

## Discussion of "Resistance Changes during Compression of Carbon Fiber Cement Composites"

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The subject paper provides experimental results on the change in electrical resistance of carbon fiber cement upon compression. Results are given for curing ages of 7 days and 140 days. The results are compared with those in the paper by Chen and Chung (1996).

The results of Chen and Chung (1996) are for a curing age of 7 days only. In other publications on this subject (Fu and Chung 1996, 1997; Fu et al. 1997, 1998; Bontea et al. 2000; Wen and Chung 2000, 2001a,b, 2003; Chung 2002), the curing age is 28 days. Comparison of the results of the subject paper for a curing age of 140 days should not be made with those of Chen and Chung (1996) for a curing age of 7 days. Rather, comparison should be made with the results of the other previously listed papers for a curing age of 28 days. How the resistance changes in response to strain is very different between curing ages of 7 and 28 days, as reported by Fu and Chung (1997). The results in Figs. 7, 9, and 10 of the subject paper for a curing age of 140 days are consistent with prior work for a curing age of 28 days.

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## Closure to "Resistance Changes during Compression of Carbon Fiber Cement Composites"

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The writers wish to thank the discussers for their valuable comments regarding the change in electrical resistance of carbon fiber cement composites upon compression as a function of curing age. It is correct that the results presented in Chen and Chung (1996) are for a curing age of 7 days only. There are some notable differences in the results for specimens at 7 days. They can be illustrated, for example, by comparing Fig. 6 of the subject paper with Figs. 4 and 11(a) of Chen and Chung (1996). The subject paper shows a decrease in resistance in the elastic regime, whereas Chen and Chung (1996) shows continuously increasing resistance. When comparing mature specimens, such as the 140-day specimens in the subject paper, with the 28-day-old specimens in Fu and Chung (1997), there is general agreement in the observed trends. Fig. 7 in the subject paper and Fig. 3 in Fu and Chung (1997) both show a decrease in resistance in the elastic regime. For the case of cyclic loading, a reversible decrease in resistance upon compression was noted both in Figs. 9 and 10 of the subject paper and Fig. 1 of Fu and Chung (1997).

Other differences between the experimental programs include specimen size, mortar composition, type and size of carbon fibers, and use of AC versus DC for resistance measurements.

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