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Nota di contenuto	Front Cover; Petrophysics; Copyright Page; Contents; Preface; About the Authors; Acknowledgment; Units; 1. Introduction to Mineralogy; Mineral Constituents of Rocks-A Review; Igneous Rocks; Metamorphic Rocks; Sedimentary Rocks; Siltstones (Mudrocks); Sandstones; Carbonates; Evaporites; Properties of Sedimentary Particles; Development and Use of Petrophysics; Objectives and Organization; Problems; Glossary; 2. Introduction to Petroleum Geology; Review of Composition of the Globe; Plate Tectonics; Geologic Time; Sedimentary Geology; Basins; Divergent Continental Margins Convergent Continental MarginsTransform Continental Margins; Transgressive-Regressive Cycles; Accumulation of Sediments; Hydrocarbon Traps; Origin of Petroleum; Transformation of Organics into Kerogen; Transformation of Kerogen into Oil and Gas; Migration and Accumulation of Petroleum; Primary Migration; Secondary Migration; Properties of Subsurface Fluids; Hydrostatic Pressure Gradient; Lithostatic Pressure Gradient; Geothermal Gradient; Oilfield Waters; Petroleum; Petroleum Chemistry; Problems; 3. Porosity and Permeability; Porosity; Factors Governing the Magnitude of Porosity

Engineering Classification of Porosity; Geological Classification of Porosity; Primary Porosity; Secondary Porosity; Visual Description of Porosity in Carbonate Rocks; Fluid Saturation; Quantitative Use of Porosity; Permeability; Classification of Permeability; Factors Affecting the Magnitude of Permeability; Permeability-Porosity Relationships; Kozeny Correlation; Concept of Flow Units; Mathematical Theory of Flow Units; Specific Surface Area; Flow Unit Characterization Factors; Flow Units Functions; Reservoir Zonation Using Normalized RQI; Effect of Packing on Permeability
 Effect of Water Saturation on Permeability; Permeability from NMR and GR Logs; Permeability from GR Logs; Permeability-Porosity Relationships in Carbonate Rocks; Estimating Permeability in Carbonate Rocks; Directional Permeability; Anisotropy; Relationship Between $k(H)$ and $k(V)$; Reservoir Heterogeneity; Microscopic Heterogeneity; Macroscopic Heterogeneity; Mesoscopic Heterogeneity; Megascopic Heterogeneity; Gigascopic Heterogeneity; Distribution of Rock Properties; Permeability and Porosity Distributions; Lorenz Coefficient $L(K)$; Dykstra-Parsons Coefficient $V(K)$
 Averaging Techniques; Effective Permeability from Core Data; Average Porosity and Saturation; Permeability from Well Test Data; Statistical Zonation Technique; Problems; 4. Formation Resistivity and Water Saturation; Formation Resistivity Factor; Resistivity Measurement; Determination of Formation Water Resistivity; Chemical Analysis; Resistivity-Concentration Equations; Spontaneous Potential Curve; Shale-Properties Method; Correlation Between $F(R)$ and Porosity; Correlations Between $F(R)$ and Tortuosity; Correlations Between $F(R)$ and Cementation; Theoretical Formula for $F(R)$
 Correlation Between $F(R)$ and Water Saturation

Sommario/riassunto

This new edition includes updated case studies, examples and experiments as well as a new chapter on modeling and simulations. It also includes recent advances in wireline logging interpretation methods, effective media models, inversion of resistivity log measurements, dipole acoustic shear and Stoneley wave techniques, Biot-Gassmann models and MRI. Comprehensive but easy to use
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