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Criteria of Similarity; 5.7 The State Equations; 5.7.1 The State Equation for an Ideal Gas and an Ideal Gas Mixture; 5.7.2 The State Equation for a Real Gas and a Real Gas Mixture; 5.7.3 Methods of Calculation of Liquid-Vapor Equilibrium
5.8 Balance of Entropy - The Onsager Reciprocal RelationsReferences; III Solutions; 6 Solutions Containing Non-charged Components; 6.1 Diffusion and Kinetics of Chemical Reactions; 6.2 Convective Diffusion; 6.3 Flow in a Channel with a Reacting Wall; 6.4 Reverse Osmosis; 6.5 Diffusion Toward a Particle Moving in a Solution; 6.6 Distribution of Matter Introduced Into a Fluid Flow; 6.7 Diffusion Flux in a Natural Convection; 6.8 Dynamics of the Bubble in a Solution; 6.9 Evaporation of a Multi-component Drop Into an Inert Gas; 6.10 Chromatography
6.11 The Capillary Model of a Low-permeable Porous Medium7 Solutions of Electrolytes; 7.1 Electrolytic Cell; 7.2 Electrodialysis; 7.3 Electric Double Layer; 7.4 Electrokinetic Phenomena; 7.5 Electroosmosis; References; IV Suspensions and Colloid Systems; 8 Suspensions Containung Non-charged Particles; 8.1 Microhydrodynamics of Particles; 8.2 Brownian Motion; 8.3 Viscosity of Diluted Suspensions; 8.4 Separation in the Gravitatonial Field; 8.5 Separation in the Field of Centrifugal Forces; 9 Suspensions Containing Charged Particles; 9.1 Electric Charge of Particles; 9.2 Electrophoresis
9.3 The Motion of a Drop in an Electric Field9.4 Sedimentation Potential; 10 Stability of Suspensions, Coagulation of Particles, and Deposition of Particles on Obstacles; 10.1 Stability of Colloid Systems; 10.2 Brownian, Gradient (Shear) and Turbulent Coagulation; 10.2.1 Brownian Coagulation; 10.2.2 Gradient (Shear) Coagulation; 10.2.3 Turbulent Coagulation; 10.3 Particles' Deposition on the Obstacles; 10.3.1 Brownian Diffusion; 10.3.2 Particles' Collisions with an Obstacle; 10.4 The Capture of Particles Due to Surface and Hydrodynamic Forces
10.5 Inertial Deposition of Particles on the Obstacles

Sommario/riassunto

This highly detailed reference represents an elaborate development of the theory of processing oil and natural gas and its application in the field -- indispensable for graduate engineering students and professionals alike. The renowned expert author, a professor at Moscow State University, has ample experience in both lecturing and publishing, albeit in the Russian language. This book is thus the first to provide a translation compiling his extensive knowledge, much of which remained unpublished due to security restrictions in the former Soviet Union.Based upon and compiled from Professor