

# LCM

## Lost-circulation materials

### APPLICATIONS

- Land and offshore drilling

### ADVANTAGES

- Regain circulation
- Prevent and regain lost returns

### Cedar fiber

Cedar fiber is a specially processed blend of fibers of controlled length, giving proper size distribution for regaining circulation.

- Nonfermenting
- Amounts used vary from 1 to 35 vol%

### Packaging and storage

Cedar fiber is packaged in 40-lb [18-kg] bags.

### Mica

Mica is a selected, nonabrasive mineral available in fine and coarse grades. Mica has no adverse effect on mud properties. It is used to prevent and regain lost returns. Fine mica can pass through a 20-mesh screen.

### Application

Lost circulation: 5–15 lb [2.25–6.75 kg]

### Packaging and storage

Mica is packaged in 50-lb [22.68-kg] sacks.

### Drilling paper

Drilling paper is a blend of variable-sized particles of ground paper that is applicable for use in all water-based mud systems. It can be used in concentrations of up to 20 lb/bbl [57 kg/m<sup>3</sup>] in slug treatments or as an additive to the entire system. In areas of known lost-circulation zones, it is advisable to pretreat the system before drilling into the zone of loss. Drilling paper can be mixed through the mud hopper or added directly to the pits and gunned into the mud.

The most important aspect of combating lost circulation is using the correct particle size. Consequently, it is recommended that a combination of materials be added to ensure a good particle-size distribution. If left in the mud for an extended period of time, drilling paper may be susceptible to bacterial degradation. A bactericide may be necessary to prevent fermentation.

### Packaging and storage

Drilling paper is packaged in 40-lb [18-kg] plastic sacks.

## Cottonseed hulls

Cottonseed hulls are fibrous, biodegradable material that is an excellent bridging agent when large-particle-size material is needed. They can be used in any water-base mud system.

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If left in the mud for an extended period of time, cottonseed hulls can be susceptible to bacterial degradation, resulting in the release of H<sub>2</sub>S and CO<sub>2</sub> into the mud. Bactericide may be necessary to prevent fermentation.

### Packaging and storage

Cottonseed hulls are packaged in 50-lb [22.68-kg] and 100-lb [45.37-kg] burlap or paper sacks.

## FED-SEAL

FED-SEAL\* lost-circulation material is an engineered product that contains an optimum blend of granular, fibrous and flake materials. FED-SEAL material is available in three grinds (coarse, medium and fine) covering a wide range of lost-circulation problems. The material is normally recommended in concentrations of 20–30 lb/bbl [57–86 kg/m<sup>3</sup>] mixed in a slug of 100–200 bbl and spotted at the zone of loss, displacing the slurry at a reduced pumping rate with either large nozzles or an open-ended system. FED-SEAL material can be added to either the water-based mud being used at the time of loss or in any special purpose slurry prepared for squeeze applications.

The FED-SEAL material has been used for preventive measures or as a filler because the fine grade can pass through 20-mesh shaker screens in concentrations of 2–10 lb/bbl [6–28 kg/m<sup>3</sup>].

### Limitations

Do not mix in oil muds.

### Toxicity and handling

Bioassay information is available upon request.

### Packaging and storage

FED-SEAL material is packaged in 40-lb [18-kg] multiwalled paper sacks.