Determination of super compressibility factor of an Indonesian natural gas (CNG) using the new modified burnett apparatus

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ABSTRACT
The Supercompressibility factor (Fv) of an Indonesian natural gas (CNG) has been determined in the temperature range from 303.15 K and 373.15 K, by using the new modified Burnett Apparatus. The maximum experimental pressure is about 12.5 MPa. In this paper, the value of Z(P) and Z(ρ) are compared with the value calculated from the experimental data based upon the method, which are recommended by American Gas Association such as PAR AGA-NX-19 mod (Standard Method) and AGA-Analysis Method. The analysis method is more accurate than other one, where the root-mean-squares error is less than 0.30% based on the relative deviation.

∆Z = (Z_calc-Z_exp)/Z_exp . 100% of the experimental data calculation