

Drilling Fluids WHAT ARE THEY?

Homogeneous mixture of solid additives, liquid and / or gases in water, flow capacity and that are in suspension.

WHAT ARE THEY USED FOR?

Helps drilling to be more efficient, faster, safer and more productive obtaining a more better information of each well.

HOW?

Fluids perform certain functions. For this to be achieved they must have certain properties:



Functions of Drilling Fluids

- Cleaning the Well.
- Suspend and Download cuts surface.
- Stabilize the Well (Training Punch).
- To control the formation pressure.
- Seal permeable formation and / or fractures.
- Cool and lubricate the drill bit and the drill.

- Support of the weight of the drill.
- Transmit hydraulic energy to the bit.
- Encourage Maximum Information Retrieval.
- Corrosion Control.
- Minimize Environmental Impact.
- CLEANING: Surface Transportation Cuts

FACTORS INVOLVED

- Size, Shape and Weight Trim or Detritu.
- Fluid properties (rheology, density, viscosity).
- Parameters of Operation: WOB, Hydraulic Drilling



Cleaning Functions





SUSPENSION AND DISCHARGE OF CUTS

Circulated and recirculated drilled solids, smaller particles are divided. They therefore need to be controlled:

Settlement, decanting



Well Stability

- **mechanical** equilibrium implies stability (pressure and efforts), and **chemicals**.
- Unconsolidated sands require a good plaster and density.
- Clays require a combination of fluid density and inhibitory products.
- The instability is related with landslides, small hole, bridges.

MECHANICAL EQUILIBRIUM

Loss of movement is one factor that contributes to the high cost of sludge.

- Other problems are:
- The instability of the well.
- Entrapment of pipe, etc.

SEALING PERMEABLE FORMATIONS

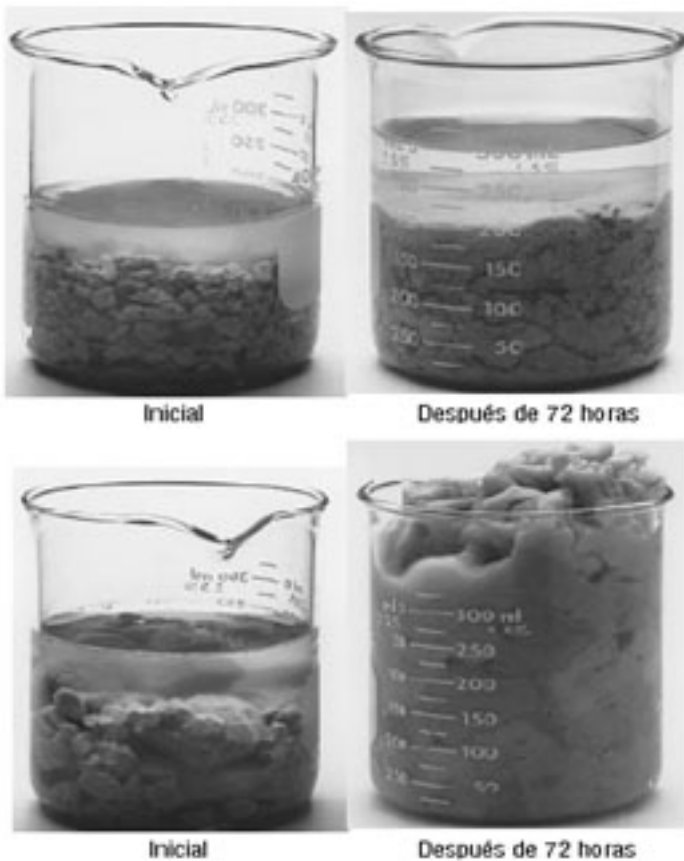
The pressure generated by fluid pressure counteracts the formation of land.
The solids in the fluid form a wall that protects the formation of water invasion.

TRAINING SEALING FRACTURES

Larger materials such as cotton pit, sawdust, paper, Poly Swell and the same bentonite seal cracks, fractures where you can lose mud. They are the LCM.

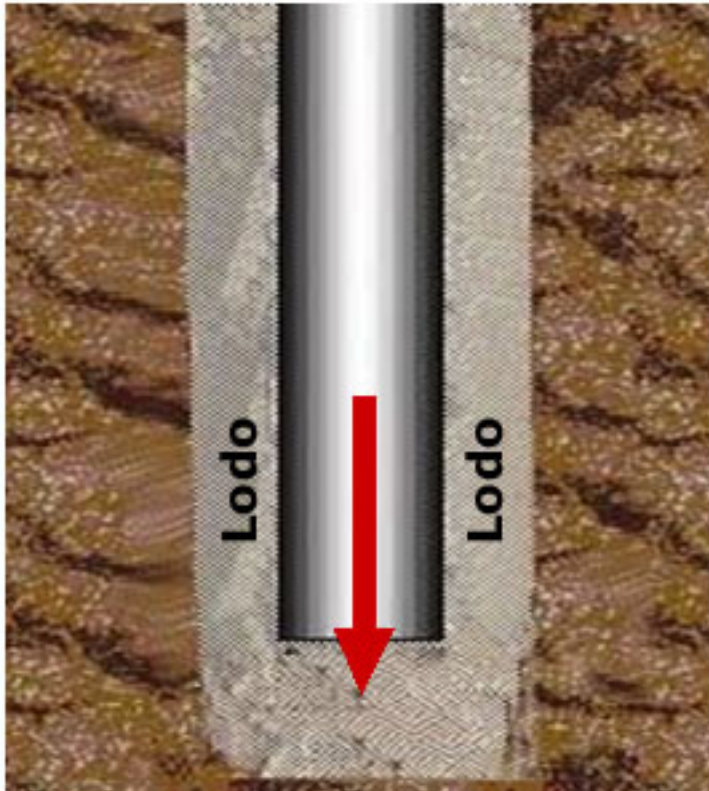
CHEMICAL BALANCE

HYDRATION OF CLAY



Coolings, lubricates and held together

The use of lubricants reduces μ_k (coefficient of kinetic friction).



Prevent vibration

1. Reduce possibility of unstable holes.
2. Preventing the collapse of pipe
3. Improve monitoring of drilling parameters.

MINIMIZE IMPACT ON ENVIRONMENT

Drilling fluids, which can be disposed near the well are the most desirable. recoverable or biodegradable additives are the most requested.