SUPER-STOP
LOST CIRCULATION CONTROL MATERIAL

DESCRIPTION

SUPER-STOP is a new-technology thixotropic product which is designed to combat and cure severe lost circulation problems. SUPER-STOP is a dry powdered/granular material incorporating synthetic polymers, inorganic minerals, chemical reagents and stabilized organic filler. SUPER-STOP is non-toxic and is not harmful to the environment.

APPLICATION

SUPER-STOP can be applied in a variety of lost circulation situations, primarily when freshwater muds are used. Most lost circulation is caused by loss of mud into fractures or natural voids in the formation. SUPER-STOP provides a means of filling and sealing these fractures and voids in a unique way which makes use of the water available in the mud or in the formation. SUPER-STOP works by filling the fractures or voids with a slurry of water or mud containing the unyielded SUPER-STOP material. This slurry thickens in-situ after being placed downhole, becoming a heterogeneous gelled mass of rubbery stable gel particles or chunks in a viscous inorganic/organic mass matrix.

MIXING AND PLACEMENT PROCEDURES

When loss of circulation occurs, prepare a slurry pill by mixing from 25 to 45 ppb of SUPER-STOP into fresh water and pump the mixture while it is still pumpable (and not too viscous) and spot the pill across and above the zone of loss circulation. Spot a balanced pill (same fluid column height inside and outside drill pipe), and pull up out of the pill when it is in position. Allow sufficient time for the SUPER-STOP pill to swell after spotting it in the zone of lost circulation. If the hole does not take fluid after spotting the pill and with the pumps off, or if it takes fluid only very slowly, it is useful to encourage some fluid loss into the thief zone by circulating above the pill (to provide some additional effective hydrostatic head by virtue of increasing the equivalent circulating density or ECD) or by applying gentle squeeze pressure. The objective is to fill the fractures or voids in the thief zone with the SUPER-STOP slurry while SUPER-STOP is still yielding and becoming more viscous with time.

Normally it will take approximately 30 minutes to 1 hour for the SUPER-STOP pill to swell and react from the time of initial mixing. This window of time determines how long the pill can be held in the surface tank before pumping, and how much pumping time is available before the pill becomes excessively thick. Additional time, if available, will allow greater swelling and increase the chances of stopping the loss of circulation. SUPERSTOP normally will not become viscous enough to clog drill pipe, although a full-thickened SUPER-STOP pill may require unacceptably high pump pressures to force out through the nozzles of a jet bit.

SUPER-STOP is an extremely versatile and adaptable LCM product. If severe loss of circulation occurs, various loss circulation materials such as fiber, mica, cellophane, nut plug, marble chips, etc. can be mixed with the SUPER-STOP pill to give greater bridging within the zone of lost circulation. Care should be taken in selection of additive materials to avoid plugging bit nozzles if a bit is on the drill string.

SUPER-STOP has another important application attribute. There may be an occasion when higher concentrations are required, such as when extreme losses are encountered, or when the customer does not wish to pump any water into the well. In this case, Messina suggests mixing SUPER-STOP into diesel or other hydrocarbon carrier fluid (containing no water). It maintains a low viscosity, and reduced pumping pressures, until it contacts water in the formation. At this point, it sets expands and sets up into a semi-solid, permanent mass, which will seal off the thief zone.

SUPER-STOP pills should normally be at least 50 bbl in volume, or enough to fill the hole across the thief zone and at least 300 feet above the top of the zone.

PACKAGING

SUPER-STOP is available in sacks of 50 lb or 25 kg net weight.

SUPER-STOP is a Messina trademark