

Liquid-liquid equilibria for binary system of N,N-dimethylformamide (DMF) + hexadecane at several temperatures and the ternary systems of DMF + heterocyclic nitrogen compounds + hexadecane at 298.15 K

김현덕, 황인찬, 박소진*
충남대학교
(sjpark@cnu.ac.kr*)

Air pollution by nitrogen compounds (NO_x) and particulate matter (PM) of diesel exhaust is now a serious common problem in the whole world. In the very early 2000's, most governmental regulatory limits for highway vehicle diesel were within the mass fraction range of (300 to 500) X 10⁻⁶ by weight of total sulfur. However, recently, the US Environmental Protection Agency (EPA) passed rules requiring use of ultra low sulfur diesel (ULSD) for diesel vehicles, which allows a mass fraction only 15 X 10⁻⁶ of sulfur. If the nitrogen compounds in the Diesel fuel can be extracted before or after hydrodesulphurization (HDS) process, it will be very economical process in the oil industry because they can use existing desulphurization facilities. In this work, The binary liquid-liquid equilibrium (LLE) data for the system DMF + n-hexadecane at several temperatures and the ternary LLE for systems of DMF + heterocyclic nitrogen compounds + n-hexadecane at 298.15 K were analytically determined at atmospheric pressure by using stirred and thermo-regulated cells.