

# Review on “Evaluation of Strength of Fibre Reinforced Concrete Using Plastic Fibres”

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**Abstract--** Now-a-days, environmental problem is faced all over the world. The things which are invented and used for our luxurious life are responsible for environmental pollution. Due to improper waste management, we are facing land pollution. Land pollution is mainly due to waste plastic. This plastic can be reused or recycled to maintain the beauty of nature. To address this issue, in this paper, the waste plastic is used to make fibres. This paper describes the review of literature. The study is conducted to determine the effect of use of waste plastic as a construction material. The conclusion is based on the literature in terms of relationships between the standard concrete and Fibre reinforced concrete and future scope is discussed from the conclusion made on the literature.

**Keywords -** Plastic fibres, Fibre reinforced concrete, Literature, Compressive strength

## I. INTRODUCTION

The most widely used construction material is concrete. The performance of concrete after construction depends on its ingredients. It is well known that plain concrete is brittle but strong in compression. But at the same time, it is weak in tension. The fiber reinforcement concrete transform a brittle concrete into a pseudo ductile material and very advantageous to concrete. Fibres addition in concrete can arrest micro cracks causing gradual failure. The fibers made of waste materials like plastic, glass etc., is used for manufacture a wide range of structural units with cement mortar composites and has a great potential for developing countries like India. Mechanical properties of concrete has been studied by many researchers to enhance the properties of concrete using different fibers like glass, steel, carbon, synthetic organic and natural fibers. The present paper studies the effect of addition of various percentage of plastic fibers on mechanical property by studying various literature based on previous researches.

Combinely, the fibre-reinforced polymer (FRP) composite is a

- A polymer (plastic) matrix (either a thermoplastic or thermoset resin such as polyester, vinyl ester, epoxy).

- A reinforcing agent such as glass, carbon, aramid or other reinforcing material

The resin is used to coheres and gives shape to the element while fibres reinforce it. This combination results in light weight and strong composite material. The FRP composites have high strength to weight ratio which provides discernible reinforcing function.

## Problem Statement

Plastic has a variety of applications in almost all fields. But the drawback of plastic is its waste management. The main reason of land pollution is waste plastic. Hence, it is necessary to do waste plastic management. Construction industry is a vast stream, where management of waste plastic can be done easily by using it as a construction material in concrete. Also it will reduce the burden on environment and construction cost. Hence, in this project the efforts are made to replace the aggregates by plastic fibres as a reinforcing material to enhance the characteristics of concrete.

## II. REVIEW OF LITERATURE

**S. Mindess; 2007, [1]** In this paper, a study has been carried out for 30 years on Fibre reinforced concrete (FRC) at the University of British Columbia. In this paper, three of the major areas of research i.e., characterizing effect of fibres on toughness of concrete in a better way, FRC properties under impact loading; and making use hybrid fibre systems. This paper concludes with possible future developments of FRC technology. It is concluded that it is impossible to carry out experimental study, finding out optimum content of fibre and using FRC consistently. It is necessary to know all the characteristics of material in FRC for better use of fibres. Overall behavior of concrete depends upon fibre as well as on the materials used in it.

**Zainab Z. Ismail et al; 2008 [2]** In this study writer has conducted 86 experiments and 254 tests to determine the efficiency of reusing waste plastic in concrete.