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James

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(54) **COMPOSITIONS AND METHODS FOR WELL COMPLETIONS**

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CPC . ***C04B 28/04*** (2013.01); ***C09K 8/46*** (2013.01); ***C09K 8/467*** (2013.01); *Y02W 30/96* (2015.05)

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See application file for complete search history.

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(57) **ABSTRACT**

Particulate polymeric materials may be added to a cement slurry to adjust the linear thermal-expansion coefficient of the set cement. The coefficient of the set cement is optimized by considering the linear thermal-expansion coefficient of the casing, as well as the mechanical properties of the formation rock. When placed in a subterranean well having at least one casing string, cement sheaths with optimal linear thermal-expansion coefficients may be subjected to lower compressive and tensile stresses during downhole-temperature changes. Such cement slurries are particularly advantageous in the context of thermal-recovery wells.

17 Claims, 4 Drawing Sheets