

Delaying Agent KHF010

1. Introduction

Fast crosslink of linear gel in fracturing fluids will increase the fluid viscosity exponentially and tubing friction will increase dramatically. The crosslink is therefore required to be delayed at most fracturing operations to avoid the above problems. KHF010 is one of the effective delaying agents used in guar or derivative based fracturing fluids.

2. Physical Properties and Hazards

Additive	Form	Specific Gravity	Water Solubility	Melting/Flash Point (°C)	Health Hazard	Physical Hazard	pH
KHF010	White to Light-yellow Granules	1.75-1.85	Soluble	>100	Eyes	Dust, Explosive	6.0-8.0 (10%)

3. Chemical Properties and Application

The special groups in KHF010 molecules will delay the crosslink reaction between borate and guar or guar derivative molecules. Depending on the chemical environment such as mix-water, reactant concentrations such as KHF021, KHF009 and KHF008, and temperature, crosslink delay time can be controlled with KHF010 in the range of 1-6 minutes.

KHF010 will keep dissolved iron active in mix-water at high pH values. Stabilizer aid KHF004 must be used to prevent fluid degradation by dissolved iron especially at elevated temperature.

Crosslink and stability properties of fracturing could be affected by KHF010 adversely. Depending on other additives and their concentrations, optimum KHF010 concentration should be designed for both required crosslink delay time and other fluid properties.

4. Treatment

The KHF010 concentration is dependent on the polymer concentration, temperature, mix-water salinity and desired crosslink delay time. Typically 15-50 lbs/Mgal KHF010 are required to cover most applications.

5. Packaging

KHF010 is supplied in plastic-lined bags with net weight of 25 kg/bag.

Keep it away from extreme conditions such as places wet and humid or direct sunlight.