

Review of: "Analytical Study and Amelioration of Plastic Pavement Material Quality"

Wei Zhou¹

¹ Hebei University

Potential competing interests: No potential competing interests to declare.

This paper investigates the mechanical properties of plastic pavement made from different ratios of polyethylene terephthalate and polypropylene. The narrative logic in certain sections of the article is muddled. The research carried out is too basic to be innovative, and the findings are not sufficiently valuable to meet the journal's requirements.

(1) "Page 1, Abstract"

Please condense the abstract to meet the word limit required by this journal.

(2) "Page 2"

"Mashadi et al. used low-density polyethylene (LDPE) and mesh sand to develop a formulation of 1kg (plastics) for 5 kg (sand) and 1kg (plastics) for 7 kg (sand)."

There is a missing citation here. Please check it.

(3) "Page 2"

"...the result showed that a cement and sand composition of 1:7 produced a compressive strength of 17.126 MPa, which is a clear indication that plastics can be used to replace cement in paving blocks."

Please organize the logic and retell that the compressive strength of plastic is lower than that of cement pavement and cannot replace cement.

(4) "Page 3"

"NK Obeng et al. [2] in Ghana carried out research on how to explore the potential of using low-density polyethylene plastic waste as a binding material for paving block production... of the cement paving block."

Please rephrase this paragraph and abbreviate it.

(5) "Page 3"

"...crushed to particle sizes between 4 and 10 mm, washed, and dried for 4 d."

Please rephrase the experimental treatment described later, which involves drying for seven days.

(6) "Page 5"

"...calculate the respective values of density and porosity using formulas 1 and 2, respectively."

Please indicate formula 1 and formula 2 by numbering them.

(7) "Page 5"

"The melted plastics were stirred for 10 minutes, and the right proportion of sand was added to the melted plastic in the chamber. The final combination was stirred for 25 minutes before being poured into the molds"

Please review and describe the detailed and complete production process.

(8) "Page 6, Figure 4, 5"

Please provide clearer experimental images.

(9) "Page 6"

"For each test, three test pieces were used. The test consists of applying to the prismatic pieces of dimensions 40mmx40mmx160mm a force perpendicular to the axis of the test piece..."

Please provide clear and specific sample images.

(10) "Page 9"

"The results show that the pavement with the formulation of 50%:50% (5:5) plastic to sand ratio presents the maximum flexural strength of 25 MPa after 2 days and 27.2 MPa after 7 days."

Please supplement the experimental data graph with the seven-day bending strength variation curve of the 50% plastic sand ratio.

(11) "Page 9"

"The results obtained from polypropylene (PP) samples with formulations of 15%, 20%, 25%, and 30% after 2 and 7 days are outlined in Figure 9."

Please analyze the data according to Figure 9, or supplement the corresponding data. Please rephrase.

(12) "Page 10, 11, Figure 10, 11"

Please conduct a detailed analysis of the data in Figures 10 and 11.

(13) "Page 11"

"When compared to results obtained from existing pavements in Cameroon, we notice that pavements obtained from our formulations gave better values than those of the existing pavements in Cameroon. Figure 12 presents those results."

Provide a detailed description of the image in Figure 12 and draw a conclusion.

(14) "Page 12"

"The physical test results presented the PET-sand formulation of 25%: 75% as being the best. It has good porosity, water absorption, and density values of 14.66%, 3.1%, and 1.953g/cm³, respectively."

Please explain the applicability of this proportion of plastic.

(15) The author's data and images provided for the experimental results are not specific enough, and there is less data analysis. Therefore, more comparative analysis data between plastic and cement can be added.