1. Record Nr. UNINA9910583382003321

Autore	Esposito Rogerio Oliveira
Titolo	Compositional grading in oil and gas reservoirs / / Rogerio Oliveira Esposito, Senior Process Engineer, Petrobras, Brazil [and three others]
Pubbl/distr/stampa	Cambridge, Massachusetts : , : Gulf Professional Publishing, , [2017] ©2017
ISBN	9780128124529
Descrizione fisica	1 online resource (xxiv, 311 pages) : illustrations (some color)
Collana	Gale eBooks
Disciplina	553.28
Soggetti	Petroleum - Geology Geochemistry Hydrocarbon reservoirs
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1. Reservoir fluids and PVT analysis -- 2. Phase equilibrium thermodynamics -- 3. Phase equilibrium under the influence of the gravitational field -- 4. Irreversible thermodynamics applied to reservoir engineering -- 5. Classic examples from literature -- 6. Case studies -- 7. The influence of molecular association -- 8. General comments and perspectives.
Sommario/riassunto	Compositional Grading in Oil and Gas Reservoirs offers instruction, examples, and case studies on how to answer the challenges of modeling a compositional gradient subject. Starting with the basics on PVT analysis, applied thermodynamics, and full derivations of irreversible thermodynamic-based equations, this critical reference explains gravity-modified equations to be applied to reservoirs, enabling engineers to obtain fluid composition at any point of the reservoir from measured data to create a stronger model calibration. Once model-parameters are re-estimated, new sensibility can be acquired for more accurate modeling of composition, aiding engineers with stronger production curves, reserve estimations, and design of future development strategies. Multiple examples and case studies are included to show the application of the theory from very simple to more complex systems, such as actual reservoirs influenced by thermal

diffusion and gravity simultaneously. Other example include a layer for which asphaltene precipitation takes place in the reservoir and three - phase flash algorithms for liquid-liquid-vapor equilibrium calculations, detailing the techniques necessary to ensure convergence. The book combines practical studies with the importance in modeling more complex phenomena, filling a gap for current and upcoming reservoir engineers to expand on solutions and make sense of their reservoir's output results.