P-CTSP

TECHNICAL DATA SHEET

DATE: JANUARY 1, 2026

PETROCHEM - COIL TUBING, SQUEEZE & PLUG (CEMENTING SYSTEM)

PRODUCT DESCRIPTION

P-CTSP is a pre-blended powdered cementing additive designed for squeeze and plug applications via coiled tubing. The system combines fluid loss control, dispersion, and strength development to enable efficient slurry placement and reliable zonal isolation across a broad temperature range.

APPLICATIONS

- Coiled tubing squeeze and plug cementing
- Primary and remedial cementing operations
- Plugging and abandonment (P&A)
- Freshwater and seawater slurry systems
- Low to high temperature wells (< 177°C / < 350°F)

TECHNICAL DATA

- Pre-blended system combining fluid loss control, dispersion, and strength development
- Reduces fluid loss and supports slurry stability under downhole conditions
- Improves slurry rheology and placement efficiency
- Maintains slurry pumpability during placement
- Compatible with all API cement classes (A–H) and common cement additives
- Compatible with silica flour, slag, and fly ash systems
- Can be pre-dissolved in mix water or dry blended with cement
- Compatible with PETROCHEM R-Series (conventional) and SR-Series (synthetic) retarders depending on temperature range and slurry design requirements

TYPICAL PROPERTIES

- Appearance: Tan Powder
- Specific Gravity: 2.30
- Temperature Range: < 177°C / < 350°F

RECOMMENDED TREATMENT

- Typical concentration: ~2.5% BWOC (≈50 lb per 2,000 lb cement)
- Typical slurry design:
- Mix water: ~4.29 gal/sk (38% BWOC)
- Slurry density: ~16.4 ppg
- Fluid loss: ~100 mL / 30 min
- Yield: ~1.07 ft^3/sk
- **Final design must be validated by API laboratory testing under actual conditions.**

FIELD MIXING PROCEDURE

- Charge a clean mixing tank with approximately 92 gallons of fresh water or seawater and begin agitation
- Add PETROCHEM retarder as required (R-Series or SR-Series depending on temperature) along with any additional liquid additives (e.g., defoamer) while maintaining agitation
- Slowly add 50 lb P-CTSP (1 × 50 lb sack or 1 × 5-gallon pail) and mix until fully dispersed
- Gradually add 2,000 lb of API Class H cement while maintaining continuous mixing to achieve a homogeneous slurry
- Maintain adequate mixing energy to ensure uniform slurry consistency prior to pumping

SLURRY DESIGN 1			
100% CLASS H LAFARGE + FRESH WATER @ 4.34 GPS + P-CTSP @ 2.5% BWOC + P-SR250L @ 0.02 GPS @ 162^{O}F BHCT, 199^{O}F			
DENSITY	16.4 PPG	**YIELD**	1.07
MIX WATER	FRESH	**TOTAL FLUID**	4.34 GPS
BHST	199 ^{O}F	**BHCT**	162 ^{O}F
TVD	12,500’	**MD**	12,500’

RHEOLOGICAL RESULTS						
FLUID #	**80 ^{O}F**			**190 ^{O}F**		
RPM	**UP**	**DOWN**	**RATIO**	**UP**	**DOWN**	**RATIO**
300	130	130	1.00	105	105	1.00
200	91	91	1.00	79	74	1.07
100	49	49	1.00	44	41	1.07
60	31	31	1.00	29	26	1.11
30	16	15	1.07	17	14	1.21
6	4	3	1.33	4	3	1.33
3	3	3	1.50	3	2	1.50
3	**10 SEC GEL STRENGTH, DR**		N/A	**10 SEC GEL STRENGTH, DR**		3
3	**10 MIN GEL STRENGTH, DR**		N/A	**10 MIN GEL STRENGTH, DR**		11

FLUID LOSS RESULTS					
FL CELL TYPE	**TEST TEMP (^{O}F)**	**TEST TEMP (MIN)**	**FINAL VOLUME (ML)**	**API FL (ML)**	**FILTER CAKE HEIGHT (IN)**
STIRRED FL	190	30.0	24.0	48.0	1.00

