

Rupture Probability of Type of Coarse Aggregate on Fracture Surface of Concrete

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Abstract : The various types of aggregates such as granite, dolerite, Quartzite, dolomitic limestone, limestone and river gravel were used to produce the concrete with 28-day target compressive strength of 35, 60, and 80 Mpa. The compressive strength of concrete, as well as aggregates, was measured to study the effect of rupture probability of aggregate on the fracture surface of the concrete. Also, the petrographic studies were carried out to study the texture, type of minerals present and their relative proportions in various types of aggregates. The concrete of various grades produced with the same aggregate has shown a rise in RPCA with strength. However, the above relationship has ceased to exist in the concretes of the same grade, made of different types of aggregates. The carbonate aggregates namely Limestone and Dolomitic limestone have produced concrete with higher RPCA irrespective of the strength of concrete. The mode of origin, texture and mineralogical composition of aggregates have a significant impact on their pulse velocity and thereby the pulse velocity of concrete.

Keywords : RPCA, DL, G, LS, RG

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