



CELLOSIZETM Hydroxyethyl Cellulose (HEC) Polymers For Use In Oilfield Cementing Applications

CELLOSIZETM hydroxyethyl cellulose HEC-15, HEC-18 and HEC-60 are designed for use as fluid loss additives for use in oilfield cementing applications. The typical properties of these products are described in Table 1. CELLOSIZETM HEC-60 is specifically designed for use in formulations where high concentrations of salt (NaCl) are present.

These polymers provide water retention properties when added to typical cement formulations, leading to more consistent, stronger, more uniform cement. This is demonstrated by adding the

CELLOSIZETM HEC to a typical prototype cement formulation, as described in Table 2.

In tests conducted by Dow, the formulations were prepared by first mixing the dry components until uniform. The dry mix was added to the water in a blender and mixed for about 1 minute. The resulting cement slurry was then transferred to a Consistometer and aged at 100°F while mixing at 150 rpm for 20 minutes. It was then transferred to a high-pressure fluid loss cell fitted with a 325-mesh screen. The cell was heated to 100°F

and 1000 psi pressure was applied. Fluid loss data are summarized in Table 3 and represent the amount of water forced out of the formulation in 30 minutes, multiplied by 2.

The CELLOSIZETM HEC grades were also tested in formulations containing varying levels of salt, sodium chloride. CELLOSIZETM HEC-60 is specially designed to provide good fluid loss performance in high salt systems, as demonstrated by the data in Table 4.

Applications

Table 1. Typical Properties Of CELLOSIZETM Products For Fluid Loss¹

	HEC-15	HEC-18	HEC-60
Viscosity, 2%, cP	50-105	250-400	180-325
Volatiles, % by weight	4	4	4

Table 2. Typical Prototype Cement Formulation¹

Class H Cement	600 grams
CELLOSIZETM Hydroxyethyl Cellulose	3 grams
Sodium Naphthalene Sulfonate (e.g. DAXADTM 19 LS)	3 grams
Water	276 mL

Table 3. Fluid Loss Measurement Of Cement Formulations Containing CELLOSIZETM HEC¹

CELLOSIZETM Hydroxyethyl Cellulose	Fluid Loss, mL
HEC-15	~55
HEC-18	~40
HEC-60	~30

Table 4. Fluid Loss Measurement Of Cement Formulations Containing CELLOSIZETM HEC and Salt¹

CELLOSIZETM Hydroxyethyl Cellulose	Fluid Loss, mL, 5% Sodium Chloride On Water	Fluid Loss, mL, 10% Sodium Chloride On Water	Fluid Loss, mL, 15% Sodium Chloride On Water
HEC-15	72	Blow out	Blow out
HEC-18	46	68	110
HEC-60	42	60	80

¹The data provided for these properties are typical values, intended only as guides, and should not be construed as sales specifications.



For pricing and availability,
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