ABSTRAK

Tujuan dari penelitian ini adalah untuk mendapatkan kuat tekan beton mutu tinggi dan mengetahui pengaruh penambahan Superplasticizer meningkatkan workability terhadap kinerja mekanis beton. Campuran Supeplasticizer yang digunakan adalah 3% untuk semua specimen, benda uji pertama kuat tekan dengan penggunaan 96% semen dan subtitusi Fly Ash 4%. Beton fly ash (**BFA4$_{(1)}$**) dengan campuran SikaViscocrete 3% (Additive), Beton fly ash (**BFA4$_{(2)}$**) dengan campuran SikaViscocrete 3% (Additive), Beton fly ash (**BFA4$_{(3)}$**) dengan campuran SikaViscocrete 3% (Additive), benda uji kedua kuat tarik belah penggunaan 96% semen dan subtitusi Fly Ash 4%.. Beton fly ash (**BFA4$_{(4)}$**) dengan campuran SikaViscocrete 3% (Additive), Beton fly ash (**BFA4$_{(5)}$**) dengan campuran SikaViscocrete 3% (Additive), Beton fly ash (**BFA4$_{(6)}$**) dengan campuran SikaViscocrete 3% (Additive), benda uji kedua kuat tarik lentur dengan penggunaan 96% semen dan subtitusi Fly Ash 4%. Beton fly ash (**BFA4$_{(7)}$**) dengan campuran SikaViscocrete 3% (Additive), Beton fly ash (**BFA4$_{(8)}$**) dengan campuran SikaViscocrete 3% (Additive). Benda uji berupa Silinder (Diameter 15cm x 30cm) 72 specimen dan balok (150cm x 150cm x 600 cm), mutu beton yang direncanakan 30 MPa pada umur 28 hari. dengan terlebih dahulu dilakukan perawatan dengan metode perendaman didalam bak air sebelum pengujian kuat tekan,kuat tarik belah dan kuat lentur.

Dari hasil pengujian umur 28 hari (**BFA4$_{(3)}$**) didapati nilai kuat tekan sebesar 52,35 MPa, (**BFA4$_{(6)}$**) didapati nilai kuat tarik belah sebesar 5,237 MPa, dan (**BFA4$_{(8)}$**) didapati nilai kuat lentur sebesar 4,622 MPa.

Kata Kunci : *Beton Mutu Tinggi, Superplasticizer, Beton Normal, Kuat Tekan,Kuat Tarik Belah,Kuat Lentur*.

ABSTRACT

The purpose of this study was to obtain high strength concrete compressive strength and to determine the effect of adding Superplasticizer to increase workability on the mechanical performance of concrete. The supeplasticizer mixture used was 3% for all specimens, the first test object was compressive strength using 96% cement and 4% Fly Ash substitution. Fly ash concrete ($BFA4_{(1)}$) with a mixture of SikaViscocrete 3% (Additive), Fly ash concrete ($BFA4_{(2)}$) with a mixture of SikaViscocrete 3% (Additive), Fly ash concrete ($BFA4_{(3)}$) with a mixture of SikaViscocrete 3% (Additive), the second test object is split tensile strength using 96% cement and 4% Fly Ash substitution Fly ash concrete ($BFA4_{(4)}$) with a mixture of SikaViscocrete 3% (Additive), fly ash concrete ($BFA4_{(5)}$) with a mixture of SikaViscocrete 3% (Additive), fly ash concrete ($BFA4_{(6)}$) with a mixture of SikaViscocrete 3% (Additive), the second test object is flexural strength using 96% cement and 4% Fly Ash substitution. Fly ash concrete ($BFA4_{(7)}$) with a mixture of SikaViscocrete 3% (Additive), fly ash concrete ($BFA4_{(8)}$) with a mixture of SikaViscocrete 3% (Additive). Specimens in the form of cylinders (diameter 15cm x 30cm) 72 specimens and blocks (150cm x 150cm x 600 cm), the quality of the concrete is planned to be 30 MPa at the age of 28 days. by first doing the treatment by soaking in a water bath before testing the compressive strength, split tensile strength and flexural strength.

From the results of 28 days of age testing ($BFA4_{(3)}$) it was found that the compressive strength value was 52.35 MPa, ($BFA4_{(6)}$) it was found that the split tensile strength value was 5.237 MPa, and ($BFA4_{(8)}$) it was found that the flexural strength value was 4.622 MPa.

Keywords: High Quality Concrete, Superplasticizer, Normal Concrete, Compressive Strength, Tensile Strength, Flexural Strength., Flexural Strength.