

## Density of DIPE + N-Heptane at Temperatures up to 353.15 K and at Pressures up to 100 MPa

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Tertiary alkyl ethers like di-isopropylether DIPE, having similar properties (e.g., vapor pressures) to hydrocarbons and the potential to increase the octane number and to decrease the emission of carbon monoxide, have become important additives for gasoline. The ethers increase the amount of oxygen in gasoline in order to reduce the CO content in the exhaust gas of automobiles. DIPE, pure or mixed with alkanols or alkanes, has been recommended as a high octane blending agent for motor gasoline. Ether +hydrocarbon mixtures are of interest as model mixtures for gasoline in which the ether acts as a non-polluting, high octane number blending agent. Despite this interest, density data of binary mixtures containing ether +hydrocarbon at pressures other than atmospheric pressure are very scarce in the literature. Densities of the binary mixture DIPE + n-heptane have been measured under pressure and reported in this work using a vibrating tube densitometer. Experimental densities for the binary system DIPE + n-heptane have been measured at 298.15, 313.15, 333.15, and 353.15 K and at nineteen isobars up to 100 MPa. For each composition, the experimental values were correlated using a Tait-type equation. Furthermore, the excess molar volume and the isothermal compressibility were calculated from the density data.

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