

# Micro Motion® Coriolis Meters with Observed Viscosity Measurement Improve Well Stimulation

## BENEFITS

- Improved fracturing fluid quality for optimal well production
- Accurate proportions of proppant is pumped to fracturing zone
- Reduced disposal costs for excess carrier fluid



## APPLICATION

### Oilfield Services – Stimulation – Viscosity

Oilfield service companies use a process called stimulation to enhance oil and gas well production. Stimulation is a fracturing procedure that injects a fracturing fluid into the fissures of a formation to hold the fissures open and increase their size to optimize the flow of hydrocarbons in the producing zone of a well. The fracturing fluid used in this process is a blend of carrier fluid and a proppant, such as sand or glass beads. The proppant and carrier fluid must be blended in specific proportions, which is targeted to the dynamics of each individual well. In order to carry the correct proportions of proppant to the fracturing zone, the viscosity of the carrier fluid must be accurately maintained throughout the stimulation process.

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## CHALLENGE

During the stimulation process, a proppant is introduced into the fissure in a gel-like carrier fluid. Maintaining the suspension of the proppant within the carrier fluid is crucial to the success of the fracturing procedure. The viscosity of the carrier fluid determines the successful suspension of the proppant in the fluid, such that:

- Fluid with a low viscosity could result in the proppant falling out of suspension and accumulating in the well bore
- Fluid with too high of a viscosity affects pump efficiency and reduces the desired distribution of proppant in the fractures.

Obtaining an accurate and reliable viscosity measurement of the carrier fluid allows the operator to maintain the proper suspension of the proppant within the carrier fluid.



For more information:  
[www.EmersonProcess.com/solutions/oilgas](http://www.EmersonProcess.com/solutions/oilgas)  
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In addition to maintaining proper viscosity of the carrier fluid, the oilfield service company must maintain an accurate amount of carrier fluid which is premixed and stored in tanks on location. If the amount of premixed carrier fluid is not correct, the company could run out of fluid or have to dispose of any excess fluid.

### SOLUTION

By using a Micro Motion Coriolis flow meter with observed viscosity measurement, the oilfield service company was able to obtain an accurate and reliable real-time measurement of the viscosity of the carrier fluid. With the accurate viscosity data made available, the company was able to ensure that the proppant remained in suspension as it entered the fissures in the producing zone. In addition, having this real-time viscosity measurement allowed the oilfield service company to mix the carrier fluid “on-the-fly” and eliminate the risk of running out of carrier fluid during the stimulation process or having to dispose of excess carrier fluid. The Micro Motion viscosity solution helps to improve the fluid quality in the stimulation process, thus optimizing the well production, and reduce potential cost in disposing of any excess carrier fluid.



*Frac gel viscosity skid using Micro Motion Coriolis flow technology*