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THERMAL CONDUCTIVITY OF BINARY MIXTURES OF
CARBON DIOXIDE, NITROGEN AND ETHANE AT HIGH
PRESSURES: COMPARISON WITH CORRELATION AND THEORY

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The transport properties of dense gas mixtures have received little attention either by experimentalists or theoreticians because of the difficulty in obtaining accurate data at high pressures and the complexity of the theoretical analysis of dense mixtures of real gases. However, commercial chemical processes deal almost exclusively with mixtures. For this reason, it is important to characterize the transport behavior of mixtures under these conditions.

Keyes (12) measured the conductivity of nitrogen-carbon dioxide mixtures at normal temperatures and at pressures of a few hundred psi, and attempted to correlate behavior on the basis of the Enskog pure gas theory. Junk and Comings (11) made measurements on ethylene-nitrogen and ethylene-carbon dioxide mixtures to 200 atm. and compared their values with those predicted by their own pure compound reduced state correlation and Kay's rule. Reid and Sherwood (25) compared the Junk and Comings' data with dense gas values calculated by the Lindsay-Bromley dilute gas correlation.

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