

On the Non-Ideality of Hydrocarbon Fluids: Implications for Natural Gas Engineering - Part B

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Abstract

This work presents a unified treatment of non-ideality that ties together the ubiquitous concepts of compressibility factor, Joule-Thomson coefficient, fugacity coefficient, and fugacity that are routinely used in natural gas engineering. The development is based on the identification of common misconceptions and the construction of a unified approach for the analysis of non-ideality. Starting with the basic ideal equation of state, an integrated treatment is progressively built in which the concept of non-ideality is thoroughly reviewed and its implications for natural gas engineering extensively discussed. The treatment of non-ideality given here is unique in scope and non-existent in the available natural gas engineering literature. In the second part of this series, the implications of the non-ideality for natural gas engineering are reviewed and discussed.

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