

EFFECT OF GRAPHENE OXIDE AND METALLIC FIBERS ON THE ELECTROMAGNETIC SHIELDING EFFECT OF ENGINEERED CEMENTITIOUS COMPOSITES

A. Mazzoli, V. Corinaldesi, J. Donnini, C. Di Perna, D. Micheli, A. Vricella, R. Pastore, L. Bastianelli, F. Moglie, V. Mariani Primiani



PII: S2352-7102(17)30107-9  
DOI: <https://doi.org/10.1016/j.jobe.2018.02.019>  
Reference: JOBE422

To appear in: *Journal of Building Engineering*

Received date: 27 February 2017  
Revised date: 20 February 2018  
Accepted date: 25 February 2018

Cite this article as: A. Mazzoli, V. Corinaldesi, J. Donnini, C. Di Perna, D. Micheli, A. Vricella, R. Pastore, L. Bastianelli, F. Moglie and V. Mariani Primiani, EFFECT OF GRAPHENE OXIDE AND METALLIC FIBERS ON THE ELECTROMAGNETIC SHIELDING EFFECT OF ENGINEERED CEMENTITIOUS COMPOSITES, *Journal of Building Engineering*, <https://doi.org/10.1016/j.jobe.2018.02.019>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**EFFECT OF GRAPHENE OXIDE AND METALLIC FIBERS ON THE ELECTROMAGNETIC SHIELDING EFFECT OF ENGINEERED CEMENTITIOUS COMPOSITES**

**Mazzoli A<sup>1\*</sup>, Corinaldesi V<sup>1</sup>, Donnini J<sup>1</sup>, Di Perna C<sup>2</sup>, Micheli D<sup>3</sup>, Vricella A<sup>3</sup>, Pastore R<sup>3</sup>,  
Bastianelli L<sup>4</sup>, Moglie F<sup>4</sup>, Mariani Primiani V<sup>4</sup>**

<sup>1</sup>Department SIMAU, Università Politecnica delle Marche, 60131 Ancona (Italy)

<sup>2</sup>Department DIISM, Università Politecnica delle Marche, 60131 Ancona (Italy)

<sup>3</sup>Department DIAEE, Sapienza University of Rome, Via Salaria 851, 00138 Rome (Italy)

<sup>4</sup>Department DII, Università Politecnica delle Marche, 60131 Ancona (Italy)

**\*Corresponding author.** Alida Mazzoli Department of Sciences and Engineering of Matter, Environment and Urban Planning (SIMAU) Faculty of Engineering, Università Politecnica delle Marche Via Breccie Bianche, 60131 Ancona (Italy) Tel.: +39 071 2204290; fax: +39 071 2204729.  
*a.mazzoli@univpm.it*

**Abstract**

Electromagnetic shielding and propagation in concrete structures are getting more and more interest in radiation hazard problems and wireless communications. The protection of sensitive environment is nowadays carried out by appropriate shielding room made of metallic walls. Their efficacy is counteracted by their heaviness, not adequate for the installation over existing building walls. The using of concrete composites filled by conductive elements represents a valid alternative to metallic shielded room since they can be adopted to directly build up the building walls and/or to easily plaster existing walls. Graphene oxide powder and metallic fibers are being currently investigated as fillers in the manufacturing of electromagnetic shielding cementitious composites. The novelty of the present work is the characterization of a multi-reinforced cement realized by combining such two filler typologies: the synergistic effects of graphene oxide microparticles and short steel fibers result in enhancement of both mechanical properties and EMI effectiveness of the cementitious composites.

Download English Version:

<https://daneshyari.com/en/article/6749837>

Download Persian Version:

<https://daneshyari.com/article/6749837>

[Daneshyari.com](https://daneshyari.com)