ConFINE fines fixing agent

Prevent completion plugging, erosion, and clogging of surface facilities

Applications

- Frac-pack treatments in offshore and deepwater sand control applications
- Formation fines stabilization
- Continuous mix operations
- Existing proppant pack remediation

Features and benefits

- Nanometer-size particles create surface charges on proppant to fixate formation fines
  - Prevents formation fines from migrating through the proppant pack to the wellbore
  - Preserves fracture conductivity by keeping formation fines out of the proppant pack
- Easily pumped as a liquid slurry by liquid additive pumps
  - Compatible with frac pack fluids
  - Uses familiar and widely available pumping equipment
- Sustains conductivity of the proppant in the fracture
  - Increases well production longevity and ultimate recovery factor
  - Minimizes formation damage

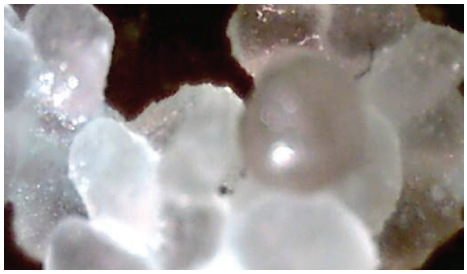
The **ConFINE™ fixing agent** enables operators to capture fines away from the near wellbore area. This extends the well's producing life by preventing completion plugging, erosion, and clogging of surface facilities.

ConFINE treatments use advanced nanoparticle technology with high surface-force attractions to capture migrating fines in a frac pack. Rather than relying on oily, sticky, or tacky filming agents for fines fixation, ConFINE treatments use a special, solid material that is manufactured to nanometer particle size and added to fracturing proppant or gravel-pack sand to stabilize formation fines.

These nanoparticles have an affinity for proppants and gravels and also maintain an attraction for swelling and migrating clays, silicates, and other formation fines.

A ConFINE treatment application is generally recommended at 1 gal/1,000 lbm (4 L/454 kg) of proppant. The exact dosage can vary depending on well conditions and the severity of the fines migration problem. In laboratory testing, ConFINE nanoparticles have been shown to retain 20 times their weight in formation fines. The nanoparticles are converted into slurry form for field use, and the product is applied to the frac blender using a liquid additive pump.

Sand treated with the ConFINE fixing agent.



Treated sand after migrating fines have been captured.