

Kajian sifat fisik dan mekanik agregat kasar ringan hasil daur ulang botol shampo plastik high density polyethylene (HDPE) warna putih berserat metal serta pengaruhnya pada kuat tekan beton ringan =  
Physical and mechanical properties study of lightweight coarse aggregates from recycled high density polyethylene (hdpe) white shampoo bottle metal fibrous and its effect to the compressive strength of lightweight concrete

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Abstrak

Daur ulang botol plastik HDPE putih tanpa botol oli dicampur serat metal staples sebagai bahan baku pembuatan agregat kasar ringan pada beton ringan. Agregat kasar ringan dihasilkan dari pembakaran botol plastik HDPE dengan campuran serat staples dan dilakukan pengujian terhadap agregat kasar ringan tersebut antara lain didapatkan hasil berat jenis 0,953, penyerapan air 1,937%, berat isi 500 kg/m<sup>3</sup>, rongga udara antar agregat 48,207%, abrasi 11,66%, serta 9,903 MPa kuat tekan silinder (15\_30) cm. Pengujian beton ringan umur 28 hari didapatkan hasil sebagai berikut berat isi beton segar 1625 kg/m<sup>3</sup>, slump 7 cm, kuat tekan 12,902 MPa, kuat tarik belah 1,299 MPa, modulus elastisitas 9175,917 MPa, dan rasio poisson 0,2544.

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*Recycled white plastic bottle HDPE with no oil bottle mixed alloy metal (staples) fiber as raw material on processing the lightweight coarse aggregate in lightweight concrete. Lightweight coarse aggregate produced by burning the plastic bottle HDPE with staples fiber and testing the lightweight coarse aggregate resulted specific gravity 0,953, absorption 1,937%, unit weight 500 kg/m<sup>3</sup>, void between aggregate 48,207%, abrasion 11,66%, and 9,903 MPa cylinder (15\_30) cm compressive strength. In lightweight concrete testing at average air dry 28-day obtained result as unit weight fresh concrete 1625 kg/m<sup>3</sup>, slump 7 cm, compressive strength 12,902 MPa, splitting tensile strength 1,299 MPa, modulus of elasticity 9175,917 MPa, and poisson's ratio 0,2544.*