

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

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Abstrak

ABSTRACT

The Supercompressibility factor (F_v) 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 $Z(\rho)$ 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.

$\%Z = (Z_{\text{calc}} - Z_{\text{exp}}) / Z_{\text{exp}} \cdot 100\%$ of the experimental data calculation