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**Abstract**

This work evaluates the properties of geopolymer-composites based on blast furnace slag with additions of a carbon fiber waste coming from the aircraft industry. Two parameters were considered: slag/waste ratio (100/0, 80/20 and 60/40) and nature of activating solution (8M NaOH and sodium silicate). Open porosity and compressive strength were analysed.

Geopolymers were also subjected to a sulphuric attack and thermal resistance test (compressive strength after 105, 300, 500 and 700°C was assessed). Porosities increased and compressive strengths decreased as the slag was replaced by the carbon fiber waste. A positive effect of the carbon fiber waste on the acid attack was observed mainly due to the created porosity which could generate space to calcium-sulphate products precipitation. CFW incorporation improved the thermal resistance since higher porosity could provide channel to increase heat dissipation.

**Keywords:** Blast furnace slag, geopolymer, carbon fiber waste, acid attack, compressive strength, thermal resistance

**1. Introduction**

Geopolymers are ecofriendly inorganic polymers with comparable performance to Portland cement (1). They are considered amorphous or semi-crystalline binders, which are the product of the alkaline activation of aluminosilicate materials at room or slightly more elevated temperature (2). Geopolymers synthesis may also be a successful alternative for reusing industrial by products or wastes (3). Research on geopolymer-composites using different

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