Mechanical Solution to an Industry-Wide Chemical Challenge

The ADP™ advanced dry polymer blender is one outcome of Halliburton’s continuing commitment to develop more environmentally focused fracturing fluid systems. Now, with the development of the ADP blender, liquid gel concentrates used to blend fracturing fluids are no longer needed. This new blender enables any of Halliburton’s fracturing fluid systems to be mixed from a dry powder.

Since the ADP blender went into service, Halliburton has eliminated over 4 million gal of diesel or other hydrocarbon-based carrier fluid from fracturing treatments.

Performance of the ADP Blender

- 60 bbl/min finished gel
- 80+ bbl/min employing concentrate system
- Four liquid additives
- On-board viscometer
- 8,000 lb gel capacity

Environmental Advantages of the ADP Blender

ADP blender technology has addressed a number of environmental and human health risks:

- Significant reduction in the potential for transportation and storage incidents involving liquids.
- Conservation of petrochemical materials as the carrier fluid is no longer required.
- Reduction of combustion and greenhouse emissions due to reduced vehicle miles traveled transporting liquid gelled material.

Evolution of the ADP Blender

The evolution over the last twenty years that has led to the ADP advanced dry polymer blender helps demonstrate the significance of this recent advancement. Since large hydraulic fracturing treatments proved to be essential to producing commercial quantities of natural gas, evolution of fluid system design and its delivery at the wellsite have been continually at the forefront of Halliburton fracturing technology development.

Prior to development of the ADP blender, the LGC liquid gel concentrate contained a large percentage of hydrocarbon-based carrier fluid. The ADP blender has completely eliminated the need for the carrier fluid.
Big Change in the 1980s
Prior to the mid 80s, the accepted practice of creating a fracturing fluid included adding the powdered gelling agent from 50 lb sacks into the total volume of water planned for the fracturing treatment. This process was long and cumbersome and exposed employees to strenuous physical labor as well as the dust created from opening and emptying each sack. A single treatment often required that as much as 10,000 to 20,000 lb of gelling agent be pre-mixed before actual job execution.

Then, in the mid 80s, LGC liquid gel concentrate was introduced. This liquid formulation enabled Halliburton (and later other service providers) to add the gelling agent “on demand” eliminating the long arduous task to prepare the fracturing fluid. This development reduced costs, HSE exposure and benefitted the oil and gas industry. To avoid premature hydration of the gelling agent, the carrier fluid for the gel concentrate was initially diesel.

Halliburton Takes a Bold Environmental Step
Then, in 2003, the EPA called for the voluntary removal of diesel fuel from hydraulic fracturing fluids used to stimulation coalbed methane production near underground sources of drinking water. Halliburton readily agreed and decided to do more. By 2007, Halliburton committed to taking an additional step by removing diesel completely from all LGCs used in the United States and replacing it with a mineral oil based material. This challenge is complete and has resulted in the removal of an estimated 10,800,000 gallons of diesel from the fracturing operation.

The ADP blender is the next evolutionary step in that it enables completely eliminating the hydrocarbon carrier fluids from the fracturing fluid process.

For more information about how the ADP™ blender can help reduce your fracturing environmental footprint, contact your local Halliburton representative or email stimulation@Halliburton.com.