

INFORMATION

CA-R5

LOW TEMPERATURE RETARDER

DESCRIPTION

CA-R5 is a free-flowing, dark powder and a premium quality organic cement retarder for use with neat or low gel content slurries. CA-R5 is compatible with all API cements and pozzolan cement.

APPLICATION

CA-R5 can be utilized in a variety of cementing operations where higher temperatures are encountered. CA-R5 has applications in Primary Cementing (i.e. long string casing and intermediate casing, Cement Plugs, and Squeeze Cementing).

CA-R5 has been successfully used to retard cement slurries in wells up to 16,000 ft deep.

RECOMMENDED TREATMENT

CA-R5 can be dry-blended or mixed with the slurry mix water prior to cementing. The following procedure should always be followed when mixing additives in the slurry mix water.

- Ensure the rig mixing tank/pit, is fully flushed and cleaned, and that all valves and gates are fully checked.
- The centrifugal pump and associated suction and discharge lines should also be thoroughly cleaned to avoid contamination of the mix water by residual drilling mud.
- The pit should be checked for accurate capacity calculations and filled with the type of mix water required.
- The required amount of CA-R5 should be added at a rate of 10-15 minutes/sack, to ensure full dispersion.
- The mix water should be left to circulate and agitate several hours prior to cementing.

MAJOR ADVANTAGES

The application of CA-R5 cement retarder provides the following advantages:

CEMENTS: CA-R5 is fully compatible with all API cements and cements blended with pozzolans.

MIX WATER: CA-R5 can be used in fresh and seawater slurries.

FREE FLOWING: Ensures smooth, lump-free blending of cement slurries.

TEMPERATURE: CA-R5 will effectively retard cement slurries in wells with temperatures up to 240° F (115° C) BHCT. The optimum temperature range for CA-R5 is from 150° F (65° C) to 225° F (107° C).

CONCENTRATION: CA-R5 is extremely cost effective, as only small concentrations are required (i.e. normally 0.3% to 1%).

COMPRESSIVE STRENGTH: CA-R5 does not appreciably alter final cement compressive strength; however, it may retard early strength development at low BHST.

CONCENTRATION

CA-R5 is used in extremely small concentrations, usually less than 1% by weight of cement. Reference to the attached table illustrates approximate thickening times and compressive strengths at differing concentrations of CA-R5. These tables serve to illustrate examples, and should not be used as a direct concentration reference.

Pilot testing should always be carried out so that accurate slurry behavior can be determined using the particular cement and mix water for a specific cementing operation.

Where CA-R5 is used in Pozzolan cements, the concentration is calculated on the combined weight of cement and pozzolan.

SAFETY

Normal safety precautions should be adhered to when handling CA-R5. Goggles and face masks should be worn to prevent unnecessary eye contact and inhalation. If eye contact does occur, wash thoroughly for a period of not less than 15 minutes.

PACKAGING

CA-R5 is packaged in 50 lb (USA) and 25 kg (Europe, Africa, Middle East) export quality sacks.

CA-R5 is a Messina trademark

**CONCENTRATION OF CA-R5 VS THICKENING TIME FOR CASING CEMENTATION
(CLASS G CEMENT) (15.8 lb/gal.)**

PERFECNT CA-R5	WELL DEPTH (FT)	TEMPERATURE °F (BHCT)	THICKENING TIME (HRS)
0	6,000 - 8,000	113-125	2-4
0.2	8,000 - 10,000	125-144	3-4
0.4	10,000 - 14,000	144-206	3-5
0.6	+14,000	206-240	+3

COMPRESSIVE STRENGTH (psi) CLASS G CEMENT (15.8 ppg)

PERFECNT CA-R5	CURING TEMP (150 °F)			CURING TEMP (180 °F)		CURING TEMP (225 °F)	
	8 HR	12 HR	24 HR	8 HR	24 HR	8 HR	24 HR
0.2	650	1725	2640	1550	3200		
0.4	450	1280	2240	1300	3100	1710	4020
0.6			1950	1140	3160	1550	3880

*35% CA-HT/S200 was added at this temperature.