

PL.207452

Additive for drilling fluids

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The subject of the invention is an additive for drilling fluids, i.e. drilling muds and working liquids, which, above all, is supposed to inhibit the hydration of drilled argillaceous rocks even more and lessen the damage to permeability of reservoir rocks.

According to the invention, the additive for drilling fluids contains non-ionic chemicals: polyglycols with an estimated molecular weight ranging from 1500 to 2000, including emulsifier and potassium salt. It is used in the hydro-dispersive compositions of drilling muds (both with and without clay) with various salinity levels, regardless of the type and volume of protective colloids and structure-building agents used for their preparation and ballast materials that can be used for drilling through argillaceous and schistose layers and completion of productive horizons, including oil and gas horizons. The second use of the said additive is its inclusion in the compositions of working liquids that are intended for well reconstruction.

Polyglycols together with emulsifier play the role of a key inhibitor to the hydration of argillaceous

and schistose rocks, while providing some other functions, such as reduction to the surface tension of filtrate of such fluids, improved lubricating properties of fluids and their less negative impact on the permeability of reservoir rocks with argillaceous binder. Emulsifiers improve the solubility of polyglycols, increase their inhibitory potency in relation to the hydration of argillaceous rocks and stabilise selected process parameters of the drilling mud, such as filtration and viscosity.

The highly inhibitory effects of polyglycol and reduction in the damage to the reservoir rock depend on the ionic inhibitor to the hydration of argillaceous rocks, i.e. the K^+ ion, which can be added in the form of potassium salt, e.g. KCl , K_2SO_4 , $HCOOK$ or CH_3COOK .

Drilling fluids with the addition of the said additive can be treated using any chemicals, either anionic or cationic, to achieve the required rheological parameters.

This invention has been implemented by the Polish oil industry.

