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A Review Papers on Experimental study on compressive strength Polypropylene fiber high strength concrete

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ABSTRACT:The main objective of this project was to find a good concrete mix of polypropylene fiber , because of the great expansion in building houses, industrial projects on the other hand shortage of coarse aggregate need an alternative material., A mix design is done for M-60,M-70 grade of concrete using mix proportionsby IS code method to investigate the strength of concrete mix at 7and28 days compressive strength check 7das 65%,28days 100 %.Replacementcoarse aggregateof polypropylene fiber 5%, 10%, and 15%.

I. INTRODUCTION

These properties of concrete can be increased by using various replacement materials like reactive powder e.g. silica fume, fly ash, etc. With this type of replacement,the main objectives should be to make concrete economic and strengthen.

The main objective of this project was to find a goodconcretemix of polypropylene fiber, because of the great expansion in building houses, industrial projects on the other hand shortage of coarse aggregate need an alternative material.

The high strength of concrete M-60,M-70.Concrete mix design Admixture .add silica fume, Fly ash, and plasticizer.

Concrete is the most widely used construction material, because of the several well-known advantages it offers, such as low cost, general availability, and wide applicability.

However, concrete is a Polypropylene fiber material, and its brittleness increases with its strength. Conventional concrete Development of modern civil engineering construction has generated an essential demand for new types of concretes which should possess improved qualities such as high-strength, Polypropylene fiber.

1.1OBJECTIVE

Objectives of the present study are as follows:

1. For optimization mechanical properties will be taken into consideration.
2. To check the effect of Polypropylene fiber replaced with coarse aggregate in various percentages.
3. To study the Polypropylene fiber properties related to strength and its performances as a partial replacement with coarse aggregate.

II. LITERATURE REVIEW

[1]Poly-vinyl chloride (PVC) is apetroleum-based product used as an input for the manufacturing of products like tubings , couplings, and pipes to name a few. PVC can be used both in powder and granular form for making plastic and PVC products. Being light in nature, waste PVC dust is generated in industries during the operations like cutting, sizing, and cleaning the boilers.

As mentioned earlier, this experimentation mainly covers fresh and mechanical properties of M-60 grade concrete to study the role of engineered fibers along with GGBS and PVC waste as a

mineral admixture. Experimental findings of this investigation are presented in Similarlyhighlight the comparative test results of all the mixes prepared with and without fibers.

[2]Concrete is the most recurrently used and universally accepted building material. It is the most consumable material in the world, after water. Globally its usage is two times that of aluminum, wood & steel combined.

In this research, fresh, mechanical & microstructure properties of concrete are studied with the varying percentage of PVC waste powder as a partial replacement of cement in M40 grade concrete with 8% of silica fume as supplementary cementitious material.

The following conclusions are drawn based on the experimental investigations of this research.

[3]In the current era, one of the prime challenges in front of governments is to bestow a sustainable and clean environment for every citizen of the country.

However, different kinds of waste products have continuously intensified owing to both urbanization and industrialization causing a serious threat to the environment and human health.

Among waste products, the nonbiodegradable waste remains intact for 100–1000 years in nature. Plastic waste (PW) is one of the kinds of non-biodegradable waste. The root cause of the present situation lies in the fact that our lives are becoming more dependent on plastics in one or another way.

It can be concluded here that using NMWPF together with FA provides considerably enhanced properties of concrete. This study also suggests a new way of the green concrete formation using NMWPF together with FA and paved the way for further research in the same field. The addition of NMWPF together with FA in concrete also solves the environmental issues related to the disposal of both NMWPF and FA.

[4]In recent years, Ultra-High Strength Concrete (UHSC) can be manufactured by more and more concrete plants due to the increasing availabilities of a variety of additives such as silica fume .and water-reducing admixture. The wider availability of UHSC has triggered the developed UHSC encased steel composite columns for high-rise buildings, due to their higher load-bearing capacity and smaller cross-section size compared to normal strength concrete encased columns.

This paper presents an experimental investigation of the explosive spalling of UHSC and FRUHSC encased columns subject to ISO 834 standard fire. A total of fifteen fire spalling tests were conducted on 115–135 MPa UHSC, focusing on the effects of w/b, specimen size, porosity, PP fibers, and steel fibers. Two large-scale FRUHSC encased columns were also tested under simultaneous heating and loading. The following conclusions could be drawn based on the findings of this study.

[5]High strength concrete offers various benefits derived from its higher strength and stiffness, and for the last few years, the use of high strength concrete has become increasingly popular. A greater understanding of its behavior under different conditions will improve confidence in its use. As the use of high-strength concrete becomes common, the risk of exposing it to elevated temperatures also increases. To predict the response of structures employing high-strength concrete during and after exposure to elevated temperatures is essential.

The microstructural properties of high-strength concrete subjected to elevated temperatures are to be clearly understood. The microstructure of both tested concretes was examined with the help of TG, DSC, and SEM. Thermogravimetry and differential scanning calorimetry analysis showed little difference between the two tested concretes. The temperature ranges of the decomposition reactions were very definitely similar.

III. CONCLUSION

As per the study, the use of Polypropylene fiber improves the strength and durability of concrete up to certain limits.

For M-60,M-70 grade of concrete for 7 and 28 days compressive strength of the containing of Polypropylene fiber by replacing of course aggregate shows the reduction in strength than control concrete.

The high strength of concrete .showsthe same variableasthe compressive strength of concrete.

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