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Contribution ID: **1590** Type: **not specified**

A Predictive Equation of State for Solubilities: Nanocellular Polymeric Foams and Hydrogen Storage Applications

Sunday 28 May 2017 13:30 (15 minutes)

The Sanchez-Lacombe equation of state, despite an inherent thermodynamic inconsistency, can be shown to be consistent, predictive and quantitative for numerical solubility calculations. The theory can thus be shown to be one of the simplest and most versatile equations of state with a predictive capacity which, in a sense, has no free parameters. Diverse solubility phenomena such as blowing agents dissolved in polymer melts for the creation of lightweight nanocellular polymeric foams, and hydrogen storage in metal organic frameworks will be mentioned.

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Session Classification: Soft Matter Canada 2017 / Matière molle Canada 2017

Track Classification: Soft Matter Canada 2017