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Statistical Analysis Approach for the e-Glassy Mortar And Radiation Shielding Behaviors Using Anova

Authors : Abadou Yacine, Faid Hayette

Abstract : Significant investigations were performed on the use and impact on physical properties along with the mechanical strength of the recycled and reused E-glass waste powder. However, it has been modelled how recycled display e-waste glass may affect the characteristics and qualities of dune sand mortar. To be involved in this field, an investigation has been done with the substitution of dune sand for recycled E-glass waste and constant water-cement ratios. The linear relationship between the dune sand mortar and E-glass mortar mix % contributes to the model's reliability. The experimental data was exposed to regression analysis using JMP Statistics software. The regression model with one predictor presented the general form of the equation for the prediction of the five properties' characteristics of dune sand mortar from the substitution ratio of E-waste glass and curing age. The results illustrate that curing a long-term process produced an E-glass waste mortar specimen with the highest compressive strength of 68 MPa in the laboratory environment. Anova analysis indicated that the curing at long-term has the utmost importance on the sorptivity level and ultrasonic pulse velocity loss. Furthermore, the E-glass waste powder percentage has the utmost importance on the compressive strength and improvement in dynamic elasticity modulus. Besides, a significant enhancement of radiation-shielding applications.

Keywords : ANOVA analysis, E-glass waste, durability and sustainability, radiation-shielding
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