DeepSpot Complete Acid Fracturing Service
Get more conductive fractures with easier, more efficient pumping

The DeepSpot™ complete acid fracturing service delivers rock-breaking viscosity, slow-reacting acid, and effective leak-off control in a single fluid system. Unlike conventional acid frac jobs that require multiple fluids and complex design and pumping, the DeepSpot service provides everything you need in a single solution, creating longer, more conductive fractures—without all of the extra logistics.

The service includes hydrochloric (HCl) acid systems which can be designed with varying strengths of HCl. The systems can also be designed as linear gel or crosslinked fluid, depending on viscosity requirements.

During treatments, pumping typically alternates between crosslinked DeepSpot acid—used to extend the fractures—and DeepSpot acid as linear gel—to create etched patterns that maintain fracture conductivity upon closure. Crosslink times can be delayed to minimize pipe friction pressure, enabling consistently higher pump rates throughout treatment delivery, while using less horsepower (HHP).

Acid that reacts too quickly can spend in the near wellbore. The DeepSpot acid only becomes fully reactive after the system breaks, enabling deep, differential etching. Fractures are longer, and they maintain open flow channels. The DeepSpot service also provides excellent fluid leakoff control, minimizing acid volumes and improving operational efficiency for better overall economics.

Applications
- Acid fracturing operations in carbonate formations
- Matrix acidizing in highly-permeable carbonate formations

Features and benefits
- Single fluid system that can be gelled or crosslinked
  - Simplifies job design and pumping
  - Maintains optimal viscosity for improved fracture geometry
  - Reduces surface footprint
- Nonstop acid pumping
  - Improves treatment coverage
  - Extends fractures farther into the formation
  - Increases etched surface area
- Delayed acid reaction
  - Ensures deep penetration before full reactivity is reached
  - Enables deep, differential etching
  - Keeps flow channels open after fractures close
- Delayed crosslinker
  - Reduces surface treating and friction pressures
  - Enables consistent, high pump rates
  - Uses less HHP compared to emulsified acid
- Superior polymer breaker
  - Minimizes residue
  - Maintains some viscosity to clean up insoluble fines
  - Maximizes regain permeability
- Excellent leakoff control
  - Ensures treatments stay where you want them
An encapsulated breaker reduces the system viscosity at a controlled time without affecting initial system performance. And even after the system breaks, the fluid maintains some viscosity to assist in cleanup of insoluble fines for maximum regain permeability.

The DeepSpot acid systems are compatible with common mix waters, energizing gases, acid corrosion inhibitors, and other common additives to minimize formation damage and maximize treatment effectiveness.

Contact your Baker Hughes representative today or visit bakerhughes.com/DeepSpot today to learn how the DeepSpot service can help you create better, more conductive fractures, with fewer logistics.

<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
<th>AG-58L POLYMER SYSTEM</th>
<th>AG-61L POLYMER SYSTEM*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum temperature</td>
<td>Up to 300°F (150°C)</td>
<td>Up to 200°F (107°C)</td>
</tr>
<tr>
<td>Hydration requirements</td>
<td>Requires 30 minute hydration time</td>
<td>Fast hydration; pump on-the-fly</td>
</tr>
<tr>
<td>HCl concentrations</td>
<td>3% to 20%</td>
<td>3% to 20%</td>
</tr>
<tr>
<td>Polymer breakage</td>
<td></td>
<td>Enhanced</td>
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</tbody>
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*Requires iron control agent

The DeepSpot fluid uses a delayed crosslinker to reduce friction pressures for faster, easier pumping, and a smaller surface footprint.

The DeepSpot fluid is designed to be compatible with common mix waters, energizing gases, acid corrosion inhibitors, and other common additives to minimize formation damage and maximize treatment effectiveness.

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