



FOAMED CEMENTING SYSTEMS

Achieve full wellbore cement coverage – even under total lost circulation.

Depleted reservoirs, natural fractures, incompetent zones and vugular sections along the wellbore can wreak havoc on your cementing operations. Under conditions of significant lost circulation, it can be impossible to achieve your required zonal isolation and reach the intended annular cement height using conventional cement systems.

Energize your cementing performance with NexTier's foamed slurry systems.

These unique, dynamic slurry systems are energized with nitrogen, which enables three-dimensional expansion, even after the top cement plug has landed. The advantage of this expansion is that it creates a reliable "lock-up mechanism" along the X, Y and Z planes – to fight lost circulation and to enable dependable cement sheath development along the entire cemented interval.

NEXTier

NexTier's foamed cement systems deliver many benefits to your operations:

- Remediation of lost circulation
- Flexibility to change slurry density on the fly
- Enhanced insulating properties
- Natural reduction of fluid loss
- Superior control of gas migration
- Enhanced mechanical properties (lower Young's modulus, higher elasticity)
- Efficient mud displacement and filter-cake removal
- Ability to foam the spacer as needed, since nitrogen and foamer are readily available
- Exceptional performance in a variety of remedial/abandonment applications, such as squeezing foamed cement through a packer when the well is under vacuum due to severe loss zones
- Ability to use cap cement to minimize wait-on-cement (WOC) time when foamed cement is designed to come to surface
- Option to simplify logistics by having a single blend for both lead and tail slurries

The ability to use a single cement blend for both lead and tail slurries streamlines the design process and makes your operations much more efficient. Based on well requirements, you can simply vary the nitrogen rate to achieve consistent density along the length of the cemented annulus. Maintaining a constant nitrogen rate will result in varied densities.



APPLICATIONS

- Primary cementing in formations prone to lost circulation because fracture gradients are sensitive to hydrostatic pressure and/or equivalent circulating density (ECD) of fluids
- Remedial cementing needs, especially those related to abandoning depleted or incompetent formations
- Applications where enhanced resiliency is needed to handle mechanical loads of further drilling or completion and workover operations
- Combating gas migration by pushing back on the formation while cement slurry goes through hydration/hardening
- Cementing across zones that have strong water flows

SPECIFICATIONS

BASE BLEND PROPERTIES

Slurry Density	13.20 lb/gal
Yield ¹	1.83 ft ³ /sk
Water Requirement	9.72 gal/sk

CRUSH COMPRESSIVE STRENGTH AT 178°F

Time	Strength (psi)
24 hr	447
72 hr	652

ADDITIVE USE/TYPE

Accelerator	Silicate, Gypsum, CaCl ₂
Retarder	As needed
Fluid Loss	As needed
Dispersant	Not recommended

THICKENING TIME AT 117°F

Bearden Units of Consistency (Bc)	hr:min
30	03:07
50	04:16
70	04:43

FOAM STABILITY AT 1 ATM (14.7 PSI)

Designed Density	11 lbm/gal
Top	10.95 lbm/gal
Middle	10.97 lbm/gal
Bottom	10.98 lbm/gal

DOWNHOLE STATIC TEMPERATURE RANGE²

50 to 230°F

¹Foamed slurry yield is a variable based on the design criteria. In most cases, the foamed slurry yield is 20 to 35% higher than the base slurry yield.

²As with conventional slurries, adding silica will enable reliable cement performance at temperatures exceeding 230°F.

Safety and Handling Care

Cement powder, dust and liquid cement slurry can harm your eyes, skin and lungs. Always wear proper personal protective equipment – including safety goggles, dust masks and rubber gloves – when handling these materials. For more information, review the applicable material safety data sheets prior to handling cement materials or chemicals used in slurry blends.





NexTier is a leading provider of integrated completions, focused on the most demanding land basins in the US. Across the nation, we are committed to helping the most demanding producers accelerate production through proven, integrated completion solutions. Our focus on safety, innovation and efficiency drives leading results for our customers.



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