BaraECD®
High-Performance Non-Aqueous Fluid for low ECD Applications

CHALLENGE
Narrow margin drilling applications require precise control of equivalent circulating density (ECD). Deepwater wells and wells with depleted zones and histories of fluid losses often have narrow operating windows between the pore pressure and fracture gradient. Traditional non-aqueous fluid systems typically maintain higher rheology to resist sag, which raises ECDs. The higher ECDs can lead to induced fractures, lost circulation, fluid losses, wellbore instability, and potential safety issues. All of these issues lead to non-productive time (NPT), remediation time, and increased costs. A low-ECD, sag-resistant fluid is needed to address these challenges.

OVERVIEW
Halliburton Baroid’s BaraECD® high-performance non-aqueous drilling fluid system was designed to provide low controlled ECD in narrow margin applications, while also providing necessary hole cleaning and resistance to barite sag. Built on the success of Baroid’s broad fluids portfolio, BaraECD® is a step-up from Baroid’s organophilic clay-free high-performance non-aqueous systems (NAF) and offers advanced fluid characteristics for the most technically challenging wells.

Ideal for low pressure formations (including depleted zones), high angle drilling, highly deviated formations or slim wellbores, the unique chemistry of BaraECD® fluid provides a low fluid viscosity to minimize ECD, and excellent suspension properties to effectively clean the wellbore and avoid sag. Exceptional low end rheology is achieved by novel chemistry, including an enhanced suspension package and advanced rheology modifier. The BaraECD® system is stable over extended periods of time and can be used for both drilling and running casing liners, increasing operators’ control over pressure management.

FEATURES
- Novel chemistry:
  - Enhanced Suspension Package
  - Advanced Rheology Modifier
  - Broad weighting agent selection
- ECD Windows focused:
  - Low viscosity resistant to barite sag
- Special fluid conditioning:
  - Preconditioned with hydraulic shearing unit
  - Stable in transit
  - Arrives ready for application

BENEFITS
- Optimized Drilling Performance:
  - Controlled ECD management
  - Improve hole cleaning
  - Avoid remediation and NPT
  - Reduce costs associated with fluid loss
- Improve Safety:
  - Improve HSE through pressure control
  - Reduce risk of stuck pipe and pack off
- Increase Access to Reserves:
  - Access to reservoirs previously inaccessible due to low ECD margins or economic constraints
- Easy to Apply:
  - No special equipment needed on site
Operators can improve drilling performance; reduce the risk of NPT from ECD and hole cleaning issues, and increase access to reservoirs previously unattainable due to technical or financial constraints.

APPLICATIONS
Baroid’s BaraECD® high performance non-aqueous drilling fluid systems are organophilic clay free and provide improved drilling performance. Relying on emulsion and polymer technology for rheology, BaraECD® provides a superior rheological profile and robust, yet fragile gels. BaraECD® fluid system can be customized for applications in different narrow margin formations to deliver engineered ECD control performance across a broad range of temperature, environmental, and logistical requirements (see Figure 1).

Figure 1 > This test measures yield point and suspension properties at very low shear rates. The BaraECD® fluid system (Line B in the above graph) shows a high yield point and demonstrates formation of structure at low shear.

Related Products
Baroid’s Hydraulic Shearing Unit is used to build the fluid before it is sent on site (see Figure 2). The unit conditions the fluid to simulate rig site drilling conditions. Fluids sheared with the unit show significant improvements in stability, yield point and low shear rheology.

Figure 2 > Baroid’s Hydraulic Shearing Unit fits on a trailer and can process more than 8 bbl/min. Pumps are fed from the rear of the trailer and all lines remain on the pump unit