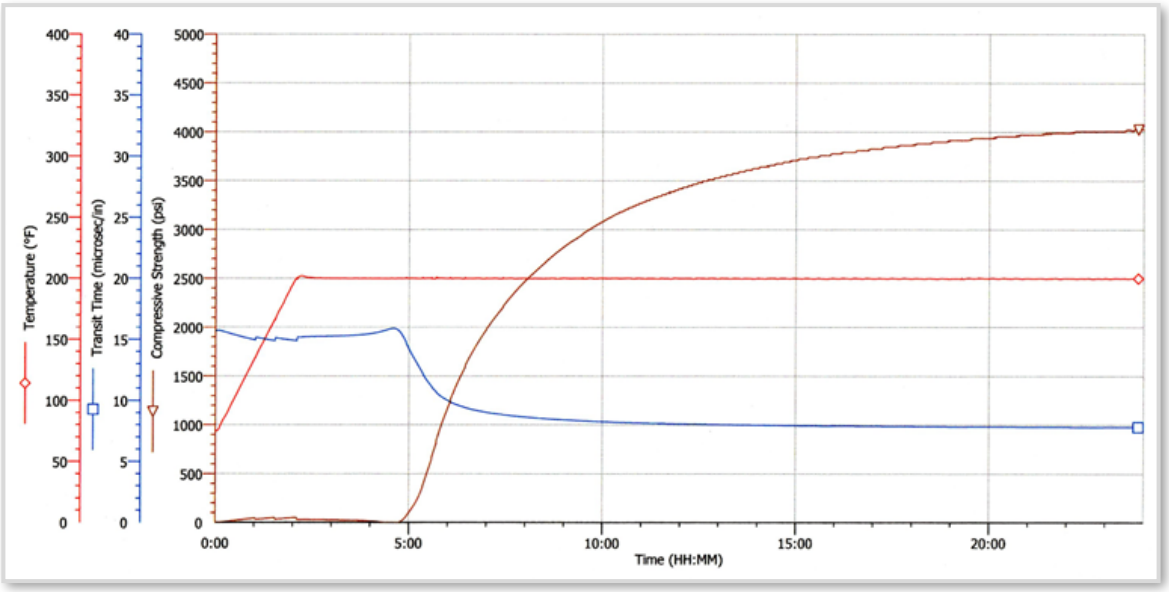
FREE FLUID RESULTS							
STATIC PERIOD	**STATIC PERIOD (HR)**	**CYLINDER RATIO (H:W)**	**CYLINDER ANGLE (INCLINATION)**	**TOTAL VOLUME (ML)**	**FREE FLUID VOLUME (ML)**	**% FF**	**SETTLING?**
AMBIENT	2	6:1	0°	250	TRACE	0.00	NO

THICKENING TIME RESULTS							
TEST TEMP (°F)	TEST PRESSURE (PSI)	BATCH MIX (MIN)	INITIAL BC	30 BC @ HH:MM	50 BC @ HH:MM	70 BC @ HH:MM	100 BC @ HH:MM
162	8125	N/A	10	04:05	04:11	04:14	04:15

UCA COMPRESSIVE STRENGTH RESULTS						
RAMP ID	TEST TEMP (°F)	TEST PRESSURE (PSI)	50 PSI @ HH:MM	500 PSI @ HH:MM	PSI @ 12:00	PSI @ 24:00
A	199	8000	04:55	05:28	3417	4026

