

Lignocellulosic-based Rheological modifier for high temperature Oilfield drilling operations

Abstract

In this study, a rheological modifier for water-based drilling mud is prepared by exploiting the Kraft pulping residual of oil palm empty fruit bunch (OPEFB) fibers. From an experimental point of view, readily combination between water-based drilling mud and Lignin Graft Copolymer (LGC) provided an optimum rheological performance and gelling effect for the water-based drilling mud. This new water-based drilling mud additive demonstrated competitive characteristics to other existing commercial additives. The rheological performances of LGC are studied and the findings show that LGC gives good gelling, viscosity building, and pH controlling abilities at low concentration of 0.5% w/w. It is also illustrates excellent thermal stability at high temperature up to 200°C.