Delaying Agent KHF025

1. Introduction

Crosslinked CMHPG based fracturing fluids crosslink readily when the pH is in range of 9-9.5. Minimizing the friction pressure experienced by the viscous fluid when going through the tubular can be achieved by delaying the cross-linking of the fluid. Delay agent KHF025 can maintain the pH at around 8.2 while the fracturing fluid is going through the tubular, and thus the crosslinking will be delayed. This will dramatically reduce the friction and is a recommended practice in fracturing applications.

2. Physical Properties and Hazards

Additives	Form	S.G.	Water Solubility	Health Hazard	Physical Hazard	pH
KHF025	White powder	2.13-2.33	Soluble	N/A	Corrosive	8.0-9.0 (1%)

3. Chemical Properties and Application

Borate based crosslinking of guar-based fluids are time dependent while zirconium crosslinking is temperature dependent. The fluid containing crosslinker and polymer at a pH above 9 during pumping through the tubular will crosslink immediately. This will result in excessive friction pressure due to high viscosity. To minimize the horse power on location, the friction needed to be reduced and this can be materialized by delaying the crosslinking by using the KHF025. The pH value is controlled by KHF025 in the range of 8.0 to 8.5 at most application conditions, and this will delay the crosslinking to 3 to 10 minutes. The delay can be controlled by using specific quantities of KHF025.

The guar or guar derivative based fracturing fluids can be stabilized at temperature 350°F (177°C) if the fluid is designed properly.

4. Treatment

KHF025 is not generally added as a solid while continuous mixing. It must be dissolved in water and metered into the blender before the crosslinker is added. For batch mixing, the solid can be used at 12 lbs/1,000 gal.

5. Packaging

This product is supplied in plastic-lining bags with net weight of 25 kg/bag. Keep it away from extreme conditions such as places wet and humid or direct sunlight.