

## SUMMARIES

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### Gadji S.O., Knez D.: **Influence of proppant concentration on rheological parameters of slick water** • AGH Drilling, Oil, Gas 2012 • Vol. 29 • No. 2

Proppant concentration is one of the main parameters used to design, characterize and describe hydraulic fracturing process, as well as properties of proppant transport and fracturing fluid such as viscosity and viscoelasticity. Low viscosity fracturing fluids decrease proppant transport capability while high viscosity fracturing fluids increase pumping time, proppant transport properties and also the fracture width. A larger proppant size leads to a high permeability of the reservoirs while applying a low stress closure but it requires enough large fracture width to be transported during the process. So combining those parameters in a right way will lead to the achievement of a high performance hydraulic fracturing process.

The goal of this paper is to analyze the influence of proppant concentration addition on rheological properties of hydraulic fracturing fluid, using slick water and sand proppant; rheological models are reviewed, and based on the experimental values of different proppant concentrations, the best rheological model describing this process has been chosen based on the best fit curve.

A new approach based model is developed in the way of well describing the hydraulic fracturing process. Details are given of the important properties related to hydraulic fracturing fluid. Lab testing results are presented as support to observations made.

**Keywords:** *slick water, proppant, fracturing fluids*

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### Dubiel S., Rychlicki S.: **The results of double-cycle drill stem test DST of the Malm carbonate rocks of the Carpathian Foredeep** • AGH Drilling, Oil, Gas 2012 • Vol. 29 • No. 2

The paper presents the results of 25 industrial double-cycle drill stem test DST of the Malm carbonate rocks of the Carpathian Foredeep. Designated prospective levels were tested by DST to assess their productivity. DST tests were performed mostly in open hole sections of boreholes and rarely in cased hole – after earlier borehole casing perforations. Probes used American Standard company Halliburton and Baker Inflatable type. During testing of Malm reservoir rocks in approximately 75% was used double-cycle drill stem test DST. Due to renewed interest of the Polish Oil and Gas Company in petroleum prospection of Malm sediments, it is appropriate to use in the petroleum exploration results obtained thus far from industrial research double cycle DST reservoir testing. This provides, among others to modification of drilling technology and to sampling of Malm sediments in the planned boreholes.

**Keywords:** *petroleum explorations, Carpathian Foredeep basement, Malm carbonates reservoir rocks, results of double-cycle drill stem test DST*

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### Śliwa T., Skowroński D., Gonet A., Sapińska-Śliwa A.: **Rock mass thermal analysis in underground thermal energy storage (UTES)** • AGH Drilling, Oil, Gas 2012 • Vol. 29 • No. 2

In the article, there has been described research conducted in underground thermal energy storage (UTES). There have been also presented temperature measurements led in thermo-piezometric boreholes. On the basis of the measurements, the correctness assessment of borehole heat exchangers (BHE) arrangement has been accomplished.

**Keywords:** *underground thermal energy storage (UTES), borehole heat exchangers (BHE), heat pumps, geo-energetics*

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Turitsyna M.V., Yakovlev A.A.: **Application of new make-ups of surfactants for foam production** • AGH Drilling, Oil, Gas 2012 • Vol. 29 • No. 2

An analysis and estimation of deposits with zones of abnormally low formation pressure of a productive layer of the Perm region, Western and Eastern Siberia have been carried out.

Some questions related to well cleanout with the use of liquid-gas mixtures have been considered. Some experiments with surfactants for producing foam have been conducted.

**Keywords:** *drilling, productive layer, abnormally low pressure, well cleanout, liquid-gas mixtures, surfactants*