

Using different sizes of rubber particles in concrete as part of the fine aggregates affects the workability and water permeability considerably more than the fresh density and concrete strengths. Concrete prepared with the larger rubber particles shows a better workability than those with finer ones. Conversely, concrete with the finer rubber particles has a better performance in strengths and water permeability than those with the larger rubber particles. Varying sized rubber aggregates with continuous grading offer better workability and resistance to water permeability compared to the singly-sized rubber particles. In terms of the strength of concrete, the varying sized rubber performed similar to the finer rubber particles in the tests when added to the concrete mix. It decreases gradually with the simultaneous increase of recycled aggregate and rubber replacement ratio. Different substitution has a different effect on the reduction level of this concrete material.