

Invited Lecture IL 01
Measurement of Vapor-Liquid Equilibria for Azeotropic systems
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vapor-liquid equilibria, azeotrope, equilibrium still
Abstract (less than 300 words)
<p>It is known that about half of the binary vapor-liquid equilibrium (VLE) data available in the literature are azeotropic systems. There are generally two types of azeotrope of isobaric binary systems: the minimum boiling point azeotrope, where the boiling point is lower than that of the pure component at a specific composition, equal composition of vapor and liquid phases, and the maximum boiling point azeotrope, where the boiling point is higher. In addition, in very few cases, there are the double azeotrope that have both minimum and maximum boiling points at each specific composition. In isobaric ternary VLE, there are the minimum boiling point azeotrope and the saddle-type azeotrope.</p> <p>In this study, the VLE of azeotropic systems measured using the original equilibrium stills with circulation of both the vapor and liquid phases, equipped with a Cottrell pump are shown [1,2,3,4]. For some systems, the VLE measured under pressurized conditions using a pressure-resistant equilibrium still [5,6] are shown to describing the trajectory of different of azeotropic points on elevated pressure from experimental data.</p> <p>References</p> <p>[1] Hiaki, T., Tochigi, K., Kojima, K., <i>Fluid Phase Equilib.</i>, 26, 83 (1986).</p> <p>[2] Hiaki, T., Yamato, K., Kojima, K., <i>J. Chem. Eng. Data</i>, 37, 203 (1992).</p> <p>[3] Hiaki, T., Kawai, A., <i>Fluid Phase Equilib.</i>, 158-160, 979 (1999)..</p> <p>[4] Hiaki, T., Nanao, M., Urata, S., Murata, J., <i>Fluid Phase Equilib.</i>, 174, 81 (2000).</p> <p>[5] Hiaki, T., Saida, K., Ishihara, T., Dato, T., Okada, M., Matsumoto, M., <i>MATEC Web of Conference</i> 3, 01021 (2013).</p> <p>[6] Hiaki, T., unpublished paper.</p>
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