

Borate Crosslinker KHFX0610

1. Introduction

Crosslinker are generally introduced to polymer-based fracturing to improve the rheological properties of fracturing fluids.

KHFX0610 is a borate crosslinker used in guar based fracturing fluids such as OPTiFrac. Borate-crosslinked guar-based fracturing fluids reach optimum properties when the pH is in the range of 10.5-12.0. Crosslinker KHFX0610 itself contains a pH buffer and delaying agent to optimize crosslinking and improve fluid viscosity and stability.

2. Physical Properties and Hazards

Additives	Form	S.G.	Water Solubility	Health Hazard	Physical Hazard	pH
KHFX0610	Light yellow liquid	1.15-1.20	Soluble	Eyes, skin, Inhalation	Corrosive	12.0-14.0 (1%)

3. Chemical Properties and Application

KHFX0610 is a borate crosslinker used in guar-based fracturing fluids. It provides the required pH value to crosslink guar or derivatives hydrated in salt or mix-water. Therefore, it is used in most guar or guar derivative-based fracturing fluids to improve fluid rheological properties and temperature stability. The pH value is controlled within the range of 10.5-12.0 under most application conditions.

KHFX0610 molecules contain special groups that 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 KHFX021, and temperature, crosslink delay time can be controlled in the range of 1-6 minutes.

The optimum KHFX0610 concentration should be designed based on the required crosslink delay time and fluid properties, depending on other additives and their concentrations.

KHFX0610 is compatible with all additives used in OPTiFrac fracturing fluid systems, which are engineered for use up to 250°F.

4. Treatment

The concentration of KHFX0610 dependent on the polymer concentration, temperature, mix-water salinity and desired crosslink delay time. Typically, 5-10 Gal/1,000 Gal KHFX0610 are required to cover most applications.

5. Packaging

KHFX0610 is supplied in 55 gallons high density polyethylene (HDPE) drums or 265 gallons HDPE totes. Keep it away from extreme conditions such as places near flames or direct sunlight.