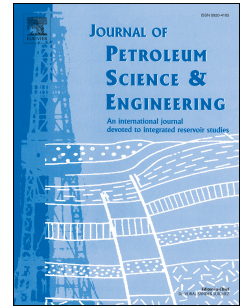


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# Dynamic filtration of drilling fluids and fluid loss under axially rotating crossflow filtration

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## ABSTRACT

The filtration characteristics of drilling fluids were evaluated by dynamic filtration under cross flow geometry. Crossflow (tangential flow) filtration by using a rotating cylinder geometry occurs when the mud is being circulated radially by inner rotating cylinder and permeates tangentially through the outer wall filter media. Dynamic filtration tests under cross flow represent more realistic conditions compared to static tests. The growth of the filter cake and filtrate flow are controlled by the blocking and erosive action of the mud stream. Dynamic HPHT<sup>®</sup> Filtration System Model 90 which operates at high temperature and high pressure, manufactured by Fann Instrument Company<sup>TM</sup> is the most commonly used device to evaluate fluid loss and filtration characteristics of drilling fluids. However, according to its equipment manual, there are no standard methods for interpreting the dynamic filtration data. Here, the fluid loss data of drilling mud formulations were modelled based on the kinetics of filtration and plugging of through filtration media by drilling muds. The total volume loss,  $V$  as a function of

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