<<基础化学热力学BASIC CHE>>

图书基本信息

书名: <<基础化学热力学BASIC CHEMICAL THERMODYNAMICS>>

13位ISBN编号: 9781860944468

10位ISBN编号: 1860944469

出版时间:1977-12

出版时间:World Scientific Pub Co Inc

作者: Smith, E. Brian

页数:166

版权说明:本站所提供下载的PDF图书仅提供预览和简介,请支持正版图书。

更多资源请访问:http://www.tushu007.com

<<基础化学热力学BASIC CHE>>

内容概要

This widely acclaimed text, now in its fifth edition and translated into many languages, continues to present a clear, simple and concise introduction to chemical thermodynamics. An examination of equilibrium in the everyday world of mechanical objects provides the starting point for an accessible account of the factors that determine equilibrium in chemical systems. This straightforward approach leads students to a thorough understanding of the basic principles of thermodynamics, which are then applied to a wide range of physico-chemical systems. The book also discusses the problems of non-ideal solutions and the concept of activity, and provides an introduction to the molecular basis of thermodynamics. Over five editions, the views of teachers of the subject and their students have been incorporated. The result is a little more rigour in specifying the dimensions within logarithmic expressions, the addition of more worked examples and the inclusion of a simple treatment of the molecular basis of thermodynamics. Students on courses in thermodynamics will continue to find this popular book an excellent introductory text.

<<基础化学热力学BASIC CHE>>

书籍目录

Notation 1 Introduction 1.1 The scope and nature of chemical thermodynamics 1.2 Equilibrium in mechanical systems 1.3 Reversibility and equilibrium 1.4 Why we need thermodynamics 1.5 The mole 1.6 The perfect gas2 Energy 2.1 Work 2.2 Heat and temperature 2.3 Measurement of temperature 2.4 Heat and molecular motion 2.5 Conservation of energy 2.6 State functions: a digression 2.7 Enthalpy 2.8 Heat Problems3 Entropy and equilibrium 3.1 Reversibility and equilibrium: a recapitulation Condition of equilibrium 3.3 Entropy 3.4 Entropy as a state function 3.5 Entropy of expansion of a gas 3.6 Entropy changes accompanying heat flow 3.7 Entropy and equilibrium 3.8 A cosmological aside 3.9 Entropy as a function of pressure and temperature 3.10 Molecular basis of entropy 3.11 Statistical basis of the Second Law 3.12 Magnitudes of entropy changes 3.13 Heat engines Problems4 Equilibrium in chemical systems 4.1 Free energy 4.2 Gibbs free energy 4.3 Pressure-dependence of free energy 4.4 Temperature variation of free energy 4.5 Phase equilibria 4.6 Clapeyron equation 4.7 Clausius-Clapeyron equation 4.8 The vapour pressure of liquids 4.9 Chemical potential 4.10 Chemical potential and free energy 4.11 Equilibrium between gaseous reactants 4.12 Temperature-dependence of equilibrium constants 4.13 Effect of pressure on equilibrium constants 4.14 Basic results of chemical thermodynamics 4.15 Le Chatelier's Principle Problems 5 Determination of thermodynamic quantities 5.1 Hess's Law 5.2 Standard enthalpies of formation 5.3 Average bond energies 5.4 Temperature dependence of enthalpy changes 5.5 Standard free energies of formation 5.6 Determination of free-energy changes 5.7 Determination of entropies of substances 5.8 Example of the determination of thermodynamic quantities 5.9 Calculation of thermodynamic quantities at temperatures otherthan 298 K 5.10 Ellingham diagrams 5.11 Free-energy functions Problems6 Ideal solutions 6.1 The ideal solution 6.2 Properties of truly ideal solutions 6.3 Mixtures of liquids 6.4 Ideal solutions of solids in liquids 6.5 Ideal dilute solutions 6.6 Colligative properties 6.7 Freezing-point depression 6.8 Elevation of boiling point 6.9 Osmotic pressure 6.10 Properties of the solute in dilute Problems7 Non-ideal solutions8 Thermodynamics of gases9 Molecular solutions 6.11 Solubility of solids basis of thermodynamicsAnswers to ProblemsFurther readingPeriodic table of elementsSi units and list of physical constantsIndex

<<基础化学热力学BASIC CHE>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介,请支持正版图书。

更多资源请访问:http://www.tushu007.com