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Correlation of Isentropic Compressibility of Biodiesel to Its Saponification Number and Iodine Value

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Isentropic compressibility is important injection timing of liquid fuel. The isentropic compressibility of biodiesels are correlated to number of carbon atoms, number of double bond(s) and temperature. In this work, an empirical approach for isentropic compressibility of biodiesels can be estimated by using saponification number (SN) and iodine value (IV). The proposed equations are easy to use and the estimated isentropic compressibility values of biodiesels at different temperatures agree well with the literature values. The average absolute deviation of isentropic compressibility values of biodiesels at 288.15-343.15 K is 1.19 %. The isentropic compressibility outside temperature between 288.15 and 343.15 K may be possibly estimated by this model but accuracy may be lower.

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