

## INTISARI

Beton ringan adalah beton yang memiliki berat jenis lebih ringan dari pada bata pada umumnya. beton ringan dikenal ada 2 (dua) jenis: *Autoclaved Aerated Concrete (AAC)* dan *Cellular Lightweight Concrete (CLC)*. Penelitian ini dititikberatkan pada nilai kuat tekan beton optimum, porositas minimum dan berat jenis yang rendah .

Beton ringan yang di pakai pemelitian ini dengan jenis CLC (*Cellular Lightweight Concrete*) dengan bahan penyusun yang meliputi air, pasir, semen *silica fume*, *fly ash*, *bubble* dan *superplacitizer*. Metode yang digunakan adalah metode Taguchi dengan penetapan 5 bahan 4 variasi. *Water/cement (w/c)*: 0.35, 0.40, 0.45, 0.5, *Sand/Cement (s/c)*: 0.25, 0.50, 0.75, 1.0, *Bubble (%)*: 40, 50, 60, 70, *Silica Fume / Cement (%)*:10, 15, 20, 25, *Fly ash (%)*:10, 15, 20, 25, *Superplasticizer (%)*: 0.5. Pengujian yang dilakukan yaitu uji kuat tekan , porositas dan uji berat jenis

Hasil penelitian berdasarkan nilai kuat tekan yang optimum *mix design* 11 dengan nilai rata-rata kuat tekan 4 N/mm<sup>2</sup>, nilai porositas minimum *mix design* 11 dengan nilai rata-rata porositas 13,40 %, dan nilai berat jenis minimum *mix design* 10 dengan nilai rata-rata berat jenis 556.80 kg/m<sup>3</sup>. Setelah menggunakan menggunakan metode Taguchi menunjukkan bahwa nilai kuat tekan maksimum mencapai 7.35 N/mm<sup>2</sup>, nilai porositas 6.6 % dan berat jenis 1190.40 kg/m<sup>3</sup>. Dari hasil berdasarkan metode Taguchi tersebut nilai kuat tekan tinggi, nilai porositas rendah tetapi nilai berat jenis tinggi.

## ABSTRACT

Lightweight concrete is concrete that has a specific gravity lighter than the bricks in general. lightweight concrete was known there are 2 (two) types of: autoclaved Aerated Concrete (AAC) and Cellular the Lightweight Concrete (CLC). This research is emphasized on strength value concrete compressive optimum, porosity minimum and weight of types of which a low.

Lightweight concrete in use pemelitian with this kind of CLC (Cellular Lightweight Concrete) with the constituent material which includes water, sand, cement silica fume, fly ash, bubble and superplacitizer. The method used is the Taguchi method with determination 5 ingredients 4 variations. Water / cement (w / c): 0:35, 0:40, 0:45, 0.5, Sand / Cement (s / c): 0:25, 0:50, 0.75, 1.0, Bubble (%): 40, 50, 60, 70, Silica Fume / Cement (%): 10, 15, 20, 25, Fly ash (%): 10, 15, 20, 25, superplasticizer (%): 0.5. Tests were performed that test compressive strength, porosity and test specific gravity

The results based on the compressive strength of optimum mix design 11 with the average value of the compressive strength of 4 N / mm<sup>2</sup>, the value of porosity minimum mix design 11 with an average porosity of 13.40%, and the value of specific gravity minimum mix design 10 with a value the average weight of types of 556.80 kg / m<sup>3</sup>. After using using the Taguchi method showed that strength value maximum compressive reach 7.35 N / mm<sup>2</sup>, value of porosity 6.6% and weight of types of 1190.40 kg / m<sup>3</sup>. From the results based on the Taguchi method these strength value high compressive, value low porosity but the value weight of types of of high.