



UNIVERSITY OF NAIROBI

VIABILTY OF COMMERCIALY MIXED AND PACKAGED
AGGREGATES IN KENYA

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Abstract

In today's world the use of natural aggregate has increased extensively. We live our lives dependent on an infrastructure created out of concrete. Concrete is a composite material of which 65-75% by volume is aggregates. This necessitates the need for quality and readily mixed aggregates. Traditional methods for producing aggregates result in a broken stone that is unevenly shaped, jagged and varies considerably in size and quality. This inferior type of crushed stone produces a less workable concrete, utilizes more cement per cubic meter and consequently incurs a higher overall cost. Using Duma aggregates as a case study this research looks into viability of having ready mix packaged aggregates in Kenya.

The scope of the research covers the various qualities required of aggregates used in concrete and thereby investigating whether Duma aggregates meets those requirements. Various laboratory experiments were conducted using normal granitic aggregates as control.

The experimental investigations were carried out using detailed strength related tests such as compressive strength test of cubes and split tensile strength test of cylinders. From the experimental investigation it was found that Duma aggregates can be used for making high strength concretes by adjusting the content of quarry dust (replace it with river sand), w/c ratio and admixture contents of the mix. This is to aid workability of the mix which was found to be very poor with the use of 100% quarry dust.