

Surfactant Gelling Agent KHF041

1. Introduction

Gelling agent is one the most important additives in fracturing fluids to provide enough viscosity for breaking the formation rocks and carrying proppant into the fractures.

KHF041 is a surfactant gelling agent to prepare water-based, polymer-free fracturing fluids (SurFrac) that extends application temperature up to 275°F. SurFrac system is formulated by gelling agent KHF041, clay stabilizer and breaker KHF017. Unlike polymer-based fluid systems, crosslinkers are not required in SurFrac systems since the viscosity is developed upon mixing KHF041.

2. Physical Properties and Hazards

Additive	Form	Specific Gravity	Water Solubility	Melting/Flash Point (°C)	Health Hazard	Physical Hazard	pH
KHF041	Light-brown Liquid	0.95-1.05	Soluble	20	Eyes, Skin	Fire	6.0-7.0

3. Chemical Properties and Application

Viscoelastic Surfactant Based fracturing fluids (SurFrac) containing KHF041 are not degraded when exposed to extended periods of shearing and the viscosity is independent of time. The fluid viscosity decreases with increasing shear rate, but the original fluid viscosity will be recovered when the shear rate returns to the original value. However, since fluid viscosity is a function of shear rate, the time that a fluid needs to regain its viscosity after high-shear exposure is an important fluid characteristic. KHF041 does not need any shear recovery additives.

The SurFrac fluids are prepared by mixing gelling agent KHF041, clay stabilizer and breaker in freshwater. KHF041 are designed for use in wells with bottomhole temperatures (BHT) from 65 to 275°F.

4. Treatment

KHF041 is used in a concentration range of 30 to 100 Gal/1,000 Gal. QA/QC tests are required to ensure that the fluid viscosity at BHT is above 50 cP at 100 s⁻¹.

5. Packaging

KHF041 is supplied in 55 gallons high density polyethylene (HDPE) drums or 265 gallons totes. Keep it away from extreme conditions such as places near flames or direct sunlight.