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### **EFFECTS OF COCONUT HUSK FIBRE AND POLYPROPYLENE FIBRE ON FIRE RESISTANCE OF CONCRETE**

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#### **ABSTRACT**

Fire disasters have become a common occurrence in Lagos metropolis and in Nigeria as a whole, resulting in the loss of lives and property. The performance of every structure against event of a fire is supposed to be considered during the preliminary phase of material selection and design. Concrete and structural steel are primary construction material in the World. Concrete is known to have good thermal resistive property when compared to steel. If concrete is subject to elevated temperatures, the separation of concrete masses occur, giving rise to a phenomenon known as "Spalling". This research investigates the effects of fire on coconut husk fibre and polypropylene fibre reinforced concrete. Several samples of fibre reinforced concrete cubes were casted using 0.5% of coconut and polypropylene fibres and exposed to temperatures of 200°C, 400°C, 600°C, 800°C and 1000°C after 7, 14, 21, and 28 days of curing. Compressive tests on concrete cube samples were conducted according to standards. The percentage increases in compressive strength of the test specimen show that the coconut fibres produced a higher strength increase over polypropylene fibres and that the fire resistance of coconut fibre is greater than that of polypropylene fibre for the increasing rates of temperature exposure.

**Keywords:** Fibre Reinforced Concrete, Coconut Husk Fibre, Polypropylene Fibre, Compressive Strength, Fire Resistance.

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