

Table 4-1
Properties of Drilling Mud (after N.L. Baroid / N.L. Industries, Inc.)

Property	Influences	Desirable Limit	Control
Density (Weight)	Drilling rate Hole stability	Less than about 1,080 kg/m ³ (9.0 lb/gal) (mud balance)	Dilute with water or remove solids to decrease Add barium to increase
Viscosity	Cuttings transport Cuttings settlement Circulation pressures	34-40 sec/dm ³ (32-38 sec/qt) (Marsh funnel and measuring cup)	Add water, phosphates, or lignites to thin Add bentonite or polymers to thicken
Filtration	Wall cake thickness	Very thin (less than 0.2 cm {1/16 in.})	Control density and viscosity of mud Polymers
Sand content	Mud density Abrasion to equipment Drilling rate	Less than 2 percent by volume	Add water to lower viscosity Good mud pit design Use desander
pH (Acidity or alkalinity)	Mud properties Filtration control Hole stability Corrosion of equipment	8.5 to 9.5 (Neutral is 7.0)	Increase with sodium carbonate Decrease with sodium bicarbonate
Calcium content ¹ (Hard water)	Mud properties Filtration control	Less than 100 parts per million (ppm) calcium	Pretreat mixing water with sodium bicarbonate

¹ For other salts, dilute salt content with fresh water or use organic polymers in the drilling fluid.