

Method statement for BC Elastoplus

Introduction

This method statement describes guidelines for using BC Elasto plus in oil field drilling.

BC Elasto plus known for its swelling properties when hydrated, is commonly used in drilling operations to stabilize the borehole, control formation pressures, and carry drill cuttings to the surface.

1. Purpose

To outline the process of mixing and using bentonite clay in oil drilling to stabilize the borehole, cool and lubricate the drill bit, and carry cuttings to the surface.



2. Materials

BC Elasto plus (powder form)
Freshwater or brine (depending on the specific formation)
Mud additives (optional, based on formation needs)

Mixing tanks or hoppers
Centrifugal pumps
Drilling rig and associated tools

3. Preparation

Site Inspection

Ensure the site is free from obstructions and is prepared for the drilling operations.

Verify that all materials and equipment are in place and operational.

Equipment Setup

Position mixing tanks, pumps, and other drilling fluid handling equipment.

Inspect and clean the mixing tanks to avoid contamination with foreign materials.

Health and Safety

Ensure that all personnel involved in handling bentonite and mixing are wearing the appropriate personal protective equipment (PPE), including gloves, goggles, and respiratory masks.

Place signage indicating that chemical mixing is in progress.

4. Procedure

A. Mixing Bentonite Clay

Water Supply

Start by filling the mixing tank with the required amount of freshwater or brine.

Addition of Bentonite

Gradually add bentonite clay to the mixing tank through a hopper or directly into the tank while continuously agitating the water.

Maintain the recommended mixing ratio, which is typically 15-25 kg of bentonite per cubic meter of water, depending on the viscosity requirements.

Agitation

Use mechanical agitation or high-shear mixing to ensure the bentonite is fully hydrated and forms a uniform suspension.

Circulation and Monitoring

Circulate the bentonite mud through the system using centrifugal pumps to ensure thorough mixing.

Measure the density and viscosity of the bentonite mud regularly using a mud balance and marsh funnel. Adjust the concentration of bentonite or water as necessary to meet the desired specifications.

B. Application in Drilling

Drilling Mud Circulation

Once the bentonite mud is ready, pump it down the drill string and circulate it back up the annulus to the surface.

Maintain proper flow rates to ensure the borehole is stable and cuttings are transported effectively.

Hole Stabilization

The bentonite forms a thin, impermeable filter cake on the borehole walls, which stabilizes the hole and prevents fluid loss into permeable formations.

Cooling and Lubrication

Bentonite mud cools and lubricates the drill bit as it cuts through the formation.

Cuttings Removal

Ensure the mud system is efficient in lifting and removing drill cuttings from the borehole.

5. Monitoring and Quality Control

Mud Properties

Regularly check mud properties such as density, viscosity, pH, and filtration using standard testing equipment. Adjust the mud formulation as needed.

Mud Volume

Monitor the mud volume in the system to detect any losses to the formation. Add additional bentonite mud if necessary.

Cuttings Analysis

Continuously monitor the cuttings at the surface for size and shape to ensure effective cuttings transport.

6. Maintenance

Keep the bentonite mud properly mixed and hydrated throughout the drilling operation.

Dispose of excess mud in accordance with environmental regulations, ensuring proper containment and handling to avoid spillage or contamination.

7. Cleanup

Upon completion of drilling, flush and clean the tanks and equipment used for bentonite mixing.

Safely dispose of any residual bentonite mud according to local environmental guidelines.

8. Health, Safety, and Environmental Considerations

Safety: Ensure all operators are trained in the safe handling of bentonite and related chemicals.

Environmental: Manage drilling fluid waste responsibly to prevent contamination of the environment, particularly groundwater.

9. Conclusion

This method statement outlines the proper procedures for preparing and using BC Elastoplus oil field drilling. Following these guidelines helps ensure safe, efficient, and environmentally responsible operation