

CA-R11

EXTREME TEMPERATURE RETARDER

GENERAL INFORMATION

CA-R11 is a free-flowing powder and a specially formulated, premium quality cement retarder for use in preparing cement slurries for high and extreme temperature applications. CA-R11 is compatible with a wide range of API Cements, Pozzolans and other additives.

The major advantages of CA-R11 high temperature retarder can be summarized as follows:

CEMENT - CA-R11 is fully compatible with all API Cements.

MIX WATER - CA-R11 can be used in the preparation of fresh and seawater slurries.

FREE-FLOWING POWDER - CA-R11 is packaged as a two component product to increase shelf life and prevent caking.

DISPERSION - CA-R11 in addition to its primary function also has a dispersant effect on slurries, which reduces slurry viscosity and associated pumping pressures.

TEMPERATURE - CA-R11 can be utilized at temperatures up to 500° F (260° C) BHCT, however, slurry design is critical above 400° F (204° C).

CONCENTRATION - CA-R11 is normally used in concentrations from 0.5-4.0% by weight of cement. CA-R11 is a combination of CA-R11A:CA-R11B at a 2:1 ratio. At BHCT above 400° F (204° C), a ratio of 3:1 may be necessary.

COMPATIBILITY - CA-R11 is fully compatible with all Messina fluid loss additives except CA-FL13L, although high concentrations of CA-R11 may reduce fluid loss control.

APPLICATION

CA-R11 high temperature cement retarder finds applications in all types of cement slurry preparation where temperatures up to 450° F (BHCT) are expected. The principle applications include:

- Long Interval Cementation
- Liner Cementation
- Deep Hole Cement Plugs
- Squeeze Cementing

CA-R11 has been used in wells from 12,000 ft to 18,000 ft deep.



CONCENTRATION

Depending on the particular application, type of cement, mix water and other additives to be used in the preparation of a given cement slurry composition, the required concentration of CA-R11 will vary. Normally the concentration will range from 0.5% to 4.0%. Reference to the attached table serves to illustrate typical thickening times that can be achieved. This table should be interpreted as an illustration only, and pilot testing is strongly recommended to accurately determine the specific amount of CAR11 required for a particular cementing operation.

RECOMMENDED TREATMENT

CA-R11 can be dry blended with the cement, or prepared in the mix water prior to cementing. In both cases care should be exercised to ensure that the exact concentration of CA-R11 is prepared as slight changes in concentration may have a marked effect on slurry behavior.

Sufficient time must be allowed for blending to be thoroughly achieved, and in the case where CA-R11 is pre-mixed with the slurry mix water, the pit should be left circulating and agitating for at least 1-2 hours prior to mixing cement.

In all operations where additives are pre-mixed with mix water, 10-15% additional mix water should be treated in the event that additional mix water is required.

SAFETY AND HANDLING

When handling CA-R11, the following points should be noted:

- Goggles, dust masks, and suitable protective clothing should be worn by all personnel.
- In the event that eye contact occurs, flush with fresh water for a period of not less than 15-20 minutes. If irritation persists seek medical attention.
- If the material contacts skin, wash and rinse the affected area with soap and water.
- Inhalation may cause discomfort. If this happens move into the fresh air.

PACKAGING

CA-R11 is packaged in 50 lb (USA) or 25 kg (Europe, Africa, Middle East) export sacks.



**CA-R11 CONCENTRATION
Vs
THICKENING TIME**

CEMENT CLASS	% CA-R11	DEPTH (ft)	BHSCT (°F)	THICKENING TIME (HRS)
D	0.25	12,000	260	2 ¾
D	0.50	12,000	260	4
E	0.25	14,000	280	3 ½
E	0.50	14,000	280	4
G	0.25	16,000	320	3 ¼
G	0.50	16,000	320	4
D	0.7	18,000	320	4
E	1.5	18,000	320	3
G	1.5	18,000	350	2 ½