

## **Rheological study of water-based drilling fluids additive with biopolymers: an analysis on well cleaning and penetrability in Pre-Salt carbonate rocks**

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Among the various challenges encountered in the Brazilian Pre-Salt, one can mention the process of drilling of the carbonate rocks that constitute the reservoir as one of the main, because it is necessary to overcome low penetration rates obtained, which increases the cost of operational. Well cleaning and flow are parameters that when poorly sized, influence by reducing rock penetrability. Oil-based drilling fluids, due to their effectiveness, are commonly used in Pre-Salt drilling operations. However, due to its toxicity and difficult biodegradation, other alternatives. One of them is the use of drilling fluids additive with biopolymers, since these are more environmentally friendly, and can guarantee a similar or eventual improves the ability of the fluid to transport gravel to the surface, essential for effective cleaning of the well. Based on this scenario, the purpose of this master's thesis research is to study and analyze the rheological behavior of water-based drilling fluids, additive with the biopolymers Diutan and Gellan Gum (thermally stable above 100°C), as well as check its impacts on well cleaning and penetrability in pre-salt carbonate rocks.

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