

ABSTRAK

Batu bata merah merupakan limbah yang potensial digunakan sebagai bahan tambahan pada beton. Tujuan dari penelitian ini adalah dipengaruhi oleh substitusi 9% limbah batu bata merah pada agregat halus dengan metode perendaman air tawar, garam dapur, asam sulfat, dan soda api pada kuat tekan beton. Hasil yang bervariasi ditunjukkan oleh berbagai metode perawatan dalam penelitian. Hasil yang paling stabil dicapai oleh perawatan air tawar, dengan kuat tekan tertinggi sebesar 18,39 MPa selama 28 hari. Penurunan kuat tekan beton ditunjukkan oleh perawatan dengan garam dapur, asam sulfat, dan soda api. Kuat tekan 15,56 MPa dicapai dari perawatan air garam dapur dengan endapan di sekeliling beton, kuat tekan 15,56 MPa dicapai dari perawatan air asam sulfat dengan endapan coklat dan licin di permukaan beton, dan kristal putih di permukaan beton dihasilkan oleh perendaman air soda api. Dalam penelitian ini ditunjukkan bahwa kuat tekan beton substitusi limbah batu bata merah dipengaruhi oleh jenis perawatan yang digunakan.

Kata kunci: Beton, limbah batu bata merah, agregat halus, kuat tekan beton, metode perawatan, air tawar, garam dapur, asam sulfat, soda api

ABSTRACT

Red brick is a waste that has the potential to be used as an additive in concrete. The objective of this study was to influence the effect of 9% substitution of red brick waste in fine aggregate by fresh water, sodium chloride, sulfuric acid, and caustic soda soaking methods on the compressive strength of concrete. Varying results were shown by the various treatment methods in the study. The most stable results were achieved by freshwater treatment, with the highest compressive strength of 18.39 MPa for 28 days. A decrease in concrete compressive strength was shown by treatments with sodium chloride, sulfuric acid, and caustic soda. A compressive strength of 15.56 MPa was achieved from the treatment of sodium chloride water with sediment around the concrete, a compressive strength of 15.56 MPa was achieved from the treatment of sulfuric acid water with brown and slippery sediment on the concrete surface, and white crystals on the concrete surface were produced by the soaking of caustic soda water. In this study it was shown that the compressive strength of red brick waste substituted concrete is affected by the type of treatment used.

Keywords: *Concrete, red brick waste, fine aggregate, concrete compressive strength, treatment method, fresh water, sodium chloride, sulfuric acid, caustic soda*