DATA SHEET

HALLIBURTON

Cementing solutions

SentinelCem Shield™ cement system

Cures severe to total losses in primary cement operations

FEATURES

- Designed for lost circulation during primary cementing
- Single-sack blend supports proactive rig-site deployment
- Compatible with local cement types and preblended salt
- Supports on-the-fly and batch mixing
- Thixotropic system remains fluid while pumped and builds rapid gel strength when shear is reduced or stopped

BENEFITS

- Engineered thixotropic properties support placement safety and lead-cement effectiveness compared with conventional thixotropic systems
- Tolerates a range of water hardness levels and cement classes
- Early compressive-strength development helps the system act as an annular barrier if not circulated out
- Helps achieve planned top of cement (TOC)
- Helps reduce remediation costs associated with well integrity challenges

Overview

Lost circulation risks increase in fractured, vugular, cavernous, and highly porous formations. Severe unplanned losses during cement placement or running casing can affect zonal isolation, decrease production, increase remediation costs, or can result in well abandonment. To overcome challenges associated with lost circulation while cementing, Halliburton developed the SentinelCem™ Shield cement system to mitigate losses during primary cement operations.

The system extends Halliburton SentinelCem™ Pro technology from drilling-loss treatments to primary cement applications. Operators pump the system ahead of the lead cement to help cure losses and reduce cement fallback. These capabilities help achieve the planned top of cement and support long-term well integrity.

The system's thixotropic properties make it suitable for formations where particulate lost-circulation materials have limited success in controlling losses.

Engineered thixotropic properties

The SentinelCem Shield™ cement system uses engineered thixotropic properties that allow rapid gel strength buildup when shear rate decreases or stops. This response helps reduce fluid flow into loss zones and improves loss-control performance. When shear rate resumes, the system returns to a flowable state and can withstand multiple hesitation cycles during placement. This behavior helps improve placement safety and effectiveness as a lead cement compared to conventional thixotropic slurries. Early compressive strength development allows the system to function as an annular barrier if not circulated out of the well.

Convenient handling and proactive storage

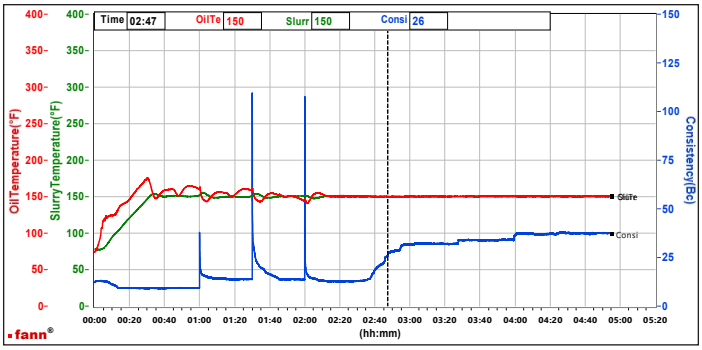
The SentinelCem Shield cement system uses the Halliburton SentinelCem™ Pro additive, packaged in 50-lb sacks for on-site storage and field deployment. This packaging supports operational flexibility in offshore and remote environments and allows rapid response to loss events.

Versatile mixing procedure

The system supports multiple mixing approaches. Operators can dry blend the additive with cement, prehydrate the additive in water and use the resulting fluid as mix water for on-the-fly mixing, or batch mix the complete system. This flexibility reduces operational constraints, supports last minute deployment decisions, and simplifies integration into existing cement programs without redesigning the entire cement operation.

Laboratory and field-proven performance

Laboratory results demonstrate controllable gel-strength development, thickening time, and early compressive strength over a range of slurry densities from 10 to 15 lb/gal and bottomhole circulating temperatures (BHCT) from 80 to 210°F. The SentinelCem Shield™ cement system tolerates a range of cement types and local water sources that contain high concentrations of sodium, calcium, magnesium, chloride, and sulphate. Laboratory evaluations also demonstrated compatibility with cements that contain preblended potassium chloride and seawater.



On-off-on testing shows that the SentinelCem Shield™ cement system develops rapid gel strength when shear rate stops and regains fluidity for circulation when shear rate resumes.

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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