

High Viscosity Friction Reducer KHF081

1. Introduction

Slickwater has been widely used in fracturing treatment in tight sands or shale oil and gas formations. Friction reducers (FR) or high viscosity friction reducers (HVFR) are the key components in most slickwater fracturing fluids. Some FR or HVFR can be crosslinked for carrying higher concentration of sand or proppant in addition to friction reduction while pumping.

KHF081 (EcoFR) is a novel HVFR which is highly viscous, environmentally friendly, fast-hydratable, and self-clay inhibitive.

2. Physical Properties and Hazards

Additive	Form	Specific Gravity	Water Solubility	Melting/Flash Point (°C)	Health Hazard	Physical Hazard	pH
KHF081	Off-white Liquid	1.20-1.25	Soluble	>93	Eyes, Nose, Throat	Water Slick	6.5-8.5

3. Chemical Properties and Application

Three forms of polyacrylamide or derivatives, powder, slurry and emulsion, are available as friction reducers in slickwater fracturing. Special equipment is required for dry powder delivery into the wellbore, which is operationally risky. Both slurry and emulsion products contain significant amount (typically 55-60%) of oil and surfactant, which is costly and detrimental to environment and formation.

HVFR KHF081 is synthesized in aqueous phase, which contains no oil or organic solvents. The content of high molecular weight polyacrylamide derivatives is more than 40%.

The special groups introduced into the polymer backbone and much higher molecular weight make KHF081 hydrate easier in mix-water, build up higher viscosity than conventional friction reducers and self-inhibit to swelling and dispersive clays.

KHF081 is compatible with typical additives used in slickwater systems such as clay inhibitors, flowback surfactants and biocides.

4. Treatment

0.5-3.0 Gal/Mgal KHF081 is enough for most slickwater applications. For sand-carrying purposes, 3-10 Gal/Mgal KHF081 is highly recommended.

5. Packaging

KHF081 is packed in 265 gallons HDPE IBC totes.

Keep it away from extreme conditions such as places near flames or direct sunlight. Store at temperatures lower than 30°C.