

THE EFFECT OF SBR ON THE STRENGTH OF CONCRETE

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Abstract

This research aims to evaluate Styrene-butadiene rubber (SBR) effect on the fresh property, compressive strength, and permeation of concrete. The mixes of SBR, added into the concrete by 5%, 10%, and 20% of cement weight, were compared to the mix of normal concrete with the same water-cement ratio. The comparison was done by comparing the properties of fresh concrete, and hardened concrete as the compressive strength, slump, water absorption, and the initial surface absorption test (ISAT) between SBR modified concrete and normal concrete. After checking the compressive strength of all samples, the results showed that the 7-day strength of SBR modified concrete showed an insignificant relationship with SBR. However, at 28-days of compressive strength, the strengths of concrete with all percentages of SBR were higher than that of normal strength. The results from slump testing showed that adding SBR affected the increase of workability of concrete. In addition, the tightness of concrete by adding SBR was confirmed through the water absorption test and ISAT test, which results showed the lower water absorption with the higher amount of SBR in concrete. However, the addition of SBR also has the limitation according to the experimental results. The optimal amount of SBR is 10% recommended in this study.

Keywords: SBR, Strength, Slump, Water Absorption