

SPECIAL MUD RECIPES FOR HORIZONTAL DRILLING

Concentration for 1 m³ of clear water

Polymer (bentonite free) mud for dewatering and decontaminating boreholes

Soda (Sodium Carbonate Calcined)	1 – 2 kg
PAC R	2 – 4 kg
ARGIPOL P (PHPA Powder)	1 – 2 kg
MODIVIS 900 (Biopolymer)	0,5 – 1 kg (for extremely difficult boreholes)

The above proposed products are soluble in water and biodegradable or chemically degradable. Therefore, there is no danger of the borehole walls colmatation.

Unstable formation

BENTONIT W plus	15 – 35 kg (concentration according to the formation type)
MODISORB 200	0,5 – 1,0 kg (to decrease loses of circulation)

Mud loses through loose layers (usually after a construction activities) can be usually avoided by a suitable concentration of BENTONIT W plus. However, increasing viscosity can also cause higher pressure in a borehole and loses of circulation due to that. It's therefore suitable to use loss of circulation additive MODISORB 200 which can plug fractures in formation.

Water-bearing (saturated) sands and gravels

BENTONIT W plus	30 – 40 kg
MODISORB 200	0,5 – 2,0 kg (decreasing loses, improving cuttings recovery)

During drilling through unstable and saturated layers it is necessary to take into the consideration that mud will be diluted by water from formation. It is also important to stabilize the borehole walls in the same time by a viscous mud and ensure recovery of sand and gravel cuttings. It is therefore necessary to mix as high concentration of BENTONIT W Plus as possible. Such situation can be improved by adding MODISORB 200 what will reduce mud loses of circulation into the unstable layers or it can even stop all loses due to the swelling effect of MODISORB 200. Cuttings recovery will improve as well.

Swelling, gripping clays

BENTONIT W plus	10 – 20 kg
ARGIPOL P	0,5 – 1,0 kg (reduces clay swelling, improving filter cake)

Some of clay layers in contact with water contained in drilling mud significantly enlarging its volume, means decreasing borehole diameter, eventually raising up terrain. BENTONIT W plus containing polymers makes a filter cake on borehole walls what avoids water penetration into the clay layers and its swelling. ARGIPOL P improves the quality of filter cake and reduces clay swelling in the same time as well.

Adhesive, sticking clays

BENTONIT W Plus	10 – 25 kg
ARGIPOL P	0,2 – 0,5 kg (reduces clay swelling)
MODIDET (Drilling detergent)	0,2 – 0,5 kg (makes separation film)

Sticky clays are causing bit balling and significantly decreasing rate of penetration, especially during reaming. ARGIPOL P reduces clay swelling and its sticking. MODIDET makes a thin separation film on drilling string and avoids clay sticking (balling). It is very effective to combine both products.

Extremely unstable formation

BENTONIT W Plus	32 – 35 kg
MODIPLEX MH	2,5 kg

By adding special reagent MODIPLEX MH the static viscosity of drilling mud is significantly increased. The mud is easily pumpable and when circulation is stopped (adding drill pipe etc.), mud viscosity significantly increases and builds up gel, stabilizing borehole walls, limiting loses of mud and keeping cuttings in its position – lofty. When mud circulation is restarted the mud flow is quickly renewed.

Note: It is necessary to mix BENTONIT W plus intensively for 10 minutes, then add MODIPLEX MH and continue mixing for another 10 minutes. After that mixing the mud is ready for use.