K-MAX PlusSM Service Fluid-Loss Control System

K-MAX PlusSM service is a specially derivatized HEC that is crosslinkable in a variety of brines with densities of 8.34 to 14.0 lb/gal. It is effective at temperatures between 75° and 300°F (24 to 149°C). K-MAX Plus service helps prevent costly completion fluids from leaking off into adjacent formations during well completions and recompletions. It is available as a liquid gel concentrate (LGC) that can be hydrated in standard completion brines. K-MAX Plus service is stable for up to 72 hours at temperatures as high as 300°F (149°C).

When K-MAX Plus service is pumped downhole and exposed to increasing temperatures, it becomes more densely crosslinked and consequently stronger. However, most K-MAX Plus service pills can be circulated out of the fluid-loss zone and reversed through a gravel-pack screen. An external acid-breaker fluid is spotted across the remnants of the pill, changing the gel pH and reversing the polymer crosslinking, causing the K-MAX Plus service to revert to base-brine consistency.

Applications

K-MAX Plus service helps control completion-fluid losses (1) after perforating and before gravel packing, (2) after gravel packing and frac packing, (3) in horizontal holes during and after drilling-fluid filter-cake cleanup, and (4) during other completions and workovers. In addition, K-MAX Plus service has the following applications:

• helps maintain formation support in unstable zones, and helps prevent sloughing into the wellbore
• aids in water-control, cementing, and fracturing treatments for zonal isolation
• helps support poorly consolidated formations
• helps isolate zones for temporary diverting procedures during stimulation
• serves as an annulus-protection fluid
• can enhance water shut-off applications
• helps prevent zonal communication
• serves as a cuttings bridge during milling operations

Benefits

K-MAX Plus service can provide the following benefits:

• It is completely free of the microfishyes sometimes associated with HEC polymers and biopolymers.
• It is a solids-free system.
• K-MAX Plus service can be formulated for a wide range of pill densities up to 14 lb/gal in specific brines.
• It can provide reversible crosslinking and is compatible with internal breakers.
• Job-ready protection pills can be prepared quickly.
• K-MAX Plus service can provide extended stability at temperatures up to 300°F (149°C), depending upon the service offered.
• It has a gel strength capable of withstanding high differential pressures.
• It can be rapidly removed by a diffusion-breaker mechanism.
• K-MAX Plus service helps seal the formation while allowing the passage of logging tools, screens, and pipe.
• It is designed not to penetrate the formation.
• It has low toxicity and does not contain heavy-metal compounds.
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