Max Seal® Fluid Loss Control Additive
Temporary Fluid Loss Control with Minimum Formation Damage

- Ready-to-use, requires no on-location gel preparation
- Readily disperses in most completion brines
- Low friction pressures, can be placed through small diameter tubing
- Provides effective fluid loss control
- Effectively removed with acid
- Improves well productivity
- Helps prevent loss of expensive brines

Max Seal® additive is a unique fluid loss control material that provides excellent pressure control in most completion brines. Formation damage typically associated with common fluid loss control additives is minimized with the use of this product. It was developed to supplement or replace oil soluble resin, and carbonate and graduated salt fluid loss control additives.

Max Seal additive is a highly crosslinked HEC gel that has been processed so it easily disperses as discrete particles in most completion fluids. These suspended, semi-rigid particles fill perforations and bridge off on the formation forming a low permeability filter cake. This filter cake is pliable, conforming to the formation surface, and limits the fluid loss. Max Seal additive exhibits little or no invasion into the formation porosity so that almost no permeability damage can occur.

Max Seal additive particles rapidly disintegrate upon contact with acid, providing an effective means for removal. The polymer will uncrosslink as pH is lowered. This allows easier removal, achieved in less contact time than is normally required to completely dissolve a particle (such as with carbonates). Max Seal additive characteristics helps regain formation permeability.

Max Seal additive can help provide effective fluid loss control during a variety of well treatment operations, including:
- After perforating
- After gravel packs or FracPac™ service
- During and after horizontal hole cleanup of drilling fluid filter cake
- Aiding in zonal isolation with other well treatment procedures

This graph illustrates the effectiveness of Max Seal additive in controlling fluid loss while providing maximum regained permeability. The test was performed at 180°F using a 15% Max Seal concentration in an 11.5 lb/gal CaCl₂ completion fluid. The fluid had been circulated for 30 minutes at 1 b/gal through 0.75-in. tubing.

Fluid loss tests were conducted in Fontain Bleau sandstone of 300 mD. The Max Seal treatment instantly formed a seal that contained a differential pressure of 1,000 psi, resulting in a 99.97% reduction in fluid loss rate. This seal was effective for several hours until an overflush breaker was used to remove it.

A small volume of 15% HCl solution was spotted on the core face and allowed to soak for 30 minutes. Brine was then injected to determine regained permeability. After 0.5 liters of brine, more than 94% of the initial permeability had been regained.

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Max Seal Additive Helps Stop Fluid Loss in Offshore Well

During sand control operations, an operator began losing fluid in two separate intervals on an offshore Louisiana gas well. Halliburton recommended Max Seal additive to help decrease fluid loss.

In the upper interval, GG Sand formation, fluid loss was 9 bbl/hr. A 50% Max Seal/50% KCl pill was pumped, resulting in total control of fluid loss. In the lower interval, GH Stray formation, fluid loss was more severe at 20 bbl/hr. A 50% Max Seal/50% KCl pill was pumped. The solution decreased fluid loss to 1 bbl/hr. Sand control operations continued and were completed successfully.

Economic value gained included the cost of fluid not lost to the formation. Also, if Max Seal additive was not available, other more risky alternatives would have been required. These included trying less successful fluid loss agents or pumping a salt pill which could damage the formation. Quick response to fluid loss also meant further costly rig time was not incurred.

For more information about how Max Seal® additive can provide effective fluid loss control, contact your local Halliburton representative or e-mail stimulation@halliburton.com.