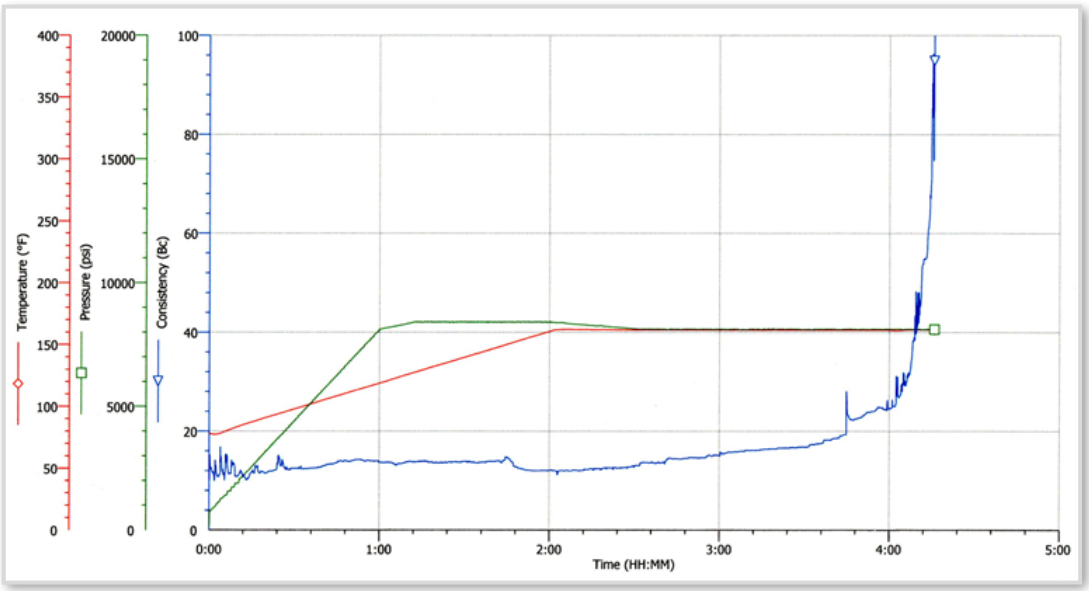
UCA COMPRESSIVE STRENGTH GRAPH

100% CLASS H LAFARGE + FRESH WATER @ 4.34 GPS + P-CTSP @ 2.5% BWOC + P-SR250L @ 0.02 GPS @ 162°F BHCT, 199°F BHST



THICKENING TIME GRAPH - P-CTSP + P-SR250L (0.02 GPS)

100% CLASS H LAFARGE + FRESH WATER @ 4.34 GPS + P-CTSP @ 2.5% BWOC + P-SR250L @ 0.02 GPS @ 162°F BHCT, 199°F BHST



SLURRY DESIGN 2			
100% CLASS H LAFARGE + FRESH WATER @ 4.32 GPS + P-CTSP @ 2.5% BWOC + P-SR250L @ 0.04 GPS @ 162°F BHCT, 199°F			
DENSITY	16.4 PPG	**YIELD**	1.07
MIX WATER	FRESH	**TOTAL FLUID**	4.32 GPS
BHST	199 °F	**BHCT**	162 °F
TVD	12,500’	**MD**	12,500’

RHEOLOGICAL RESULTS						
FLUID #	**80 °F**			**190 °F**		
RPM	**UP**	**DOWN**	**RATIO**	**UP**	**DOWN**	**RATIO**
300	138	138	1.00	124	124	1.00
200	98	98	1.00	94	86	1.09
100	52	52	1.00	59	47	1.25
60	32	32	1.00	39	30	1.30
30	17	16	1.06	22	15	1.47
6	4	3	1.33	5	4	1.25
3	2	2	1.00	3	2	1.50
3	**10 SEC GEL STRENGTH, DR**		N/A	**10 SEC GEL STRENGTH, DR**		4
3	**10 MIN GEL STRENGTH, DR**		N/A	**10 MIN GEL STRENGTH, DR**		9

FLUID LOSS RESULTS					
FL CELL TYPE	**TEST TEMP (°F)**	**TEST TEMP (MIN)**	**FINAL VOLUME (ML)**	**API FL (ML)**	**FILTER CAKE HEIGHT (IN)**
STIRRED FL	190	30.0	28.0	56.0	1.25

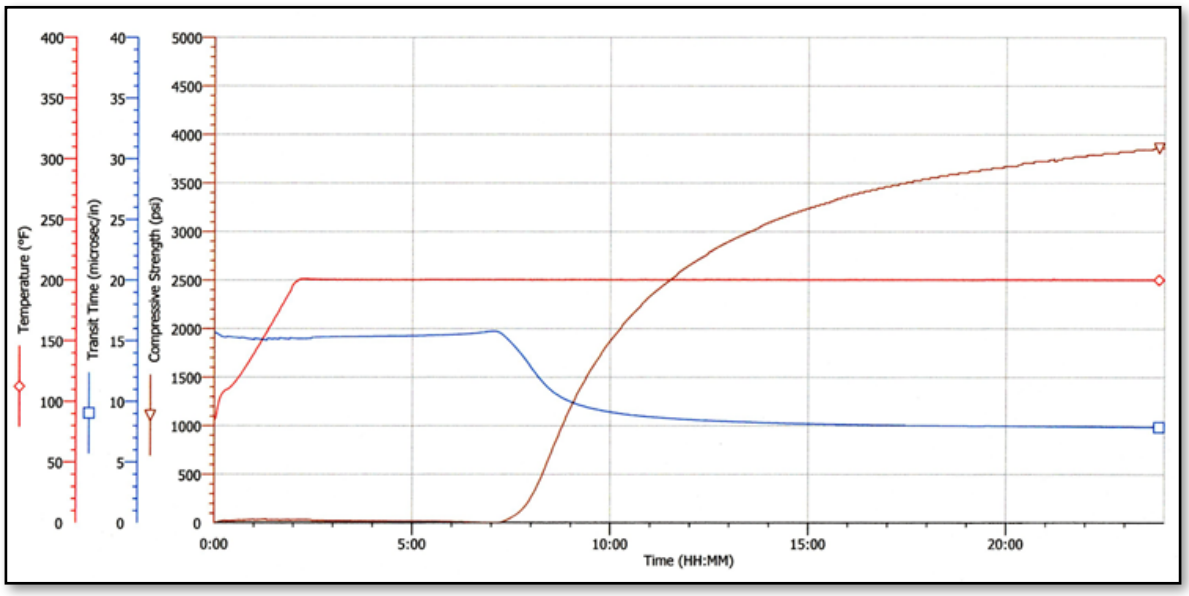
FREE FLUID RESULTS							
STATIC PERIOD	**STATIC PERIOD (HR)**	**CYLINDER RATIO (H:W)**	**CYLINDER ANGLE (INCLINATION)**	**TOTAL VOLUME (ML)**	**FREE FLUID VOLUME (ML)**	**% FF**	**SETTLING?**
AMBIENT	2	6:1	0°	250	TRACE	0.00	NO

