

C-SEAL

C-SEAL* industrial carbon blend is a medium-sized plugging agent used to bridge and seal permeable formations in water-, oil-, or synthetic-base mud systems. Differential-pressure sticking tendencies are reduced by bridging and plugging when drilling depleted zones where high differential pressures exist. It can be used to control seepage-to-partial-to-severe lost circulation zones. C-SEAL blend is completely inert and does not affect the rheological properties of drilling fluid systems. It reduces torque and drag by increasing lubricity. C-SEAL material lowers the spurt and total PPT filtrate loss values. C-SEAL medium-sized material is an effective and economical blend due to its ability to remain in the entire circulating system if proper solids control equipment is utilized.

Typical Physical Properties

Physical appearance	Gray-to-black powder
Specific gravity.....	1.9
Solubility in water @ 20°C	Insoluble
Particle size distribution (Coulter® LS particle Size Analyzer)	d ₁₀ =65µ / d ₅₀ =130µ / d ₉₀ =190µ
	Median (microns) = 130

Applications

C-SEAL material is designed to bridge and seal permeable formations, reducing the possibility of differential sticking, controlling lost circulation and increasing lubricity.

The recommended treatment for seepage losses (<10 bph) is 15 to 20 lb/bbl (43 to 57 kg/m³) in spotted pills. Due to its particle size characteristics, C-SEAL pills can be incorporated into the entire system for a total concentration of 10 to 20 lb/bbl (29 to 58 kg/m³). As an economic benefit, C-SEAL blend can be used in the entire circulating system in combination with coarser graphite/industrial carbon type materials for fracture sealing.

The recommended treatment for partial losses (20 to 50 bph) is 20 to 50 lb/bbl (57 to 143 kg/m³) in spotted pills. C-SEAL material can be used in combination with other lost circulation materials to control partial-to-severe losses. Very high-permeability formations such as fractured carbonates and conglomerate zones may require additional spots in conjunction with a variety of lost circulation materials of varied particle size distribution.

Torque and drag may be reduced by incorporating C-SEAL material sweeps into the active system up to a total concentration of 20 lb/bbl (57 kg/m³). Initial treatments for the active system may be added at 4-lb/bbl (11.4-kg/m³) increments while monitoring torque and drag.

Advantages

- Effective bridging and sealing agent for a wide range of formations and severity of losses
- Reduces the possibility of differential sticking by controlling seepage losses
- Reduces torque and drag in all mud systems by increasing the lubricity
- Inert material with no adverse effects on mud rheology and compatible with all mud systems
- One-sack product with no other additive requirements; easily mixed and dispersed into the system
- Easily maintained in the entire circulating system due to its particle size distribution
- Temperature stable to >500°F (260°C)

Limitations

- Requires close monitoring of the shale shakers if fine-mesh screens are utilized
- Non-acid soluble material may not be suited for open-hole completions where acid solubility is required

Toxicity and Handling

Bioassay information is available upon request.

Handle as an industrial chemical, wearing protective equipment and observing the precautions as described in the Material Safety Data Sheet (MSDS).

Packaging and Storage

C-SEAL material is packaged in 50-lb (22.7-kg), multi-wall, paper sacks.

Store in dry, well-ventilated area. Keep container closed. Store away from incompatibles.

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