

C-SEAL

C-SEAL FINE

ADVANTAGES

- Effective bridging and sealing agent for a wide range of formations and loss severity
- Reduces the possibility of differential sticking by controlling seepage losses
- Reduces torque and drag in all mud systems by decreasing the coefficient of friction (CoF)
- 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

The C-SEAL* and the finer grade C-SEAL* FINE industrial carbon products are sized plugging agents used to bridge and seal permeable formations in water-, oil-, and synthetic-based drilling fluid systems.

When used while drilling depleted zones, C-SEAL and C-SEAL FINE reduce differential-pressure sticking tendencies by bridging and plugging formations with high differential pressures. They also can be used to control seepage-to-partial-to-severe lost circulation zones. C-SEAL and C-SEAL FINE are completely inert and will not affect the rheological properties of drilling fluid systems. They reduce torque and drag by decreasing the coefficient of friction (CoF) and can lower the spurt and total PPT filtrate loss values. Owing to their ability to remain in the entire circulating system using proper solids control, C-SEAL and C-SEAL FINE can be cost-effective solutions.

Typical Physical Properties

Physical appearance Gray-to-black powder
 Specific gravity..... 1.9
 Solubility in water @ 20°C..... Insoluble

Product Name	Median Particle Size d_{50} (μm)**	Recommended Test Procedure
C-SEAL	100 - 150	Dry sieve analysis
C-SEAL FINE	20 - 40	Laser light scattering

** Median Particle Size (d_{50}) is reported as a size range due to variations in the manufacturing and grinding process. If a precise size distribution of a product is critical to a drilling operation, it should be measured with the appropriate Recommended Test Procedure using samples that are representative of those expected to be used in that operation. Nominal d_{10} and d_{90} values are available from Houston Technical Services upon request.

Applications

C-SEAL and C-SEAL FINE are designed to bridge and seal permeable formations, reducing the risks of differential sticking and lost circulation, and decreasing the coefficient of friction (CoF).

The recommended treatment for seepage losses (< 10 bbl/hr or 1.6 m³/hr) is 15 to 20 lb/bbl (43 to 57 kg/m³) in spotted pills. Their relatively small size and chemical inertness, also allows C-SEAL and C-SEAL FINE to be incorporated into the entire system at a total concentration of 5 to 20 lb/bbl (15 to 58 kg/m³).

The recommended treatment for partial losses (10 to 100 bbl/hr or 1.6 to 16 m³/hr) is 20 to 50 lb/bbl (57 to 143 kg/m³) in spotted pills. Both materials can be used in combination with other lost circulation materials to control partial-to-severe losses. Fractured carbonates, conglomerates and other very high-permeability formations may require additional pills in tandem with lost circulation materials of appropriate particle size distribution. Alternatively, either or both products can be incorporated into the entire system at a total concentration of 10 to 30 lb/bbl (29 to 85 kg/m³).

Torque and drag may be reduced by incorporating C-SEAL and/or C-SEAL FINE 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.

C-SEAL/C-SEAL FINE may require additional wetting agent when used in an oil- or synthetic-based drilling fluid system.

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 and C-SEAL FINE are packaged in 50-lb (22.7 kg), multi-wall, paper sacks.

Store in a dry location away from sources of heat or ignition, and minimize dust.



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