World Academy of Science, Engineering and Technology
International Journal of Civil and Environmental Engineering
Vol:16, No:01, 2022

Production and Mechanical Properties of Alkali–Activated Inorganic Binders Made from Wastes Solids

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Abstract : The aim of this research is the production and mechanical properties of Alkali-Activated Inorganic Binders (AAIB) made from The Basic Oxygen Furnace Slag (BOF Slag) and Thin Film Transistor Liquid Crystal Display (TFT-LCD), glass powder (waste and industrial by-products). Many factors have an influence on the production of AAIB like the glass powder finesses, the alkaline equivalent content (AE %), water binder ratios (w/b ratios) and the differences curing process. The findings show different behavior in the AAIB related to the factors mentioned, the best results are given with a glass powder fineness of 4,500 cm^2/g, w/b=0.30, a curing temperature of 70 ℃, curing duration of 4 days and an aging duration of 14 days results in the highest compressive strength of 18.51 MPa.

Keywords : alkaline activators, BOF slag, glass powder fineness, TFT-LCD, w/b ratios
Conference Title : ICASCM 2022 : International Conference on Advances in Sustainable Construction Materials
Conference Location : Paris, France
Conference Dates : January 21-22, 2022