

عنوان مقاله:

Modification of Soave-Redlich-Kwong equation of state by graphical investigation of Joule-Thomson Inversion Curve

محل انتشار:

همایش ملی مهندسی شیمی (سال: 1388)

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خلاصه مقاله:

In the present work, the Soave-Redlich-Kwong (SRK) equation of state (EOS) is modified by fitting the Joule-Thomson Inversion Curve (JTIC) data on SRK EOS via the Cohesion Function. The requirement for this study is the valid JTIC data for the two important industrial substances of methane and carbon dioxide. Therefore, the best available data is selected for the purpose. Following modification, the modified SRK EOS for CH₄ and CO₂ is compared with the advanced EOS, namely, SUPERTRAPP, DDMIX, GERG-2004 and the four-parameter Trebble-Bishnoi (TB)EOS. The results show that the new EOS gives a better JTIC prediction for CH₄ and a remarkable prediction for CO₂ as compared with the other EOS. Moreover, evaluation of the new EOS in competition with the SRK EOS for nine substances of Ar, Ne, N₂, O₂, C₂H₄, C₂H₆, CO₂, CH₄ and CO indicates its good prediction ability. That is while the SRK EOS shows the same qualitative negative bias in all its predictions. Another evaluation was made for CO₂ using Boyle Curve, Zeno Line and Compressibility Curve, which confirmed the results presented for JTIC.

کلمات کلیدی:

equation of state; ideal curve; Joule-Thomson Inversion Curve; virial coefficients

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