to some operational issues. Under these circumstances, increasingly number of suggested modeling's, predictions, estimations or correlating methods for the thermal conductivity have been proposed during the past decades. In this direction, a four parameter correlation based on the critical temperature (T_c), critical pressure (P_c) and acentric factor (ω) of substances, discriminating between the substances, was proposed. All of all, 954 experimental data point were collected from the different published literatures to find the fitting parameters of the correlation. In addition, to improve the extrapolative and general predictive ability of the proposed correlation, the collected data were divided into two data sets namely, training and testing data sets. The obtained results revealed that the four parameters including a, b, c, and d were 0.52, -0.342, 1.362 and 8.58, respectively. Based on the error analysis, the proposed correlation showed not only a good correlative capability but also showed a good extrapolative ability. Finally, the obtained results were compared to the other available predictive methods.

کلمات کلیدی:

Correlation, Thermal Conductivity, Hydrocarbons, Aromatics, Critical Properties

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