MIXING RATIO IN CONCRETE

ABSTRACT

Concrete is considered to be the most widely used and versatile material of construction all over the world. In recent years, concrete technology has made significant advances which have resulted in economical improvements in strength of concretes. This economical development depends upon the intelligent use of locally available materials. One of the important ingredients of conventional concrete is natural sand or river sand, which is expensive and scarce. In India, the conventional concrete is produced by using natural sand obtained from riverbeds as fine aggregate. However, due to the increased use of concrete in almost all types of construction works, the demand of natural or river sand has been increased. To meet this demand of construction industry excessive quarrying of sand from river beds is taking place causing the depletion of sand resources. This fact has forced the Government to lay down restrictions on sand quarrying process resulting in the scarcity and significant increase in its cost. Thus the scarcity of natural sand has forced to find the suitable substitute.

In the present an attempt has been made to discuss the properties such as workability and compressive strength of concrete prepared by replacing natural sand with crushed stone powder at different replacement levels (0%, 20%, 40%, 60% and 100%). The development of cracks and their measurement is also studied. The results have shown that the natural sand can be replaced with crushed stone powder up to a maximum replacement level in order to produce concrete of satisfactory workability and compressive strength and also with cracks of lesser areas.