

Review of: "Effective use of Waste Materials: A Case Study of Utilization of Fly Ash in Flexible Pavement Structures"

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Potential competing interests: No potential competing interests to declare.

The title of the work is inconsistent with the content. The work is a bibliographical review and not a case study.

Furthermore, it only addresses fly ash, not residual materials as a whole, and it is not clear throughout the text whether it is just fly ash from the burning of coal.

In the chapter on fly ash properties, it is not clear what the origin of the ash is in order to talk about its respective composition.

In the fly ash classes chapter, it is necessary to specify the source of the ash classification as C and F, whether it is according to an author or a standard.

Figure 1 must be redone, as it does not correctly represent the layers of a pavement in relation to the ground level.

In the chapter on the use of fly ash in asphalt concrete:

- What indigenous materials are used?
- When you say "tested by many researchers," cite at least 3 references.

In the fly ash chapter as a mineral filler, indicate the origin of the fly ash (different sources). When talking about better performance, specify in relation to which property and magnitude of performance.

In the study by Muniandy et al (32), avoid subjective terms such as "good impact," preferably saying the proportion of this impact in percentage terms in relation to the properties evaluated.

In the study by Mirkovic et al (33), explain what a suitable volumetric composition is, according to which reference, and whether it is suitable for which function.

In the study by Onyelowe et al (34), it was necessary to specify which rheological and performance characteristics the text refers to.

The study by Amirkhanian et al (35) specifies the different origins of fly ash and the proportions used. What is the magnitude of the effect of fly ash on sidewalk strength?

In the study by Suheibani et al (36), what were the best results? Were they significant?

No estudo de Al-Osta et al (37), qual a magnitude das propriedades de rigidez e fadiga?

In the study by Wahhab et al (38), the figure of 1400% is correct? Explain why the figure is so high.

In the study by Sarid and Jallu et al (44), what is the relationship between the ideal proportion of elements in alkaline solution and the reactive potential of fly ash? Directly or inversely proportional? Or is there some other relationship?

In the study by Cetin et al (46), the magnitude of the effect of increasing the fly ash content on leaching was specified.

In the study by Khan et al (49), are the strength and durability adequate in relation to which parameters?

In the study by Wen et al (51), define the magnitude of the effect of the base stabilized with fly ash.

In the study by Bose et al (59), define which properties were analyzed.

In the study by Takhelmayum et al (60), soil resistance was increased by how much?

In the studies by Consoli et al. [61], Phani-Kumar and Sharma [62], and Senol et al. [63], which soil properties improved? What was the magnitude of this improvement?

In the study by Sharma et al. [65], define the fly ash content used. In the study by Brooks [56], 0% fly ash increased the tensile strength by 106%. Does this refer to the soil?

In the study by Sumesh et al. [66], define the value of the increase in the percentage of ash and the value found for the compressive strength.

In the study by Okonta et al. [67], they explain what is meant by weak and unconsolidated soil. What are the maximum shear strength values?

In the study by Hu et al. [68], soil improves resistance to what? Compression? Or by reacting with sulphate?

In the study by Choudhry et al. (2014), cite the author according to the standard in the article. What do positive results mean?

In the study by Santos et al. [69], the water content was increased in the soil? Why do the results recommend the use of fly ash for landfill stabilization?

In Ramaji's study [70], the magnitude of the increase in density was specified according to the moisture content.

In Bose's study [59], the most efficient use of lime and fly ash was defined, as well as the properties that were improved.

In the study by Amiraliano et al. [55], the percentage of added ash needed to change the properties was defined, and the values obtained were reported.

In the study by Sharma and Singh [72], define the substantial increase obtained by the authors.

In the study by Kumar and Neetesh-Kumar [73], define the magnitude of the increase and decrease in the reported properties.

In the study by Pandey et al. [74], define the magnitude of the decrease in reported properties.

In the study by Li et al. [75], define the magnitude of the properties reported.

In the study by Diallo and Unsever [76], define the percentages of fly ash used and the properties found.

In the study by Banaszkiewicz et al. [77], there is no indication of Figure 2.

In the study by Wei et al. [78], the percentage range of fly ash used is defined. Define the range of continuous decrease in modulus.

In the study [82], the magnitude of the results was defined.

In the study by Senol et al. [83], set the constant increase range.

In the study by Bin-Shafique et al. [84], the magnitude of the increase in properties reported was defined.

My suggestion would be to compile some information in the form of a table or graph to compare the results of different authors. I don't think the article is fit for publication, and several corrections are needed. I am available for clarification.