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Liquid-Phase Caloric Properties from VLE Data: Dilute Solutions

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Selected aspects of the thermodynamics of very dilute solutions of liquid or gaseous nonelectrolytes in liquids, in particular in water, are presented and connected with recent high-precision experimental techniques (vapor-liquid equilibrium measurements [VLE], calorimetry and densimetry). Some of the general problems encountered in data reduction and data correlation over large temperature and pressure ranges are discussed [1].

The focus is on caloric properties, such as the partial molar enthalpy changes on solution and the partial molar heat capacity changes on solution: *direct* calorimetric results are compared with results obtained with *indirect* methods based on *van't Hoff* type analysis of high-precision VLE data. Methane in water and oxygen in water [2-7] will serve as recent examples of very dilute solutions.

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