

Influence of Early Diagenetic Chert in the Formation of Mechanical Heterogeneities in a Laminated Limestone Reservoir Analog

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Abstract

We have explored the origin of early diagenetic chert in laminated limestones that formed centimeter thick intervals with high lateral continuity, characterized by lower porosity and higher mechanical strength. This study was carried out in outcrops of the upper limestone interval of Crato Formation, NE Brazil, which is interpreted as a physical analogue for some facies of pre-salt reservoirs located in Brazilian marginal basins. The study was based in a complete description of outcrops, petrographic analysis, SEM/EDS analysis, and investigation of in situ mechanical properties with esclerometer. The study showed that the limestone presented a very low permeability (keywords - laminated limestone, diagenetic chert, reservoir analogue, reservoir heterogeneities, Araripe Basin)