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| Altri autori (Persone) | WoodDavid A HazraBodhisatwa OstadhassanMehdi |
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| Soggetti | Geotechnical engineering Petrology Geochemistry Rock mechanics Soil mechanics Geotechnical Engineering and Applied Earth Sciences Soil and Rock Mechanics |
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| Nota di contenuto | Organic Matter (OM) and Dispersed Organic Matter (DOM) in shales -- Advanced techniques for geochemical characterization -- Combining multi-scale imaging and spectroscopy for shale characterization -- Multi-scale insights into shale petrophysical properties -- Geomechanical characterization of shales: Techniques and insights -- Research gaps and outstanding challenges. |
| Sommario/riassunto | This book provides a comprehensive synthesis of advanced laboratory techniques tailored to reveal the complexities of shale properties. Highlighting state-of-the-art methods such as Rock-Eval pyrolysis, multi-scale imaging, spectroscopy, and geomechanical testing, it offers detailed insights into shale's organic matter, pore structure, and anisotropic behavior. The book bridges theoretical concepts with laboratory analyses, addressing critical topics like hydrocarbon |

generation, gas storage, and the feasibility of CO sequestration. The geochemical, petrophysical, and geomechanical characterization of shales has revolutionized our understanding of these complex sedimentary rocks. As critical players in unconventional hydrocarbon reservoirs and carbon sequestration, shales offer immense potential for energy security and climate change mitigation. However, their intricate mineralogical and textural heterogeneity poses significant challenges to accurate analysis and utilization. Designed for researchers, students, and industry professionals, the book emphasizes both foundational principles and cutting-edge developments in shale analysis. Each chapter builds on the previous, offering an integrated approach to geochemical, petrophysical, and geomechanical characterization. Furthermore, it identifies knowledge gaps and challenges, providing a roadmap for future research. A valuable resource for advancing unconventional resource recovery and carbon management strategies, this SpringerBrief equips readers with essential background knowledge to address contemporary energy and environmental challenges with precision and innovation.
