

1. Record Nr.	UNINA9910144725603321
Autore	Sinaiskii E. G (Emmanuil Genrikhovich)
Titolo	Separation of multiphase, multicomponent systems [[electronic resource] /] / Emmanuil G. Sinaiski and Eugeniy J. Lapiga
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, c2007
ISBN	1-281-08801-3 9786611088019 3-527-61138-X 3-527-61139-8
Descrizione fisica	1 online resource (813 p.)
Altri autori (Persone)	LapigaEugeniy J
Disciplina	541.3 665.53
Soggetti	Multiphase flow Hydrocarbons - Separation Petroleum engineering Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Translated from the Russian.
Nota di bibliografia	Includes bibliographical references and indexes.
Nota di contenuto	Separation of Multiphase, Multicomponent Systems; Contents; Preface; List of Symbols; I Technological Fundamentals of Preparation of Natural Hydrocarbons for Transportation; Introduction; 1 Technological Schemes of Complex Oil, Gas and Condensate Processing Plants; 2 Construction of Typical Apparatuses; 2.1 Separators, Dividers, and Settlers; 2.2 Absorbers; 2.3 Cooling Devices; 3 Basic Processes of Separation of Multi-phase, Multi-component Hydrocarbon Mixtures; References; II Physical and Chemical Bases of Technological Processes; 4 The Transfer Phenomena; 4.1 Phenomenological Models 4.2 Momentum Transfer4.3 Thermal Conduction and Heat Transfer; 4.4 Diffusion and Mass Transfer; 4.5 Electro-Conductivity and Charge Transfer; 5 Conservation Laws and Equations of State; 5.1 Isothermal Processes; 5.2 Non-isothermal Processes; 5.3 Multi-Component Mixtures; 5.4 Multi-Phase Mixtures; 5.5 Charged Mixtures; 5.6 The 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 Gravitational 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

---