

## ABSTRAK

Beton merupakan barang primer bagi pembangunan konstruksi di kota-kota besar, terutama di negara-negara maju. Sifat beton yang sangat kuat, tahan lama dan mudah didapat dibanding bahan konstruksi lain menjadikannya sebagai suatu komposit yang banyak dan mutlak digunakan pada bangunan-bangunan baik dalam volume besar maupun volume kecil.

Penelitian dilakukan dengan menggunakan pengujian *pull-out* test. Benda uji yang digunakan adalah silinder dengan diameter 15 cm dan tinggi 30 cm. Selanjutnya tulangan ulir diameter 19mm ditancapkan di tengah silinder sedalam 12cm. Penelitian ini bermaksud mengetahui pengaruh penambahan *Calcium Stearate* sebesar 0, 1, 5, dan 10 Kg/m<sup>3</sup> dari 1 m<sup>3</sup> volume beton terhadap nilai kuat lekat tulangan pada beton mutu 20 MPa dengan bahan pengikat *Portland Pozzoland Cement* (PPC) dan *fly ash*.

Hasil penelitian menunjukkan bahwa penambahan 0, 1, 5 dan 10 Kg/m<sup>3</sup> *calcium stearate* rata-rata sebesar 8.774, 7.923, 6.108, 7.099 MPa. Selain itu, pola keruntuhan yang terjadi seluruhnya mengalami keruntuhan belah (*splitting failure*), adanya retakan di beton arah longitudinal memanjang pengaruh dari tegangan geser yang tidak bisa ditahan oleh selimut beton, keruntuhan ini akan menurunkan tegangan lekat antara baja tulangan dan beton.

Kata Kunci : beton, tulangan, *pull-out*, *calcium stearate*, *fly ash*.

## ABSTRACT

*The role of concrete as the primary material in the construction sector is very significant, particularly in developed countries. In addition, the properties of this man-made composite appear substantially resilient, durable and easy to acquire, compared to other structural materials. Therefore, the characteristics formed the basis for the wide and absolute application in buildings, both in large and small capacities.*

*This study was conducted using a pull-out test, where the specimen was a cylinder with diameter of 15 cm and a height of 30 cm. Furthermore, deformed reinforcing steel bar of 19mm in width was embedded in the middle of the cylinder at a depth of 12cm. The purpose of this paper was to determine the effect of adding calcium stearate of densities 0, 1, 5, and 10 Kg/m<sup>3</sup> with 1 m<sup>3</sup> of concrete volume on the adhesive strength value of 20 MPa, using Portland Pozzoland Cement (PPC) and fly ash.*

*The results showed the introduction of 0, 1, 5 and 10 Kg / m<sup>3</sup> of calcium stearate obtained a value of 8.774, 7.923, 6.108, 7.099 MPa, respectively. Moreover, splitting failure pattern was known to have occurred. Subsequently, concrete cracks were observed along the longitudinal direction, due to the inability of the concrete blanket to withstand the influence of the shear stress. This consequence tends to reduce the bond stress between reinforcing steel and the concrete.*

*Keywords: concrete, reinforcement steel, pull-out, calcium stearate, fly ash.*