

ABSTRAK

Steel slag dihasilkan dari proses pemisahan cairan baja yang dipanaskan di tungku-tungku cetakan pembuatan baja. *Steel slag* merupakan limbah padat yang dapat digunakan sebagai alternatif bahan konstruksi bangunan. Penelitian ini bertujuan untuk menentukans karakteristik beton segar modifikasi baru dengan memanfaatkan *steel slag* sebagai subsitusi agregat kasar. Variasi subsitusi agregat kasar *steel slag* yaitu 50% dan 100%, serta menggunakan *Chemical Admixture* yang berupa *Plastocrete RT 06* kadar 0,6%, dan *Sikament NN* kadar 3% dari berat semen. Kuat tekan rencana beton sebesar 37,35 Mpa, dengan menggunakan benda uji berbentuk silinder berukuran diameter 7,5 cm, dan tinggi 15 cm. umur pengujian beton yaitu selama 7 hari, 21 hari, dan 28 hari. Dari hasil setting time, didapatkan sampel beton variasi subsitusi agregat kasar *steel slag* 50% yaitu 120 menit, *steel slag* 100% yaitu 105 menit, sedangkan variasi beton normal additive lebih lambat ikat yaitu 130 menit. Hasil pengujian kuat tekan beton normal *additive* umur 28 hari menghasilkan nilai rata-rata yaitu 23,1 Mpa, beton variasi subsitusi agregat kasar *steel slag* 50% yaitu 25,135 Mpa, dan beton variasi subsitusi agregat kasar *steel slag* 100% yaitu 36,745 Mpa. Pengujian kuat tekan beton modifikasi lebih kecil dari kuat tekan rencana.

Kata kunci: Beton Mutu Tinggi, *Steel Slag*, Kuat Tekan, Modulus Elastisitas.

ABSTRACT

Steel slag is produced from the process of separating the steel liquid heated in a mold of making steel. Steel slag is a solid waste it can be used as an alternative of building construction material. This study aims to analyze the characteristics of the new modified fresh concrete by utilizing steel slag as a coarse aggregate substitution. The variation of coarse aggregate substitution of steel slag was 50% and 100%, and used Chemical Admixture in the form of 0.6% of Plastocrete RT 06 and 3% of Sikament NN of the weight of cement. The compressive strength of the concrete plan was 37,35 Mpa, and used a cylindrical specimen with 7,5 cm in diameter, and 15 cm in height .Soaked the concrete for 7 days, 21 days, and 28 days. From the time set, it was found that the concrete sample of the 50% coarse aggregate substitution variation of steel slag was 120 minutes, 100% steel slag was 105 minutes, and the normal additive concrete variation was slower; thus requiring a binding time of 130 minutes. The test results of normal additive concrete compressive strength within 28 days produced an average value of 23,1 Mpa, concrete variation of 50% and 100% steel slag substitution concrete coarse aggregate were 25,135 Mpa, and 36,745 Mpa, respectively. The test of modified concrete compressive strength was less than the planned compressive strength.

Keywords: High Qualified Concrete, Steel Slag, Compressive Strength, Elasticity Modulus