

Geo Bond

Field Guide

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The following pages are a guide as to what to expect when using GEO BOND. These observations were made in the field using a good, fresh water source with a natural pH. of 8 – 8.5.

Preparation

Any residual contamination in the mixing tank will need to be cleaned off the walls and the tank flushed as good as possible. Any contamination will be encapsulated and float on the surface of the mixing tank.

Any solids picked up from the bottom of the surface sumps will also float on top of the mixing tank. Gel will flocculate almost instantly.



Initial Mixing

When first adding GEO BOND, expect a moderate to strong foaming effect as the hydrating process begins. The foam bubbles produced are quite a tight bubble formation, so expect to see more of a shaving cream “stiff foam” for air drilling than the bubble formation you would expect to see from Penetrex or X Det 202.



This foaming effect will begin to reduce as the tank fills.



Dispersion.

Very few, to no “Fish Eyes” are seen at any time. The product disperses extremely well.

Hydration Time.

GEO BOND must have 30 minutes of mixing time which it must be agitated in some way. Ideally the tank will have an agitator keeping the tank moving as the product is being inducted through a hopper.

Any less mixing time and the product will separate in the tank. The separation seen could almost be likened to an opposite effect of a PHPA in hard water where the bottom 4 – 5 inches of the tank have a concentrated “Sludge” of product.

The top 2 – 3 inches of the mixing tank will have a thick layer of white stringers, similar to egg scrambled into a hot soup.

This top layer of stringers, when poured through the mesh of a Marsh Funnel, will completely block the mesh.



It is very easy to spread this top layer apart and expose the fluid underneath.

Underneath the top layer, the fluid is an ever so slight, cloudy fluid.

Within just a few seconds the top layer will rapidly be drawn back together.

Once properly agitated again it will mix again without any concern of it not being able to still properly mix. The concern would be to deliver it to the rig and the top layer not being properly mixed and not being part of the fluid.



Once properly mixed the GEO BOND fluid will have an opaque appearance with an even distribution of the white stringers.

A viscosity test done before the 30 minutes will give a much lower viscosity time than the fully yielded product.

When allowing the hydrated product on your hand, you will find the polymer chains spread easily across your fingers and remain much longer than other PHPA's.

If transferring mixed product into a holding tank it will be an advantage to keep the holding tank circulating. (Please refer to diagram on page 8).

Successive mixing.

As the mixing tank is being refilled with the next batch of makeup water and depending on the amount of the previous batch of GEO BOND left in the tank, expect the foaming effect to return as the agitation caused by the water falling from height increases.

Depending on the efficiency of the pump or agitator, there may be a layer of product on the bottom of the tank that will need to be manually agitated to help mix it into the new make-up water.

Allow the tank to fill at least half way and then test the viscosity of the tank before mixing another batch. GEO BOND does not require high concentrations of product to achieve a funnel viscosity of 40+ seconds, so residual GEO BOND in the tank or sumps will have a definite effect and less product may be required than what was initially used.

Fluid Return.



Effect on the core.

There is a very visible polymer membrane which is formed on the core from the very first run using GEO BOND.

In zones with clay sections, the cuttings will rapidly develop together with the polymer membrane onto the clay sections. It may prove difficult to properly clean these clay sections without starting to wash the core and it may be better to wait for the core to dry out for an hour before attempting to wash.

In the more consolidated zones there is no issue with cleaning the core.



