

Influence of uncoated and coated plastic waste coarse aggregates to concrete compressive strength

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Abstract	<p>The use of plastic waste as coarse aggregates in concrete is part of efforts to reduce environmental pollution. In one hand the use of plastic as aggregates can provide lighter weight of the concrete than concrete using natural aggregates, but on the other hand bond between plastic coarse aggregates and hard matrix give low concrete compressive strength. Improvement of the bond between plastic coarse aggregate and hard matrix through a sand coating to plastic coarse aggregate whole surface is studied. Sand used to coat the plastic aggregates are Merapi volcanic sand which are taken in Magelang. Three mixtures of polypropylene (PP) coarse plastic aggregates, Cimangkok river sand as fine aggregates, water and Portland Cement Composite with a water-cement ratio of 0.28, 0.3 and 0.35 are conducted. Compression test are performed on concrete cylindrical specimens with a diameter of 10 cm and a height of 20 cm. The results in general show that concrete specimens using plastic aggregates coated with sand have higher compressive strength compared to those of concrete specimens using plastic aggregates without sand coating. The bond improvement is indirectly indicated by the betterment of concrete compressive strength.</p>
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