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# The Second and Third Density Virial Coefficients of Six Ar-Ne Mixtures at 25.0°C

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**Abstract:** In this paper we present a detailed experimental study of fractions, $x_{Ar}$ = 0.0821, 0.2727, 0.3618, 0.5838, 0.7722 and 0.9049 at 25.0°C. The pressures are measured with a dead -- weight tester. The densities are determined from knowledge of the precise volume and weight measurement of the mixtures. Statistical analysis of the experimental data yielded very precise values for the second and third density virial coefficients. The second virial coefficients calculated with the least squares fitting method and corresponding to above argon mole fractions are $10^6$B = 11.03, 9.16, 7.65, 1.83, -4.98 and -- 11.00 $m^3mole^{-1}$. Similarly the third virial coefficients are $10^{12}$ C = 272, 388, 458, 648, 849 and 1013 $m^6mole^{-2}$.

**Key Words:** Ar--Ne mixtures, second virial coefficient, third virial coefficient.

Keywords
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