

## Drilling Fluids Testing List

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### DRILLING FLUIDS TESTING

- Full API Water-Based Mud Check
- Full API Oil/Synthetic Mud Check
- API Electrical Stability
- OBM Pilot-Testing
- WBM Pilot- Testing
- Heat-Aging Mud 0-24 Hours
- Heat-Aging Mud 2-7 Days
- Heat-Aging Mud 7-30 Days
- Sag Measurement post static age
- Sag Measurement via Rheometer
- Mixing 4 Lab Barrel EQ. of WBM
- Mixing 4 Lab Barrel EQ. of OBM
- HTHP Rheology Test <300F
- HTHP Rheology Test >300F
- Rheology OFI 800
- Rheology OFI 900
- API Rheology-Brookfield LSV
- API Moisture content-Gravimetric Method
- API Water Activity Test for OBM via Digital Hygrometer
- API FL: Static
- API FL: Static ≤ 350F
- API Spec 13A: PAC LV
- API Spec 13A: PAC HV
- Barite Analysis as per API Spec 13A
- Brine/completion fluid analysis as per API RP 13J
- API Spec 13A: Xanthan Gum
- Analytical Test Package: Chlorides, Calcium, Excess Lime
- Solids Test Package: Total solids, Low Gravity Solids
- Total Suspended Solids, via Filtration method
- Water, Solids, via Retort

## Drilling Fluids Testing List

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### DRILLING FLUIDS TESTING – cont'd

- Ion Concentration- Digital Meter: Chlorides, Calcium, Per Ion
- Sand Content
- Aniline Point
- Iron Content
- Turbidity
- Glycol Content
- Cuttings Activity
- Cuttings Integrity
- Penetrometer Test of Cuttings
- Water Sensitivity of Shale, via Capillary suction time tester
- Shale Dispersion
- Exchangeable Cation Analysis
- Pore Water Analysis
- Linear Swelling, via Swell Meter, Per Test ≤48 hrs
- Linear Swelling, via Swell Meter, Per Test 2-7 days
- Lubricity Test, via EP & Lubricity Tester
- Extreme Pressure Test, via EP & Lubricity Tester
- Garret Gas Train Test for Bacteria
- Garret Gas Train Test for Carbon Dioxide
- Garret Gas Train Test for Anionic Surfactants
- Garret Gas Train Test for Chlorides
- Garret Gas Train for Hydrogen Sulfide
- Radial Flow Return Permeability ≤ 250°F
- Linear Flow Return Permeability ≤ 250°F
- Seepage Loss & Bridging Ability w/Rock Filtration Bed, ≤ 350°F
- Seepage Loss & Bridging Ability w/ Rock Filtration Bed, >350°F
- Seepage Loss & Bridging Ability w/ PPT Tester, ≤ 350°F
- Seepage Loss & Bridging Ability w/PPT Tester, >350°F
- Flash Point, via Pensky Martens closed cup tester
- Flash Point, via Semi-Automated Rapid Tester
- Corrosion Rate Analysis

## Cement Testing List

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### CEMENT TESTING

- Condition Fluid - with pressure and/or  $\geq 190^{\circ}\text{F}$
- Condition Fluid - no pressure and  $\leq 190^{\circ}\text{F}$
- API Rh, Rheology ( $\pm 10\text{m GS}$ ) @ ambient & BHCT (w/cond  $\leq 190^{\circ}\text{F}$ )
- API FF, Free Fluid (w/cond  $\leq 190^{\circ}\text{F}$ )
- SGSA + API CS (UCA)
- API TT, Thickening Time  $\leq 350\text{F}$  BHCT
- API TT, Thickening Time  $>350\text{F}$  BHCT
- API TT, Ea Add'l Test Period of  $\leq 1$  Hr
- SGSA, Static Gel Strength (w/o conditioning)
- API CS (UCA) + SGSA ...  $\leq 24\text{hr}$  Curing (w/o cond)
- API CS (UCA) ...  $\leq 24\text{hr}$  Curing (w/o cond)
- API CS (Crush) ...  $\leq 24$  Hr Curing (w/o cond)
- API Curing ... Ea Add'l Curing Period of  $\leq 12$  Hr
- API CS (Crush only, no curing)
- SGSM, Static Gel Strength (w/o conditioning)
- SGSM, Static Gel Strength (with conditioning  $< 190\text{F}$ .)
- Static Gel Strength (with conditioning  $> 190\text{F}$ .)
- API FL, Fluid Loss - Filter Press (w/cond  $\leq 190^{\circ}\text{F}$ )
- API FL, Fluid Loss - Stirred (w/cond  $\leq 190^{\circ}\text{F}$ )
- API FL, Fluid Loss - Stirred (w/cond  $> 190^{\circ}\text{F}$ )
- Porosity Plugging Test (by slot, disk, or nozzle) w/cond  $\leq 190^{\circ}\text{F}$
- API Fluid Compatibility - Two Fluids (w/cond  $\leq 190^{\circ}\text{F}$ )
- Surfactant Screening Test
- Wettability Test (via current measurement)
- Wettability Test (via rotor test, screen)
- Wettability Test (Via Casing Coupon) (w/cond  $\leq 190^{\circ}\text{F}$ )
- Wettability Test (Via Casing Coupon) (w/cond  $> 190^{\circ}\text{F}$ )
- Wettability Test (Via Glass Jar (w/cond  $\leq 190^{\circ}\text{F}$ ))
- Wettability Test (Via Modified Glass Jar (w/o cond))
- Settling Test, Static (w/o conditioning)

## Cement Testing List

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### CEMENT TESTING – cont'd

- Settling Test, Dynamic (w/ HPHT cond), ≤6 Hr
- Settling Test, Dynamic (w/ atm cond)
- Expansion Test
- Shear Bond Test
- Cement Hydration Analyzer (w/o cond), Per Test Period ≤ 24 hr
- Foam Stability, Slurry Only - 1 density (5 blade mix vessel)
- Foam Stability, Slurry Only - 2 densities (mix vessel, grad cylinder)
- Foam Stability, Curing - 1 density profile (Archimedes)
- Foam Density Profile - mix vessel, grad cyl, & Cured (≤190°F ≤24hr)
- Foam Stability, CS (Crush), w/Cure ≤24 Hr, Per Mold



### GENERAL TESTING

- RO-TAP Sieve Analysis
- Laser particle size analysis
- pH-Digital pH Meter
- Measured Density - Mud Balance (w/o cond)
- Measured Density - Stereopycnometer
- Measured Density - Archimedes Principle (w/o cond)
- Measured Density-Bulk Density
- Le Chatelier Flask
- Water Analysis - Chlorides, Tannins/Lignens
- Water Analysis - Comprehensive