

CA-SP7

SPACER/PREFLUSH

GENERAL INFORMATION

CA-SP7 is a specially-formulated, premium quality product used to prepare a variety of cement spacers, which enable complete separation between the drilling fluid (water, invert, or oil-base) and cement slurry during cementing operations.

DESCRIPTION

CA-SP7 is a free-flowing white powder with a specific gravity of 2.24. CA-SP7 builds viscosity, gel strength and yield point, and exhibits excellent fluid loss control. When the system is used to displace oil-base or invert mud systems, the CA-SP7 system also includes of a pair of other additional components, CA-AFL (Defoamer) and CA-SP7B (Wetting Agent).

MAJOR ADVANTAGES

FORM - CA-SP7 is a free flowing powder, which enables smooth, homogenous spacer preparation.

MIX WATER - CA-SP7 can be used in fresh water and sea water.

CEMENTS - Spacer made with CA-SP7 can be used with Class A, B, C, D, E, F, G, H and J cements.

FILTRATION - CA-SP7 provides excellent filtration control and thereby prevents harmful interaction between excessive spacer water loss and the exposed formations.

COMPATIBILITY - The chemical nature of CA-SP7 is such that it will not alter basic cement slurry characteristics. May be used to displace either water or oil invert mud systems.

WEIGHTING - CA-SP7 spacer formulations can be weighted to 18 ppg using CA-WB1 (Barite), or 20 ppb using CA-WH1C (Hematite).

EFFICIENCY - CA-SP7 enables enhanced cement bonding by improved mud removal.

APPLICATION

CA-SP7 spacers can be formulated to be used in all types of primary cement operations. CA-SP7's chemical components enable an effective spacer to be made which adequately separates the cement slurry from reacting with the drilling fluids chemical constituents, which may drastically affect slurry behavior.



When used in conjunction with CA-SP7B (Wetting Agent), this system is very effective for the displacement of oil and invert mud systems.

CONCENTRATION

To prepare a CA-SP7 spacer, a typical formulation is 1 sack (50 lbs) of CA-SP7 with 0.94 bbls of water to produce 1 bbl of 9.0 ppg spacer slurry. This standard concentration should be used for all types of spacer requirements, both weighted and unweighted. To increase the density of CA-SP7 spacer, standard "material balance" equations should be used based on the exact weighting material; i.e. Baryte, Hematite, etc. Charts are shown on pages 2 & 3 listing loading requirements of two Messina weight materials to prepare densified spacers.

CA-SP7 spacers should be prepared using the following recommended procedures. If the system is to be used for displacement of an oil-base or invert mud system, the wetting agent, CA-SP7B, should be added and mixed last, just prior to pumping downhole. NOTE: It is also imperative that the defoamer, CA-AFL, be added to the mix water before adding any other components. It will not function properly if added to the system after the other components.

- Prior to spacer mixing, the slug pit or rig tank and its suction and discharge lines should be thoroughly cleaned to remove all traces of the drilling fluid. All the required quantity of mix water should be added to the tank in a ratio of 0.94 bbls to 1 bbl of finished 9.0 ppg spacer required. Add CA-AFL (Defoamer) to the mix water prior to adding CASP7.
- Add the CA-SP7 to the mix water allowing 10-15 minutes mixing time per sack to ensure even mixing. The unweighted spacer should be left to shear to allow complete uniform dispersion of the product, prior to the addition of any weighting material, or prior to use.
- The appropriate amount of weight material (CA-WB1, CA-WH1C, etc.) should be slowly added to the unweighted spacer and thoroughly mixed. (See the charts included in the Product Bulletin for weight material quantities.)
- If the mud system is oil base or invert, uniformly mix 2 gal/bbl CA-SP7B (Wetting Agent) to the mixture just as you are pumping downhole. Cut off the CA-SP7B in the tail end of the spacer, and continue running the defoamer to remove any foam prior to the cement.



VOLUMETRIC REQUIREMENTS

The ability of any cement spacer to perform optimally is a function not only of the spacer's product quality but also the volume of spacer utilized. In this respect CA-SP7 does not differ from other spacer formulations, and the amount of CA-SP7 prepared should allow for at least 500 ft of annular separation between the mud and the cement slurry. In addition, a surplus volume of the spacer should always be included in preparation requirements to allow for pit suction, line fill-up, etc.

The chart below shows weight requirements of either CA-WB1 (Barite) or CA-WH1C (Cement Grade Hematite) to prepare high density spacers.

<u>Water (Bbls.)</u>	<u>CA-SP7 (Sacks)</u>	<u>CA-WB1 (Lbs.)</u>	<u>Finished Volume (Bls.)</u>	<u>Density (Lbs/gal)</u>
0.94	1.0	0.00	1.00	9.0
0.94	1.0	28.8	1.02	9.5
0.94	1.0	60.0	1.04	10.0
0.94	1.0	91.0	1.06	10.5
0.94	1.0	123.0	1.09	11.0
0.94	1.0	157.0	1.11	11.5
0.94	1.0	192.0	1.13	12.0
0.94	1.0	229.0	1.16	12.5
0.94	1.0	268.0	1.18	13.0
0.94	1.0	308.0	1.21	13.5
0.94	1.0	350.0	1.24	14.0
0.94	1.0	394.0	1.27	14.5
0.94	1.0	440.0	1.30	15.0
0.94	1.0	489.0	1.33	15.5
0.94	1.0	540.0	1.36	16.0
0.94	1.0	593.0	1.40	16.5
0.94	1.0	650.0	1.44	17.0
0.94	1.0	710.0	1.48	17.5
0.94	1.0	773.0	1.52	18.0



<u>Water (Bbls.)</u>	<u>CA-SP7 (Sacks)</u>	<u>CA-WB1 (Lbs.)</u>	<u>Finished Volume (Bls.)</u>	<u>Density (Lbs/gal)</u>
0.94	1.0	0.00	1	9.0
0.94	1.0	28.0	1.02	9.5
0.94	1.0	56.0	1.03	10.0
0.94	1.0	85.0	1.05	10.5
0.94	1.0	115.0	1.07	11.0
0.94	1.0	146.0	1.08	11.5
0.94	1.0	178.0	1.10	12.0
0.94	1.0	212.0	1.12	12.5
0.94	1.0	246.0	1.14	13.0
0.94	1.0	282.0	1.16	13.5
0.94	1.0	318.0	1.18	14.0
0.94	1.0	357.0	1.21	14.5
0.94	1.0	396.0	1.23	15.0
0.94	1.0	437.0	1.25	15.5
0.94	1.0	480.0	1.28	16.0
0.94	1.0	525.0	1.30	16.5
0.94	1.0	571.0	1.33	17.0
0.94	1.0	619.0	1.35	17.5
0.94	1.0	669.0	1.39	18.0
0.94	1.0	722.0	1.41	18.5
0.94	1.0	777.0	1.45	19.0
0.94	1.0	834.0	1.48	19.5
0.94	1.0	894.0	1.51	20.0

LIMITATIONS

CA-SP7 should not be used with cement slurries containing Messina CA-R11 or CA-R9 retarders.

PACKAGING

CA-SP7 is packaged in 50 lb or 25 kg heavy duty sacks.

CA-SP7 is a Messina trademark