

Enhancing Mechanical Properties of No-Fines Concrete Using Waste Plastic Fibres

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Tensile strength might be considered as Achilles heel of concrete, especially when it comes to No-Fines Light-Weight Concrete (NFLWC) where there are inherent weaknesses in its mechanical properties. Many techniques are available to improve these properties, among them and one of the best techniques is introducing fibres in the concrete mass. In this study, the effect of incorporating waste-plastic fibres (an environmentally non-friendly material usually causing pollution) on the mechanical properties of NFLWC was investigated experimentally. Two main variables were considered, namely, the fibres volume fraction which was taken in the range of 0.0-1.5% and the fibres aspect ratio (8.16 and 24). It has been shown that the addition of waste-plastic fibres to the no-fines light-weight concrete mix succeeded in increasing both its compressive and tensile strength. The density of the trialled NFLWC mixes is also discussed.