

BIODRILL RC502

Environmentally friendly cement retarder for the oil & gas industry

Borregaard's BioDrill RC product family includes a wide range of lignin-based speciality cement retarders and dispersants. Variation in well conditions dictates the need for specialised retarders to fulfil the requirements of proper zonal isolation.

BioDrill RC502 is specifically designed for high temperature conditions to retard cement setting and extend pump times, allowing the cement to set at the desired location in the drilling string.

BioDrill RC502 provides the valuable dual functions of cement retarder and dispersant.

The BioDrill RC502 cement retarder is designed for circulating temperatures up to approximately 310°F [154°C].

The BioDrill RC products are part of the OSPAR List of Substances Used and Discharged Offshore which are Considered to Pose Little or No Risk to the Environment (**PLONOR**)

THICKENING TIME AS A FUNCTION OF RETARDER DOSAGE AND TEMPERATURE

Retarders inhibit hydration and delay set, thereby enabling adequate time for placement of the slurry in deep and hot wells. It is not entirely understood how they function. Our products are derived from lignosulfonates. They are thought to adsorb on to the initial layer of the calcium-silicate-hydrate gel, thereby delaying further hydration. They are added in concentrations ranging from 0.1% to about 1.5%.

The thickening time response varies depending on the class of cement, the cement's composition, temperature and the particular retarder and its dosage. Therefore, it is necessary to test each cement design due to variability in cement composition and quality from source to source and even from a particular supplier.

For illustration purposes, we present thickening time response as a function of retarder, dosage and temperature in class H and class G cements.

Lafarge Class H cement with 35% silica content and 50% water on cement weight.

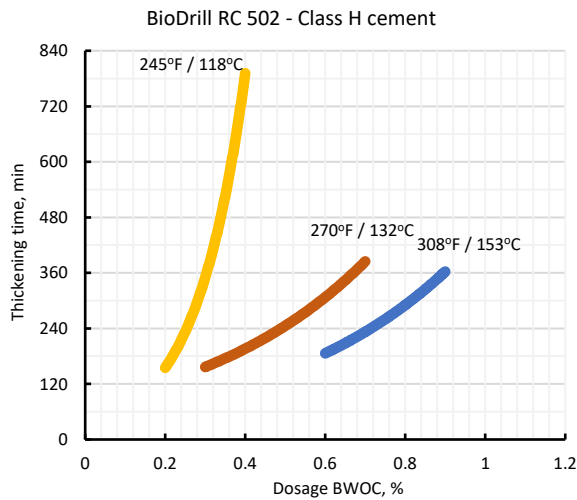


Figure 1. Thickening time as a function of temperature in class H cement.

Figure 1. shows the thickening times in class H cement for different bottom hole circulating temperatures (BHCT). The materials used are

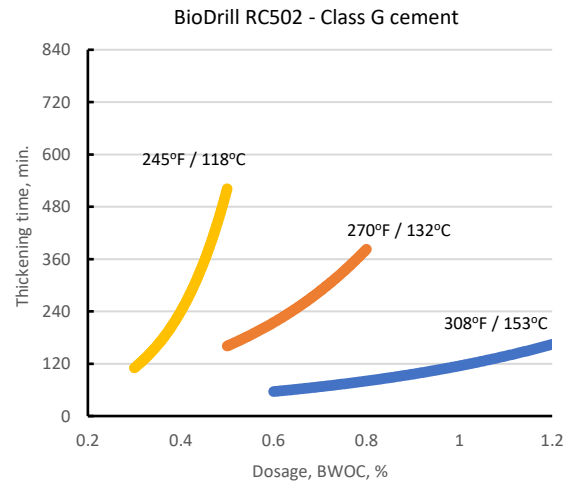


Figure 2. Thickening time of BioDrill RC502 at different temperatures in class G cement

Figure 2. shows measurements at 245°F [119°C] and above performed in class G cement with w/c ratio of 0.45 and silica/cement ratio of 0.35.