Surfactant gel chemistry used in MISCO₂ Frac℠ service helps enable rapid recovery of frac fluids from the producing formation. The results: helps achieve more production faster.

Miscible methane drive displacement of fracturing fluid makes MISCO₂ Frac service ideal for low pressure and/or water sensitive gas reservoirs. Other benefits include:

- Excellent regained permeability and fracture conductivity
- Low friction pressures
- Effective leakoff control
- Excellent proppant transport
- Compatible with 50% CO₂
- Immediate crosslinking
- Does not contain chlorides that may promote organic chloride formation
- Compatible with curable resin-coated proppant

Additional Health, Safety and Environmental benefits include:

- Treatment fluid returns may be reused or sold as oil after processing
- Eliminates disposal problems associated with treatment water
- Eliminates problems associated with using methanol

What is Miscible Methane Drive Displacement?

Methane will effectively displace CO₂ saturated aromatic hydrocarbon fluids, provided a sufficient volume of CO₂ gas exists between the methane and oil. By using the produced methane as the drive mechanism for miscible displacement of the fracturing fluid, rapid fluid recovery is realized, even in low pressure dry gas reservoirs.

For methane to act as the fluid drive mechanism, the necessary volume of CO₂ gas must be created between the produced natural gas and CO₂ saturated hydrocarbon fracturing fluid. This is achieved in two ways:

1. Evolution of CO₂ gas from the fracturing fluid at downhole temperature and pressure.
2. Use of a 100% CO₂ prepadd.

The MISCO₂ Frac fluid system uses only three components for accurate and simplified field application.

Only two liquids and a breaker (powder or slurry) are blended to form MISCO₂ Frac fluid. The two liquids are run in a 1:1 ratio. This allows for quick and accurate checks on amounts pumped during the treatment. Plus, viscosity can be easily adjusted during the treatment as required.

MISCO₂ Frac fluid is highly tolerant to additive concentration variations and contaminants, allowing for simplified and more predictable field results.
<table>
<thead>
<tr>
<th>FORMATION</th>
<th>Prefrac Production m3/day x 1,000</th>
<th>Prefrac WHFP Kpa</th>
<th>After Frac Production m3/day x 1,000</th>
<th>After Frac WHFP Kpa</th>
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<th>WHFP Fold Increase</th>
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For more information about how MISCO₂ Frac℠ Service can help improve your profitability, contact your local Halliburton representative or e-mail stimulation@halliburton.com.