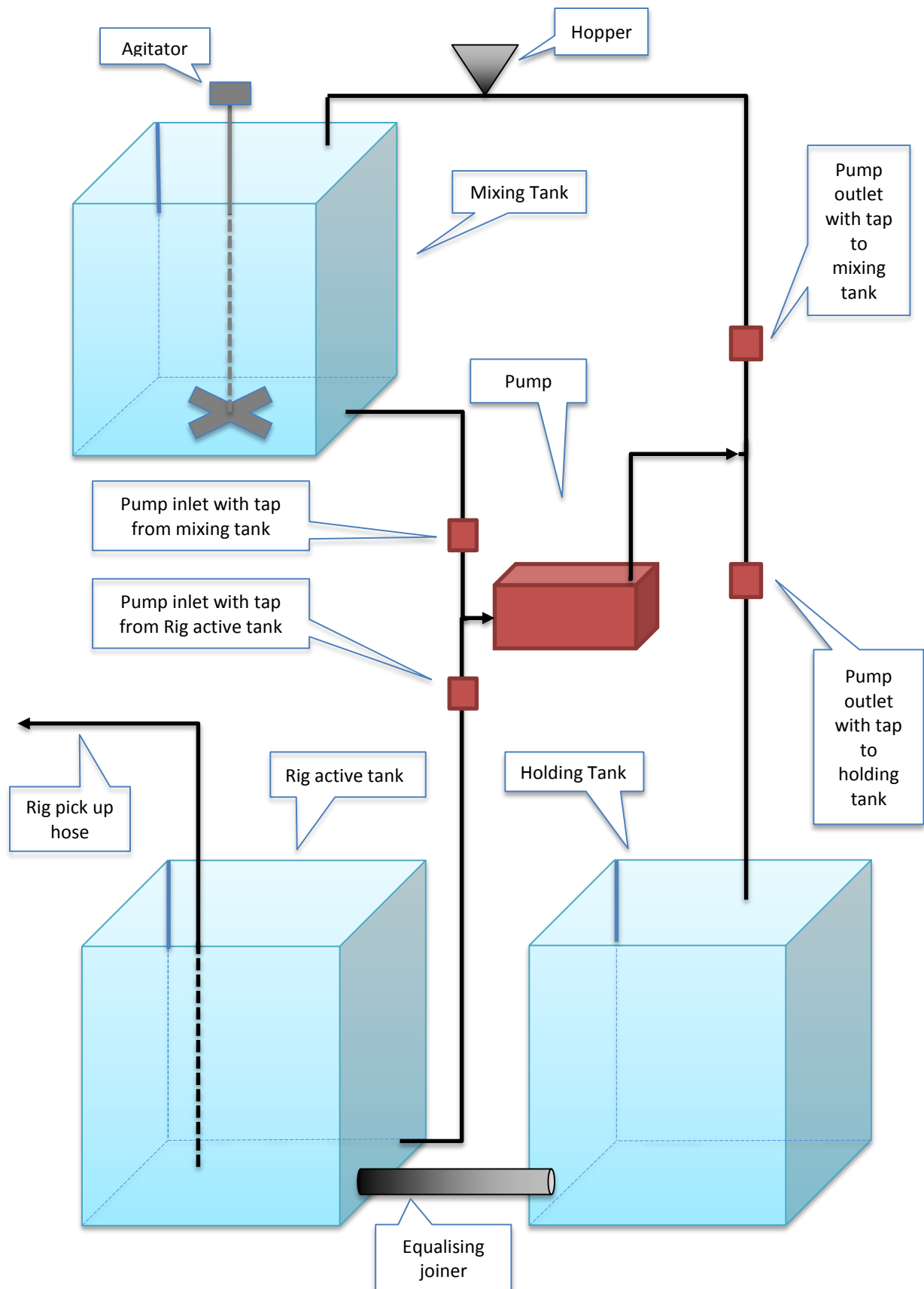
Concentrations.

As previously indicated, concentrations of GEO BOND can be very conservative. 500gms per 1000lts of good make up water will return a viscosity of 40seconds. 1kg per 1000lts will be closer to 60seconds.

If there is already viscosity in the sumps then this will need to be taken into account before adding product. Also if there is residual product in the tank this will also have a bearing on the amount of product required.

Testing viscosity before the required 30minutes will not give an accurate reading.

Mud Mixing System.



Previously Disturbed Ground Formations.

Ground formations, especially shear zones with clay content that have previously been disturbed by drilling and have become reactive will start to present flocculated clays and cuttings in the fluid return at the drill collar if fluid is returning to the surface when introducing GEO BOND.

The volume of flocculated clay will depend on the percentage of clay within the disturbed zone and the depth of penetration into the zone using incorrect fluids.

GEO BOND is extremely good at encapsulating clay particles



This flocculating has been seen on a number of occasions and is a normal function of GEO BOND.

Regards

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