

MAX-LOCK lost circulation material

A total solution for severe downhole losses

The **MAX-LOCK™ lost circulation material (LCM)** from Baker Hughes is a magnesia-based material designed to mitigate severe or total loss of circulation. It is especially effective in vugular or cavernous formations, plug and abandonment operations, and in establishing sustained casing pressure.

Lost circulation is one of the major contributors of nonproductive time (NPT) during drilling operations. Conventional bridging materials are designed to cure seepage and partial losses, but these products are often not enough to counteract severe or total lost circulation events. Increased concentrations of conventional bridging agents to reduce extreme losses has long been a challenge, because the pressure requirements to pump could actually cause losses to increase. Combating severe or total losses by using cement plugs, while common, has also caused problems such as increased NPT, difficulty obtaining the desired thixotropic fluids behavior, and poor cement bond.

MAX-LOCK LCM can seal flow paths that are much larger than what conventional LCMs are capable of sealing. This prevents the downtime associated with cement jobs, and its thixotropic properties enable it to seal loss zones that cement cannot reach.

Environmental information

The MAX-LOCK LCM has been evaluated in the Baker Hughes drilling fluids' bioassay program. The US EPA Drilling Fluids Toxicity Test resulted in minimal toxicity for 5.0 lbm/bbl (14.3 kg/m³) of the MAX-LOCK LCM in a generic #7 mud system. It also passes static sheen and oil and grease standards for offshore Gulf of Mexico use.



Applications

- Instances of severe or total loss of circulation
- Applications where acid solubility is critical
- Gas migration risks
- Plug and abandonment
- Zonal isolation, casing repair, or environmentally sensitive operations

Benefits

- Improves well stability in depleted, vugular, or cavernous formations
- Decreases fluid loss
- Reduces NPT and costs
- Eliminates unnecessary remediation trips
- Minimizes risks associated with flash setting
- Allows variation with mix water

For additional information concerning environmental regulations applicable to Baker Hughes drilling fluids' products, contact the Health, Safety, and Environmental Department.

Safe handling recommendations

Use normal precautions for employee protection when handling products. Read the safety data sheet (SDS) prior to use.

Packaging

The MAX-LOCK LCM includes up to seven components, packaged in 25- or 50-lbm (11.34- or 22.68-kg) sacks or in 55-gal (208-L) drums.

Typical properties

Appearance	White liquid
Maximum bottom hole temperature (BHT)	250°F (121°C)
Density range	Up to 16.0 ppg
Acid solubility	> 90%

