

内压与Henry常数

郭明,黑恩成,刘国杰

华东理工大学化学系,上海(200237)

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摘要 建立了一个气体溶解度的新模型,它实际上是Pierotti理论的修正,按照这个模型,稀溶液中的溶质被视为虚拟的完全气体, Henry常数则是1mol完全气体的压力与一个Boltzmann因子的乘积,这个因子取决于溶质分子周围溶剂的内压。对若干气体在有机溶剂和聚合物中溶解度数据检验结果表明,这个模型能满意地用来描述Henry常数随温度的变化规律。计算得到的稀溶液形成的偏摩尔热力学函数也与实验值吻合。

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Internal pressure and henry's constant

Guo Ming,Hei Encheng,Liu Guojie

East China Univ of Sci Tech., Dept Chem.Shanghai(200237)

Abstract A new model for gas solubility, which is a modification of Pierotti's theory, has been developed. According to this model, the solute of a dilute solution can be considered as a perfect quasi-gas and Henry's constant is the product of the pressure of 1 mol perfect gas and a Boltzmann's factor, which is dependent on the internal pressure of the solvent around the solute molecules. The testing results for the solubility data of some gases in organic solvents and polymers show that the model can satisfactorily be used to describe the variation of Henry's constants with the temperature and the calculated partial molar thermodynamic functions for formation of the dilute solution are also consistent with the experimental values.

Key words [INTERNAL PRESSURE](#) [GAS CONSTANT](#) [DILUTE SOLUTION](#) [GASES](#) [SOLUBILITY](#) [SOLUTION THEORY](#) [HENRY'S CONSTANT](#) [THERMODYNAMIC FUNCTION](#)

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