

A Study on use of Graphene Oxide as Admixture in Cement Concrete

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Abstract: Concrete produced using normal Portland concrete is one of the most broadly utilized development materials because of its compressive quality. In any case, solid needs flexibility bringing about low rigidity and flexural quality, and helpless protection from break development. The ordinary Portland cement has its own limitation like it has low toughness strength. Compression and tensile strength of concrete are not same at all. In fact the tensile strength of concrete is 1/10th of its compressive strength of the material. The ratio of strength to density is called specific strength of concrete taken. Specific strength of normal grade concrete is half that of steel taken. On execution of this project, the main objective is to increase the strength of concrete by adding a varying concentration of graphene oxide in concrete.

Keywords: Customary Portland Concrete, Concrete, Actual Properties, Graphene Oxide.

I. INTRODUCTION

Concrete produced using common Portland concrete is one of the most generally utilized development materials. As a basic material, concrete is attractive due to its phenomenal compressive quality. Nonetheless, concrete has helpless pliability, with low elasticity and flexural quality, and helpless protection from break arrangement. Numerous endeavors have been made to upgrade its properties and execution by adding valuable cementations materials (e.g., fly debris, impact heater slag, and so forth) and filaments (e.g., glass and steel), however they neglect to enough improve its actual properties and toughness.

II. LITERATURE REVIEW

It is expected that the final outcome of this project is to increase physical properties of concrete. For that the expected results there would beset of operations. Following parameters influenced the characteristics of process so these characteristics are kept constant for experimental work. 1. Collection of material 2. Use of graphene oxide 3. Preparing a mix design 4. Casting of concrete 5. Curing of concrete 6. Testing of concrete 7. Comparison between normal and with admixture added concrete 8. Interpretation of results

Collection of material Use of graphene oxide Preparing a mix design Casting of concrete Curing of concrete Testing of concrete comparison between concrete Interpretation of results

1. Collection of material Collection of material like Portland cement, fine aggregate, coarse aggregate, graphene oxide, water is collected as raw material.

2. Use of graphene oxide A significant amount of graphene oxide is introduced in concrete with the fixed percentage of weight of cement.

3. Preparing a mix design. A mix design is prepared by considering two different grades of concrete. A significant amount of graphene oxide to the weight of cement is introduce in mix design two different grades like for example m20 and m15.

4. Casting of concrete After preparing a mix design the concrete is is placed in standard moulds for its casting.

5. Curing of concrete the concrete blocks are being cured for 28 days in curing tank as per standard procedures under supervision.

6. Testing of concrete the various tests like compression test, tensile test would be conducted to test the strength of concrete.

7. Comparison between normal and with admixture added concrete. The concrete with graphene is compared with the normal concrete to detect the increase in strength of the concrete 8. Interpretation of result By comparing both concretes the final result will be concluded.

III. CONCLUSION

Aim and objectives Aim: To study the use of graphene oxide as admixture in concrete to improve its physical properties



like strength.:1.The main objective of this study is to improve the strength of concrete by introducing the graphene oxide in water used in making in concrete with concentration of 0.005% of wt of water.2.To study two different grades of concrete for their changes in strength.3.This project refers to improve the physical properties of concrete by testing the different specimen under different conditions to test their strength.4.There will be comparison between concrete made by normal ordinary Portland cement and the ordinary Portland cement along with the graphene oxide.5.To bring maximum strength with economical chemical compound like graphene oxides6.The study is to find the optimum dose of graphene oxide used to increases the physical properties of concrete.7.The study is to test different grade of cements with optimum amount of graphene oxide to check its future scope as a good admixture.

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