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Management e  
Diritto dell'Impresa

## CONVEGNO NAZIONALE ITALIANO SUI GEOPOLIMERI



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# Materiali innovativi per uno sviluppo sostenibile: dal laboratorio alle applicazioni

UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO

## BOOK OF ABSTRACTS

A cura di Marina Clausi, Daniela Pinto e Cristina Leonelli

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## The effect of fibres on geopolymers made using Mt. Etna volcanic ash: a preliminary study

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The awareness of environmental issues has led to the development of eco-friendly materials that could combine high performance products with the possibility of the re-use of waste materials [1].

Geopolymers have favourable properties such as low curing temperature, recyclability and low cost of the precursors, making them a valid alternative to traditional OPC.

Despite these excellent qualities their brittle behaviour imposes constraints in structural design. To enhance the strength of the geopolymer matrix, both organic and synthetic fibres can be added to the geopolymeric matrices [2].

In this study two types of fibres were used to reinforce volcanic ash-based geopolymer.

Flexural and compressive strength tests were carried out in order to compare the mechanical properties of geopolymer composites. Moreover, samples were analysed by electron microscope to evaluate the gel formation and the adhesion of the fibre net to the geopolymeric matrix.

Preliminary results have shown that the addition of fibres enhances the mechanical strength and reduces the shrinkage.

Keywords: fibre-reinforced geopolymers, organic fibres, carbon fibres

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