THICKENING TIME RESULTS							
TEST TEMP (°F)	**TEST PRESSURE (PSI)**	**BATCH MIX (MIN)**	**INITIAL BC**	**30 BC @ HH:MM**	**50 BC @ HH:MM**	**70 BC @ HH:MM**	**100 BC @ HH:MM**
162	8125	N/A	7	03:58	04:02	04:04	04:06

UCA COMPRESSIVE STRENGTH RESULTS						
RAMP ID	**TEST TEMP (°F)**	**TEST PRESSURE**	**50 PSI @ HH:MM**	**500 PSI @ HH:MM**	**PSI @ 12:00**	**PSI @ 24:00**
A	199	8000	07:30	08:17	2656	3860

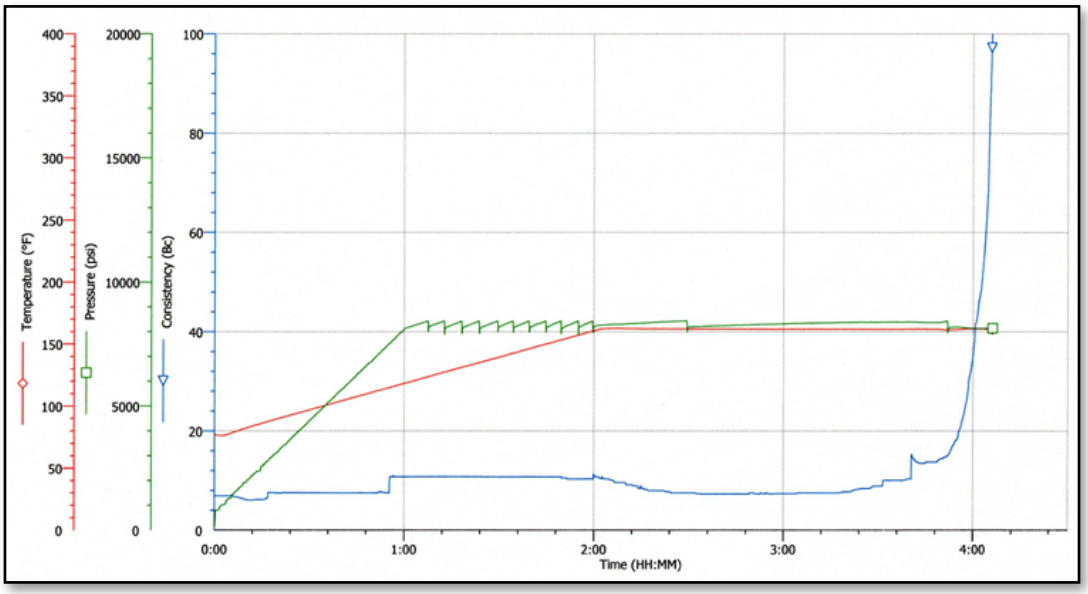
UCA COMPRESSIVE STRENGTH GRAPH - P-CTSP + P-SR250L (0.04 GPS)

100% CLASS H LAFARGE + FRESH WATER @ 4.32 GPS + P-CTSP @ 2.5% BWOC + P-SR250L @ 0.04 GPS @ 162^{O}F BHCT, 199^{O}F BHST



THICKENING TIME GRAPH - P-CTSP + P-SR250L (0.04 GPS)

100% CLASS H LAFARGE + FRESH WATER @ 4.32 GPS + P-CTSP @ 2.5% BWOC + P-SR250L @ 0.04 GPS @ 162^{O}F BHCT, 199^{O}F BHST



PACKAGING

- Packaged in 40 × 50 lb (22.7 kg) sacks per pallet
- Packaged in 4 × 5-gallon (50 lb) pails per pallet with Rieke (pour) spouts
- Bulk or custom packaging options available upon request

SAFETY

- Refer to the Safety Data Sheet (SDS) prior to handling or use

NOTICE

The information provided herein is offered in good faith; however, no warranties, express or implied, are made. Users are responsible for determining product suitability and performance under actual operating conditions.