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Influence of Various Plastics-Waste Aggregates on Properties of Normal Concrete

M. A. A. Aldahdooh [a, *], A. Jamrah [d], Ali Alnuaimi [c], M. I. Martini [b], M. S. R. Ahmed [b]. & A. S. R. Ahmed [b]

[a] Department of Civil Engineering, Western Virginia University (WVU) - Bahrain Campus, Royal University for Women (RUW), Bahrain.
[b] College of Engineering, University of Buraimi (UoB), Al Buraimi, Sultanate of Oman.
[c] Department of Civil and Architectural Engineering, Sultan Qaboos University, Sultanate of Oman.
[d] Dean Office, International College of Engineering and Management, Sultanate of Oman.

[*] Corresponding author: Majed A. A. Aldahdooh, Department of Civil Engineering, Western Virginia University (WVU) - Bahrain Campus, Royal University for Women (RUW), P.O. BOX 37400, West Riffa, Kingdom of Bahrain; Tel: +973 17764272; Fax: +973 17764445; E-mail: maged.1987@live.com

Abstract

This paper presents an ideal experimental design based on the response surface methodology (RSM) and the absolute volume method (AVM) to investigate the potential of plastic waste aggregates (PWAs) as a partial aggregate replacement on properties of normal concrete (NC), in which 30% of the total aggregate volume contains PWAs. Results confirmed that RSM prediction showed satisfactory results in optimizing the amount of PWAs in NC production. Moreover, PWAs can be used as aggregates for the production of NC with acceptable engineering properties. This approach could lead to the significant utilization of PWAs in concrete, which could, thus, help in protecting the environment by minimizing the volume of waste disposal.

***Keywords**: Plastics, Compressive Strength, Response Surface Methodology, Workability, Sustainability of Concrete*