

ABSTRACT

Cement is a grey powder that sets and hardens to a strong solid material used to bind different materials, i.e. aggregates in construction. Different manufacturers manufacture different types of cement suitable for certain projects or parts of the project. Different cement types possess different cement strength characteristic suitable for different application. Therefore investigation of the properties of cement is crucial in understanding the suitability to type of cement to specified structural applications. Through an enquiry from cement sellers mostly those along Koinange street and River road in Nairobi market, the following cements were found to be most common. Simba cement 32.5R, Nyumba cement 42.5R, TEMBO general purpose cement 32.5N, Power plus 42.5R cement, Savannah Portland cement 32.5R, and Nguvu cement 32.5R were found to be the most common cements in the Nairobi market. Setting time, soundness, fineness and compressive strength tests were carried out on the samples from every brand and type of cement in accordance with **BS EN 196:1995** and the **KS EAS 18-1 Part I** recommendations. The fineness test results were found to range between (3.00%-9.00%) which was in conformity to **BS EN 197-1** recommendation of not more than 10% fineness of cement requirement. The setting time for the samples from the cement types ranged between 300minutes and 500minutes which were satisfactory in relation to **BS EN 197-1** requirement of not more than 10hrs. The soundness test results were found to range between 1mm and 3mm which were in conformity with the **BS EN 197-1** recommendation of less than 10mm soundness. The compressive strength results of average 27N/mm² for class 32, 5 cement for concrete class 25 and 36.5N/mm² for 42,5 cement for concrete class 25. The results were in conformance with the **BS EN 197-1** recommendations of the required compressive strength of concrete at 28 days must exceed 30 N/mm² for class 42, 5 cement and 25 N/mm² for class 32,5 cement. Tests on same type of cement from different manufactures were found to be in close conformity with a 0.5% standard deviation hence type should be the key factor to consider on purchasing cement rather than the brand.