MICRO-PRIME High-Efficiency Wellbore-Cleaning Spacer System
Optimize the wellbore cleanup process for improved production

Applications
- Oil- and synthetic-based wellbore displacements
- Deepwater, shelf, or land

Features and Benefits
- Optimizes displacement efficiency of OBM/SBM to completion brine
  - Minimize formation damage for optimized hydrocarbon recovery
- Solubilizes oil on contact
  - Easy cleanup of casing and risers
- 100% water wetting of all metal surfaces
  - Maximum cleaning efficiency
- Improves debris removal for proper tool setting
  - Reduced rig time
- No special mixing facility required
  - Improved logistics and cost savings
- Does not require a solvent to remove oil residue
  - Reduced environmental and health hazards
- Ultralow interfacial tension
  - Yields highly efficient detergent that instantaneously incorporates oil
- Effectively cleans from 40°F to 450°F (1.44°C to 232°C)
  - Can be used in a wide temperature range
- Improves transition and minimizes completion time
  - Cleans and waterwets in one circulation
  - Reduces filtration and rig time
  - Saves the customer money
- Works synergistically with BHI wellbore cleanup tools
  - Provides a single source of contact for all your displacement needs
- A full suite of displacement software developed
  - Accurately simulates and plans for difficult deepwater displacements

Advancements in displacement software, cleanup tools, and spacer chemistry have contributed to a more efficient displacement process, leading to lower operating costs and increased production.

The removal of mud and solids is essential to the successful completion of a well. The Baker Hughes MICRO-PRIME™ high-efficiency, wellbore-cleaning spacer system is revolutionary technology designed to optimize the wellbore cleanup process when displacing drilling fluids prior to the completion process.

The innovative design uses advanced Mesophase technology that cleans and water wets all surfaces, even at high levels of oil- or synthetic-based mud contamination.

In conjunction with Baker Hughes DISPLEX™ displacement modeling software, the MICRO-PRIME spacer technology maximizes cleaning effectiveness and minimizes waste generation. The viscosified transition spacer is dual functioning, piloting the displacement and providing improved cleaning and wetting capacity. The cleaning spacer completes the process, cleaning and water wetting the metal.

The MICRO-PRIME spacer technology allows operators to maximize wellbore cleaning efficiency while reducing risks associated with challenging completion operations.

Contact your Baker Hughes representative today or visit www.bakerhughes.com to find out how the MICRO-PRIME system can help you optimize your wellbore cleanup.
<table>
<thead>
<tr>
<th>Application</th>
<th>Normal temperature applications ≤250°F (≤121°C)</th>
<th>High temperature applications &gt;250°F (&gt;121°C)</th>
<th>All applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>PRIME 100</td>
<td>PRIME 770</td>
<td>MPA-50 &amp; MPA-100</td>
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<tr>
<td>Description</td>
<td>Proprietary surfactant blend included in the weighted/unweighted viscosified transition spacer</td>
<td>Proprietary surfactant blend used for solids-free Newtonian cleaning spacer</td>
<td>Hydrophilic linker used to improve the solubilization of oil in Mesophase fluids</td>
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<td>Function</td>
<td>Deliver the majority of the cleaning and water wetting of downhole surfaces</td>
<td>Complete the cleaning and wetting of downhole surfaces</td>
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<tr>
<td>Typical concentration</td>
<td>Synthetic oil—8%–10% vol Oil-based muds—4%–6% vol</td>
<td>10% vol</td>
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</table>

**Typical concentration**
- **Synthetic oil**—8%–10% vol
- **Oil-based muds**—4%–6% vol
- **Solids free**—6–10 lbm/bbl (17.1–28.5 kg/m³)
- **Solids laden**—1–6 lbm/bbl (2.85–17.1 kg/m³)
- **MPA-50**—3% vol
- **MPA-100**—4–6 lbm/bbl (11.4–17.1 kg/m³)