

ClearPAC

Polymer-free viscoelastic surfactant gravel-pack fluids

APPLICATIONS

- Openhole and cased-hole gravel packing with conventional or Alternate Path[†] screens
- Gravel packing in circulating or squeeze modes
- Vertical, inclined, and horizontal wells
- Deepwater, continental shelf, and land wells

BENEFITS

- Less risk of premature screenout due to superior gravel suspension
- No hydration time required (continuous mixing)
- Enhanced production due to high retained permeability
- Cost savings because of reduced surfactant amounts
- Longer gravel-packed sections due to low friction pressure
- Further time savings through elimination of subsequent breaker requirements

FEATURES

- Superior shear recovery
- Suitable for wide range of temperatures and brine densities
- Compatible with both monovalent and divalent brines
- Effective in wells drilled with oil-based or water-based mud
- Suitable for batch or continuous mixing

ClearPAC* polymer-free gravel-pack fluids are water-based fluids prepared by adding a viscoelastic surfactant (VES) to a completion brine; a wide range of brine densities can be used. Viscosity develops rapidly and is not prone to shear degradation.

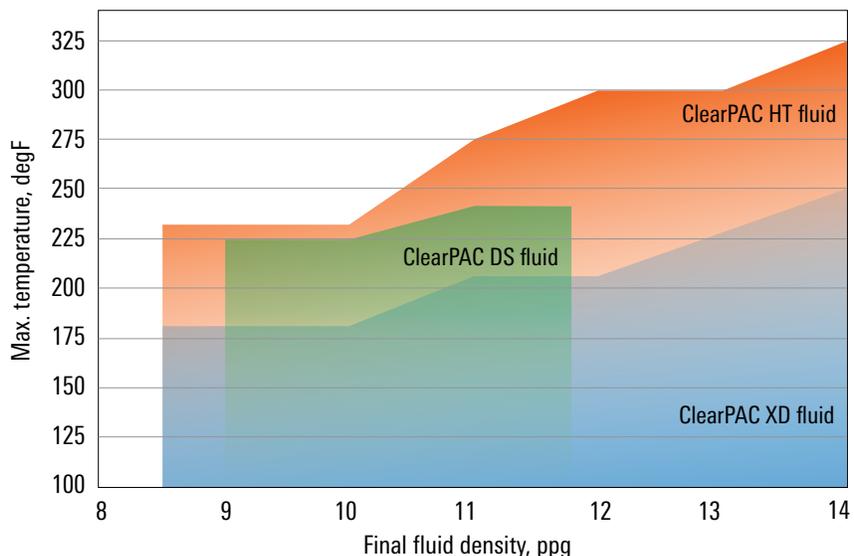
With their tolerance to oil-based fluid contamination, ClearPAC fluids provide efficient gravel packing in wells drilled with oil-based or water-based mud.

Lower surfactant concentration and friction pressure

The fluids provide superior gravel suspension performance and shear recovery at lower surfactant concentrations compared with other VES fluids. They also exhibit low friction pressure during pumping compared with polymer-based fluids, making them ideal for gravel packing long horizontal intervals with Alternate Path screens.

No breaker requirement for viscosity reduction

Unlike crosslinked-polymer-based fluids, ClearPAC fluids exhibit viscosity reduction on contact with crude oils or on dilution with brine. No breaker is required to reduce viscosity after the gravel-pack operation is complete.



Temperature and final fluid density ranges for ClearPAC fluids.

Three formulations for operational flexibility

ClearPAC XD* polymer-free VES gravel-pack fluid is compatible with both monovalent and divalent brines with final fluid densities ranging from 8.5 to 14.0 ppg. It is suitable for operating temperatures up to 250 degF [121 degC].

ClearPAC HT* polymer-free VES high-temperature gravel-pack fluid contains a sand suspension additive in addition to the VES, for improved performance at higher temperatures. It is suitable for operating temperatures from 180 to 325 degF [82 to 163 degC] and compatible with both monovalent and divalent brines with final fluid densities ranging from 8.5 to 14.0 ppg.

ClearPAC DS* polymer-free VES gravel-pack and mudcake-cleanup fluid is compatible with most enzyme and chelating agent solutions. Incorporating these additives enables simultaneous gravel packing and mudcake cleanup where removal of calcium carbonate bridging-weighting agents is required, reducing operating time. Monovalent or divalent brines with final fluid densities ranging from 9.0 to 11.8 ppg can be used. ClearPAC DS fluid is suitable for operating temperatures up to 240 degF [116 degC].

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