The Dortmund Data Bank and its Integrated Software Package DDBSP – a Comprehensive Tool for Process Development

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With a view to the synthesis and design of separation processes, fitting and critical examination of model parameters used for process simulation, and the development reliable predictive models (UNIFAC, mod. UNIFAC, PSRK, VTPR, …) with a large range of applicability, in 1973 a computerized data bank for phase equilibrium data was started by J. Gmehling and U. Onken at the University of Dortmund. While at the beginning mainly VLE data for non-electrolyte mixtures (T_b > 0 °C) were considered, later on also VLE including compounds with T_b < 0 °C, LLE, h_E, $\gamma\infty$, azeotropic, cPE, SLE, vE, adsorption equilibrium, polymer data, transport properties, ... for non-electrolyte and electrolyte systems as well as pure component properties were stored. The DDB currently (November 2017) contains more than 7.8 million data tuples for 63 900 components from 79 300 references (169 400 evaluated). At the same time, a large number of software tools have been developed to search, retrieve, export, visualize, and regress the data. The DDB Software Package (DDBSP) also contains highly developed process synthesis tools for the prediction of pure component properties or the selection of an entrainer for extractive and azeotropic distillation, extraction, and absorption which will be the focus of our demonstrations.