



FINAL YEAR PROJECT REPORT
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THE EFFECT ON THE BEHAVIOUR OF CONCRETE WITH
FIBER ADDITIVE VARIATION OF
WATER CEMENT RATIO

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Amin... ya Rabbil A'lamin...

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SYNOPSIS

Fiber reinforced concrete (FRC) is today firmly established as construction materials. The present study deals with an investigation on the effects of polypropylene fiber on the properties of concrete with variation of water cement ratio from 0.5 to 0.7.

From previous research it shows that, polypropylene fiber are good in tensile strength i.e. 400 MN/m². (Dj Hannant). In static loading, a low content of polypropylene led to a marked improvement in fracture. Therefore this project will concentrate on the potential use of polypropylene to control cracks induced by static loading

Therefore, the main objective of this project is to investigate the effects of adding polypropylene fiber additive to variation of water cement ratio on concrete grade 30 by flexural strength test.

From the study, water cement ratio 0.6 shows the best result in slump test, flexural strength test and Initial Surface Absorption test, the average slump is 13mm, the flexural strength is 19% higher than control and the initial surface absorption value is lower than control.

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1.0 OBJECTIVE.

The aim of this project is to study the effect of fiber additive on the behaviour of concrete grade 30. This project is concentrated on the 0.72 kg/m³ of polypropylene fiber to variation of water cement ratio from 0.5 to 0.7. The tests conducted are:

- (i). Slump test
- (ii). Flexural strength test and.
- (iii). Initial Surface Absorption Test. (ISAT)

1.1 SCOPE OF WORK.

To investigate the behaviour of the concrete with fiber additive with difference composition of fiber with the same type of fiber. The investigation will base on the three type of test:

- (i) Slump test.
- (ii) Flexural strength test
- (iii) ISAT test.

The fiber use in this investigation is polypropylene fiber (C₃H₆) with fiber length 12mm and 18 microns in diameter. The fiber is added in the normal fresh concrete of grade 30 with water cement ratio varies from 0.5 to 0.7.