TURBO-CHEM®
INTERNATIONAL, INC.
The Wellbore Stability Specialists

SwelLCM

Pre-Squeeze/Pre-Cement, Gelled Swelling Material

DESCRIPTION

Turbo-Chem's SwelLCM™ is a unique product that has been used with great success when pumped ahead of EZ Squeeze™ or Cement, in extreme lost circulation events. SwelLCM's unique blend of super absorbent and Bio-Polymer combine to form a Low Shear Rate Viscous Fluid that expands to fills large-continuous fractures.

TYPICAL PHYSICAL PROPERTIES:

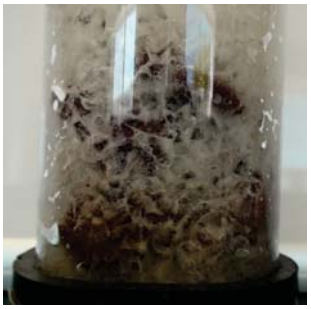
- Appearance: White Powder
- Specific gravity (g/mL): 1.52
- pH in 1% solution: 6.5 - 7.5

RECOMMENDED TREATMENT:

Pump SwelLCM @ 12.5 ppb (at any weight) ahead of cement and/or squeeze job. Product should be mixed at half the volume of the pill to be pumped behind it.

HANDLING:

Available in 10 lb. pails, 64 pails/pallet.



SwelLCM sealing massive voids b/w lava rock.

DRILLING FLUID ADDITION COMPATIBILITY:

It is reccomended that SwelLCM be mixed in fresh water.

BENEFITS:

- ✓ Solves partial to massive loss circulation events. The key factor to obtaining a successful SwelLCM job is by placing the slurry at the proper location in the wellbore (where assumed losses are occurring).
- ✓ Vital in stopping losses in cavernous formations which normally would require cementing, sidetracking or plug and abandonment procedures.
- ✓ Helps remediate casing shoe failures.
- ✓ Can be used in drilling or worked over cased hole for sealing casing leaks or perforations.
- ✓ Very low concentrations required.
- ✓ Mixes easily through the hopper and can be cleaned up in the wellbore through standard acidizing procedure.

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Mixing Requirements

- An empty, clean isolated mixing tank is recommended.
- SwelLCM should only be mixed prior to pumping. SwelLCM should not be Pre-Mixed day's or hours ahead of pumping.
- DO NOT contaminate the SwelLCM slurry with the active system mud or other pre-mixed LCM pills. This will reduce the effectiveness of the pill.
- Adjust the mixing water to a 2-4 pH and maintain for the entire mixing process.
- Agitate the SwelLCM for 30 minutes to 1 hour to allow the slurry to properly polymerize.
- Add barite after all of the SwelLCM is added, keeping the pH below 4.

SwelLCM Mixing Chart

Mixed in Freshwater, Density, ppg	SwelLCM, lbs./bbl.	Pails, per bbl	Barite, sacks	Water, bbl
8	12.5	1.25	0.0	.98
9	12.5	1.25	.37	.98
10	12.5	1.25	.92	.94
11	12.5	1.25	1.47	.90
12	12.5	1.25	2.00	.86
13	12.5	1.25	2.57	.82
14	12.5	1.25	3.12	.79
15	12.5	1.25	3.67	.75
16	12.5	1.25	4.22	.73
17	12.5	1.25	4.77	.67
18	12.5	1.25	5.32	.64
19	12.5	1.00	5.87	.60

Generic SwelLCM Bullhead Mixing and Pumping Procedure: 50 bbls in Freshwater

1.Clean mixing pit and lines thoroughly leaving no residual mud in the pit or the lines.
2. Add 49 bbls of freshwater to the mixing pit.
3. Adjust the pH of the freshwater to 3-4 pH using SwelLCM Activator.
4. Add 63 pails of SwelLCM to the 3-4 pH mix-water and allow agitation until homogenous.
5. Add barite, if needed, to reach desired slurry weight, while maintaining 3-4 pH.
6. Mix entire slurry until homogenous, then pump the SwelLCM slurry into the drill pipe, followed by 3 bbls of system mud, then begin the mixing procedure for Squeeze and/or Cement.

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