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CHARACTERISATION OF THE EFFECTS OF AN APPARENTLY ATYPICAL CEMENT CLINKER ON STRENGTH DEVELOPMENT OF MORTARS

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ABSTRACT
This research project presents a study that investigated the effects of a cement manufacturing process on the characteristics of the cement clinker and the resultant effects on mortar strength and heat of hydration. Two clinkers were assessed, one manufactured under unusual conditions, and the other manufactured under more normal conditions. The two cement clinkers were characterised by microscopy and x-ray diffraction in order to classify the cement clinker by their chemical composition and crystal structure characteristics. Cement was then made in the laboratory from the two clinkers. Using laboratory tests, the cements were assessed in order to determine the impact of their clinker characteristics on the engineering performance of the cement. These included; heat of hydration and mortar strength tests. The tests results showed that the manufacturing process had not affected the chemical composition of the apparently unusual clinker but had affected its crystal structure and morphology. Nevertheless, although the clinker's crystal morphology had been altered there was no significant impact of these alterations on the strength performance of the cement.