

# CA-R13L

## HIGH TEMPERATURE LIQUID RETARDER

### DESCRIPTION

CA-R13L is a liquid retarder for cement slurries designed for use with bottom hole circulating temperatures (BHCT) in the 175 °F to 300 °F range. Its properties are:

Form	Amber, Slightly Viscous Liquid
Specific Gravity	1.18 - 1.22
Freeze Point	25 °F
Flash Point	None

### APPLICATION

CA-R13L is a high temperature retarder for all API cements in either fresh or sea water. The retarder has a slight dispersive action with most cements which results in some thinning of the cement slurry. Its temperature range can be extended to 375 °F BHCT by using either of two aids, CA-RX1 or CA-RX2.

### RECOMMENDED TREATMENT

CA-R13L is compatible with all commonly used dry-blended cement additives. In some operations, if it is desirable to blend the retarder with other liquid additives, they can be added as a single fluid. Such blends, though, should be tested in the lab before attempting to mix them in the field.

The normal concentration of CA-R13L is from 0.01 to 0.5 gallons per sack of cement. CA-R13L disperses readily in water with moderate agitation. Typical thickening time and compressive strength data for several brands of cement are presented in Tables 1 and 2. Table 3 shows the effect of the retarder aids CA-RX1 and CA-RX2 on thickening time. Specific thickening time data for slurry design must be determined in a laboratory. The specific type of cement, along with the additives to be used on the job, must be made available for these tests. Some separation may occur upon freezing and drums should be agitated after thawing before the product is used.

### HANDLING

Goggles should be worn while handling. In case of eye contact, flush eyes with water for 15 minutes. If irritation persists, seek medical attention. CA-R13L is not a skin irritant but, becomes quite viscous and sticky upon drying.



**PACKAGING**

CA-R13L is available in 55-gallon drums or 5-gallon pails.

**TABLE 1 THICKENING TIME AND COMPRESSIVE STRENGTHS AT 24 HOURS FOR CA-R13L USING API CLASS H**

% Water	CA-R13L gal/sk	CA-HT-S100, %	BHCT, °F	Thickening Time, Hr:Min	Compressive Strength, psi
			FRESH WATER		
50	0.110	35	250	4:39	1125
50	0.095	35	248	3:57	
46	0.035		206	4:42	2800
46	0.028		200	4:44	
46	0.025		200	4:02	2225
46	0.015		150	4:18	2550
			SALT WATER		
50	0.160	35	250	4:38	2040
46	0.045		200	3:24	3250
46	0.025		150	1:18	
46	0.035		150	3:52	



**TABLE 2 COMPRESSIVE STRENGTHS AT 24 HOURS USING CA-R13L AND FRESH WATER**

% Water	CA-R13L gal/sk	CA-HT-S100, %	Temp, °F	Compressive Strength, psi
		API CLASS H		
46	0.10	0	250	2225
52	0.09	35	250	2050
52	0.32	35	300	3475
56	0.32	35	300	3150
56	0.40	35	300	2475
48	0.36	35	300	3500
52	0.36	35	300	3175
		API CLASS G (HSR)		
44	0.09	0	250	2550
54	0.10	35	250	2625
44	0.12	0	250	2475
54	0.12	35	250	2425



**TABLE 3 EFFECT OF RETARDER AID ON THICKENING TIME API CLASS H  
WITH 35% CA-HT/S100, 56% WATER AT 350~F**

CA-R13L, gal/sk	Retarder Aid lbs/sk	Thickening Time, Hrs:Min
1.1	0	3:24
0.8	0.55 CA-RX1	3:48
1.0	0.70 CA-RX1	4:42
0.8	0.36 CA-RX2	4:18

