CARBOXYMETHYLCELLULOSE A COST EFFECTIVE ALTERNATIVE TO GUAR, CMHPG AND SURFACTANT BASED FLUID SYSTEMS

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ABSTRACT
The first fracture treatment using crosslinked guar was performed in 1969. Since then guar and its derivative polymers have dominated hydraulic fracturing. But because of volatility and supply issues with guar gum that have surfaced during peak activity years, industry has turned to alternatives. One of those is Carboxymethylcellulose (CMC) that just like guar comes from food industry. CMC is also used in pharmaceuticals as a thickening agent, and in the oil and gas industry as an ingredient in drilling mud. Use in hydraulic fracturing is surprisingly limited. The objective of this paper is to demonstrate successful cases of CMC based treatments over traditional guar and surfactant based treatments used in linear and foamed applications.

This paper presents several cases from treatments performed on formations such as Cardium, Montney, Belly River, and Dunvegan. Presented production comparison will demonstrate that wells treated with CMC based hydraulic fracturing fluid system yield similar performance when compared to wells treated with guar, its derivatives, and surfactant based fluid systems.

Cost savings realized when switching to CMC based fluid systems are also discussed in the paper. Laboratory tests described, performed, and results shared to demonstrate the performance of CMC compared to guar, Carboxymethylhydroxypropyl guar (CMHPG), and surfactant systems.

The paper attempts to provide degree of confidence to the operators looking for cleaner alternatives to industry established fluid systems and shows that these can be successfully implemented without additional risk or cost.

To order the full paper, visit https://doi.org/10.2118/175904-MS