



BDC GROUP

HDD MIXING CHARTS

SOIL	SOIL CONDITIONS	BENTONITE	[KG/M ³]	ADDITIVE	[KG/M ³]	REQUIRED MF-VISCOSITY [SEC/LITER]
ROCKS	Required Viscosity and mixture of products depend on size of drilled cuttings. At high water sensitivity of soil (shale, marl) Fluid Loss Control Additives and/or Clay Inhibitor should be used.					60-120
GRAVEL	Coarse Gravel	Swelltonite HQ	35-40	Modisorb 200 PAC R Premium	4-7 0,5-1	>120
	Fine Gravel	Swelltonite HQ	30-35	Modisorb 200 PAC R Premium	3-5 0,5-1	>100
SAND	Medium-Coarse	Swellgel Plus	25-30	PAC R Premium	0,4-0,8	50-60
	Below groundwater table	Swellgel Plus	25-30	SupraXan Premium	0,5-1,0	80
	Fine Loose Sand	Swellgel	30-35	SupraXan Premium PAC R premium	0,4 – 0,8 0,8-1,5	>100
CLAY	Less reactive clay with sand, without much increasing viscosity and swelling, small cuttings.	Swellgel Plus	20-25	Modiclay - Moditorque	0,4-1,5	40-50
		Swellgel	25-30	Modiclay - Moditorque	0,4-1,5	
LOAM	Highly reactive loam, strong viscosity build up, sticky, strong density, strong swelling, annular blockage, bit balling.	Swellgel Plus	15-20	Moditorque (EM35)	0,8- 1,5	35-45
		Swellgel	20-25	Modiclay (P24) Drildet	0,4-1,2 0,8-1,5	
BENTONITE FREE DRILLING FLUID				SupraXan Premium	SAND: 3-7	
				Modiclay (P24)	CLAY: 2- 4	



BDC GROUP OTHER PROPERTIES

PROPERTIES	MEASUREMENT TYPE	MEASUREMENT RESULTS	RESULT	ACTION REQUIRED
WATER HARDNES	Water hardness measurement	Water hardness < 100 mg	Poor mixing ability	Addition of Soda ASH 0,5 -1 kg /m ³ , decrease the water hardness to 10° dH, Increase of pH to 8,5-9,5
			Low viscosity	
pH	pH measurement	pH < 7,0	Poor mixing ability	
			Longer mixing time needed	
MARSCH FUNNEL VISCOSITY	Marsch Funnel measurement	Low < 40 sek /l	Low solids content	Ph Control, water hardness controll, addition of bentonite or polymer
		High > 75 sek /l	High mud flow resistance	Addition of water to lower the viscosityzmi, lower addition of bentonite and polymers
FILTER LOSS	API Filter loss control	Filter loss > 15ml/30 mi	Unstable borehole, High fluid loss	Addition of fitration reduktor
		Filter loss < 5 ml/30 min	Demanded	Constant control if there are no changes
SAND CONTENT	Sand content measurement	Sand content > 2%	Pump damage	Removing solids from the drilling mud. Lower the drilling rate
		Sand content < 2%		Increase the flow on the pump
			Demanded	Constant control if there are no changes