عنوان مقاله:

Viscosity Build up through Component Interactions in Synthetic-Based Drilling Fluids

محل انتشار:

پنجمین کنگره بین المللی مهندسی شیمی (سال: 1386)

تعداد صفحات اصل مقاله: 13

نویسندگان:

Nasiri - *Research Lab for Advanced Separation Processes, Department of Chemical Engineering, Iran University of Science and Technology, Narmak, Tehran ۱۶۸۴۶, Iran*,

Ashrafizadeh - *Research Lab for Advanced Separation Processes, Department of Chemical Engineering, Iran University of Science and Technology, Narmak, Tehran ۱۶۸۴۶, Iran*,

خلاصه مقاله:

Drilling fluids can be categorized into two basic types: water based fluids (WBFs) and non aqueous based fluids (NABFs). Regarding the chemical composition of the base fluid in the mud, there are three types of NABFs: oil-based fluids (OBFs), enhanced mineral oil-based fluids, and fluids (SBFs). In this study, it is demonstrated that the rheological behavior of SBFs depends synthetic-based on the dispersion of organophilic clay as well as the parameters including the type of the synthetic based fluid, the type and the amount of organophilic clay, the emulsifier used in the mud formulation, water content, concentration of calcium chloride in the dispersed phase, the mixing time and temperature. Microscopic pictures revealed the effect of process parameters on the dispersion of organophilic clay and the necessity of the presence of water in the SBFs formulation. It was also shown that the use of calcium chloride in the formulation of SBFs reduced the emulsion stability. Dispersion of the organophilic clay, which is necessary for an efficient thixotropy building, is strongly affected by the shear history as well as the composition of the base synthetics, organophilic clays, emulsifiers, and dispersed phase.

کلمات کلیدی:

Drilling Fluid, Viscosity, Synthetic Based Fluids, Rheology, Thixotropy