

PROCEEDINGS

Experimental Study of the Electrical Resistance of Graphene Oxide-Reinforced Cement-Based Composites with Notch or Rebar

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ABSTRACT

This paper investigates the effects of graphene oxide (GO), notch depth, rebar, and load on the resistivity of cement paste and mortar. The electrical conductivity of GO/cement composite reaches its maximum value when the GO content is 0.03%, which is approximately 50% higher compared to the composite without GO. The resistivity of GO/cement composite shows significant changes with increasing load from 0 to 40 kN. The gauge factor for compressive loading varies from about 26 to 73 for different GO contents. Moreover, the resistivity variation with the notch depth in GO/cement is found to be much greater than that in GO/mortar reinforced by rebars. The findings of this study have implications for the design of self-sensing concrete in structural health monitoring. Further research in this area could benefit from the insights provided by this work.

KEYWORDS

Graphene oxide; cement; resistivity; notch depth; sensor

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