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Modeling of Mechanical, Elastic and Petrophysical Behavior of Synthetic Rocks Formed in Simulated Physical-Chemical Conditions

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The characterization of hydrocarbon reservoirs includes understanding the properties of the rocks. It is fundamental to understand processes that affect changes as a result of the microstructure. The reservoirs demand a detailed investigation of the parameters of physical properties of the rocks, aiming to improve the understanding of processes as rock-fluid interaction, diagenesis impact, porosity heterogeneities and their correlation with elastic velocities and permeability, anisotropy effects and heterogeneity, among others. Tests carried out on samples of rocks extracted from reservoirs or outcrops have the potential to make this research feasible by obtaining physical properties such as porosity, permeability, elastic velocities, electrical conductivity and geomechanical properties. However, the removal of natural rock rocks from the well is a costly operation, which encourages the search for an alternative source of rock samples for laboratory investigations. In this way, to consolidate rocks in the laboratory with characteristics similar to natural ones can help to overcome the economical inability to extract samples in loco. In addition, it allows access to samples with predetermined characteristics, allowing a better understanding of interrelations between important physical and the porous system of these rocks. The present work proposes to develop synthetic rocks analogous to those found in reservoirs for use in research applied to petroleum engineering that may alter or damage the original characteristics of rock specimens, as it occurs during destructive tests.
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Palavras-chave: Rock Physics, Characterization, Synthesis.

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