

Review Paper on Partial Replacement of Concrete Ingredients

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Abstract— Today construction cost is very high with using routine material like cement, fine aggregate and coarse aggregate. This study includes use of different waste material as a partial replacement of cement or fine aggregate or coarse aggregate. Industries in India produce lots of waste which may be useful in partial replacement of all the raw materials due to their different properties so hereby we studied as many useful research papers in this field and trying to improve with locally available waste material so it can be proved economical as well. Research in this field and positive results are crucial so as to continue all developments with least damage to surrounding environment and obtaining all infrastructures for services and convenience which are desired to get.

Key words: Ceramic Tiles, Aggregate, Compressive Strength, Super Plasticizers

I. INTRODUCTION

The advancement of concrete technology can reduce the consumption tiles are generated in natural stone processing plants with an important impact on environment and humans. This project describes the feasibility of using the ceramic tiles in concrete production as partial replacement of aggregate of natural resources and energy sources and lessen the burden of pollutants on environment. Presently large amounts of ceramic. [2]

II. LITERATURE REVIEW

A. Partial Replacement of Cement in Concrete with Waste Marble Dust in Conjunction with Super Plasticizers (2016)

Efforts have been made over years to make concrete production sustainable and environment friendly. Notion of new Materials as substitute for the conventional materials have supported these efforts to a large extent. In the present investigation OPTIMUM, marble dust obtained after processing of marble waste has been used as a filler material i.e. as Replacement of fine aggregate. This study investigates the optimum partial replacement of cement in concrete with marble dust in conjunction with super-plasticizers. This investigation proved the feasibility of marble dust as an Economic and eco-friendly replacement of cement. The slump and compressive strength of the concrete was improved when 5%, 10% & 15% of weight of cement was replaced with marble dust in preparation of M20 concrete. This paper provides the scope for more research that if the marble dust is used as a replacement of cement in conjunction with super-plasticizers, the problem of sustainable, economical and environment friendly concrete can be resolve.

B. Study on Marble Powder as Partial Replacement of Cement in Normal Compacting Concrete (2016)

Along the rapid growth of human needs in many sectors, a significant decrease in the availability and viability of the natural resources was always faced. Neither the less, the high volume production is always associated with considerable amount of waste materials, which may adversely impacts the surrounding environment. Efforts on bypassing such dilemma were recently intensified in many countries and international establishments looking for new regulations and legislations to minimize and reuse the generated waste. One of the major waste generating industries is the marble quarry and production industry by 70% of this precious mineral resource is wasted in the mining processing and polishing procedures. 40% of marble waste is generated worldwide during quarrying operations in the form of rock fragments and 30% waste generated during processing. It is being dumped either in nearby empty pits, roads, riverbeds, pasturelands, agricultural fields or landfill leading to wide spreading environmental pollution. Marble powder contains high calcium oxide content of more than 50%. The potential use of marble dust can be an ideal choice for substituting in a cementitious binder as the reactivity efficiency increases due to the presence of lime. A total of five concrete mixes, containing 0%, 5%, 10%, 15% and 20% partial replacement of cement with marble powder are investigated in the laboratory. These mixes were tested to determine compressive strength, split tensile strength and flexural strength for 7, 28 and 56 days.

C. Strength Properties in Partial Replacement of Cement by Marble Dust Powder (2016)

With the increase of waste materials from the industries and by-products from the manufacturing companies, the waste materials may cause environmental problems in the society. By the proper using of waste materials in the construction technology we can reduce the wastage as well as the cost of construction materials may also decrease. Now days, the dust from the marble stone industries creates a major problem in the environment. By adding the waste marble dust to the cement as a admixture it may develops the strength and durability of the concrete. Here, in this paper we study the properties marble dust powder and compressive strength of partial replacement of marble dust powder in cement concrete. The partial replacement of cement has done with the 0%, 5%, and 10% and at 15%. This investigation gives the resultant strength of partial replacement of concrete with comparison to nominal concrete. The compressive strength concrete was found at the age of 3 days, 7 days and 28 days.

III. CONCLUSION

In present study experimental investigation conducted on optimum marble dust replacement with sand. After cutting and sawing marbles, in large amount of marble slurry produce. This marble slurry disposed to open land area, it make land pollution and harmful to land. In road construction it can use as substitute of fine aggregate, it good binding property and give enough strength to concrete.

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