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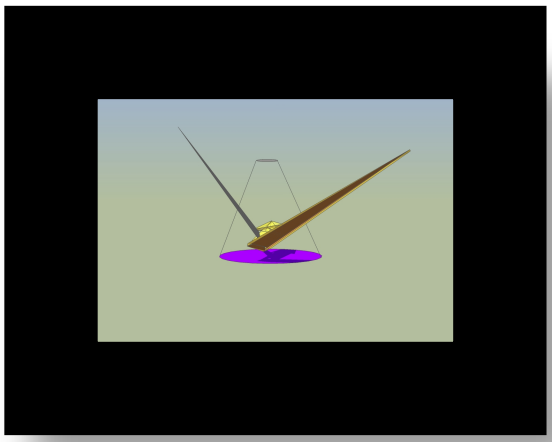
TECHNICAL INSIGHT



Controlling Fluid Loss in Cement Slurries
The Art and Science Behind It All

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As I sit here in Dallas, TX on a hot and rainy Sunday it dawned on me that I should address controlling fluid loss in cement slurries. Typically the chemicals used to control fluid loss at moderate to high temperatures are blends of polymeric material. Whether it is synthetic or biochemical polymers they work at the intermolecular level to form and build a fibrous network, which slows the rate at which water is loss from the slurry. The complex chemistry of cement does not make this effort easy for cement is often referred to as a living organism. Those who have experienced first hand cements' attitude and ever-changing potential know exactly what I mean.

Obviously these changes are brought on by several factors, which include, improper storage, moisture and temperature; just to name a few. It is frustrating

to mix slurry and add a fluid loss additive and record fantastic fluid loss (Q30) results and then the very next day do the exact same thing and the slurry cannot hold water at all. This frustrating scenario is then analyzed and roughly 50 tests later one suggest change the bucket of cement and the positive test results are duplicated. Who says that cement does not have a mind of its own?

Chemicals are a fantastic phenomenon! However it takes a certain skill to formulate products that aid in controlling fluid loss in cement slurries. For instance, an idea to use lost circulation material normally useful in drilling muds, was proposed to control water in slurries. Its effectiveness was overshadowed by the slurries ability to be pumped, in other words it was too thick. This is where experimentation, art, and trial and error take over. The train of thought has to be directed towards finding chemicals that work synergistically with one another and furthermore the cost-effectiveness to produce the end product.

For example, do we use a dispersant to get the slurries rheology and consistency where it needs to be? Do we use a thinner normally effective in drilling muds? How about cutting back on the amount of LCM used? Will we obtain favorable fluid loss results pertinent to our target need? Is the entire formulation or new product cost effective or will it cost more money than a potential client is willing to spend? These questions are critical and are needed to manufacture and produce new material.

Finally, controlling fluid loss in cement slurries can be achieved by taking good care of the cement, choosing the right additives to work synergistically with the overall slurry, creativity, patience and a good understanding of the procedure at hand. We at UDF take pride in designing and formulating cost effective additives to combat our client's troublesome environments. We take keen interest in their cement programs and offer the best solution for the job. Please stay tuned for more technical insight.