

BIODIESEL AS A DRILLING FLUID – THE PROS & CONS!

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Diesel as well as numerous classes of mineral oils has been used for decades as the base fluids for invert drilling fluids. These fluids have proved invaluable from a drilling performance perspective even though they suffer from concerns over health, safety and environmental (HS&E) aspects. Attempts to replace the diesel as a base fluid with more HS&E friendly mineral oils or paraffin products have met with resistance primarily from an economical perspective. With the recent increase in crude oil prices and thus the subsequent effect on diesel and other refined base fluids, a renewed interest in alternatives to diesel has developed.

In some parts of the world, leading the way of these non-refined materials is biodiesel. The general feeling, primarily due to its self implied name, is that biodiesel is a direct replacement for diesel in every regard. As far as drilling fluids go, the replacement of diesel with biodiesel can be realized as long as issues such as hydrolytic and thermal stability, elastomer compatibility, product effectiveness, and drilling fluid performance are considered. Although the source of biodiesel bespeaks a “greener” origin, the environmental impact of these materials still requires assessment and understanding. This paper will review work that addresses these performance and environmental aspects of a drilling fluid based on biodiesel. Some details will be presented on wells drilled using biodiesel in South America.

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