ABSTRAK

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Judul : Studi Eksperimentasi Balok Beton Ringan beragregat *Polyethylen Terephtalate* (*PET*) Terhadap Beban Statik

Plastik jenis *PET* yang banyak digunakan sebagai botol air mineral dapat didaur kembali sebagai agregat kasar bagi pembuatan beton ringan. Dalam penelitian ini, dilakukan uji pembebanan empat titik pada balok beton beragregat *PET* yang dikategorikan sebagai balok *Bernoulli*. Untuk mengetahui properti beton ringan, dilakukan uji modulus elastisitas, kuat tekan, kuat tarik dan rangkak. Hasil uji pembebanan empat titik dipresentasikan dalam hubungan momen - kelengkungan sebagai hasil dari aplikasi tiga pola penambahan pembebanan yang berbeda, yaitu dengan melihat besarnya perbedaan lendutan sebelum dan sesudah penambahan beban, penambahan beban setiap 45 menit dan penambahan beban setiap 24 jam. Pola pembebanan dengan melihat perbedaan lendutan dapat memperlihatkan adanya pengaruh rangkak pada hubungan momen – kelengkungan. Sesuatu yang tidak muncul pada hubungan momen-kelengkungan hasil 2 pola pembebanan lainnya.

Kata kunci:
Polyethylen Terephtalate (*PET*), balok *Bernoulli*, kelengkungan, rangkak, beton ringan

ABSTRACT

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Title : Experimental Study of Lightweight Polyethylen Terephtalate (PET) Aggregate Concrete Beam under Static Load

PET is a kind of plastic that is widely used for mineral water bottle. It can be recycled back as coarse aggregate for making lightweight concrete. In this study, four points test loading is conducted on concrete beam using PET aggregate. The concrete beam itself is classified as Bernoulli beam. To find property of lightweight concrete, test for determining modulus of elasticity, compressive strength, tensile strength and creep were performed. Test results of beam due to four points loading are presented in relationship between moment - curvature as function of load increment. Three load increment patterns are applied on the beam. The first method of loading increment application depends to displacement limit value between 2 successive loadings, in the second method load is applied at every 45 minutes and in the third method load is applied at every 24 hours. Moment – curvature diagram resulting from the first method of loading application is influenced by creep. A phenomenon that can not be shown by the moment-curvature relation resulting from two others method of loading application.

Keyword :
Polyethylen Terephtalate (PET), Bernoulli beam, curvature, creep, light weight concrete