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COCONUT SHELL BUILDING CONCRETE(CSC)

Nagpure Vaibhav[1], Madhawai Chetan[2], Bagul Bhushan[3], Shaikh Arbaaz[4], Tathe Yash[5], Prof. Nikam P.A[6]

Student of Department of Civil Engineering, S.N.D College of Engineering & Research Center, Yeola[1-5]

Professor, Department of Civil Engineering, S.N.D College of Engineering & Research Center, Yeola[6]

Abstract: The enthusiasm for creating a lightweight material has been the subject of a study tested by both researchers and specialists. Testing in creating lightweight concrete reduces density while maintaining quality and without negatively impacting cost. Combining new aggregates with a general mixing scheme is a typical way to reduce the thickness of concrete. Use of natural aggregate in such a rate leads to a question about the preservation of natural aggregates sources. In addition, operations associated with aggregate extraction and processing are the principal causes of environmental concerns. In light of this, in the contemporary civil engineering construction, using alternative materials in place of natural aggregate in concrete production makes concrete as sustainable and environmentally friendly construction material. Coconut shell is one of the main contributors of pollution problem as an agricultural waste. Coconut shell used as coarse aggregate in concrete encouraged sustainable and environmentally helpful material in the construction field. The main concern of this research is the environment, and the construction and building technology to improve natural world and building materials.

INTRODUCTION

Coconut shells are not commonly used in construction industry and are often dumped as agricultural waste. The aim of this research is to spread awareness of using coconut shell as partial replacement of coarse aggregate in concrete and determining its compressive strength and density. The increased interest in concrete is causing a depletion of aggregate reserves, environmental corruption and natural imbalance. Leading analysts have examined the use of coconut husk and backups in the improvement of ancillary buildings. A prior CS test is not required to use aggregates, except for water absorption. The coconut shell exhibits more confrontation along with crushing. This is an evaluation of C.S. As a total, of course, in the cement block, the compression quality of the cement decreases with the rate of C.S. Coconuts being naturally available in nature and since its shells are non-biodegradable in; they can be used readily in concrete which fulfill almost all the qualities of the original form of concrete. Natural sources are depleting by rapid rate; there should be some way to stop it somewhere. One way to overcome this problem is to replace the coarse aggregates used in the production of concrete by coconut shell which are readily available in nature.

LITERATURE SURVEY

Sr.no	Paper	Author	Description
1	Replaceing Of Coarse Aggregate And Cement By Coconut Shells And Flyash In Concrete.	DHANAVATH RANGA, SK.SUBHANI.	Various samples were poured according to the mix design calculated in the previous chapter and various tests were performed.

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2	Use Of Coconut Shells As A Partial Replacement Of Coarse Aggregates.	Ubair Mukhtyar1 , Chitranjan Kumar2	Various researchers and have investigated the use of coconut shells and their derivatives in civil engineering construction Cost reduction of 48% can be achieved if coconut shells are used to replace gravel in concrete.

Coconut Shell

Coconut is grown in more than 93 countries. India is the Third largest, having cultivation in an area about 1.78 million hectares for coconut production. Yearly output is close to 7562 million nuts with an average of 4248 nuts per hectare. The coconut industry in India accounts for over a quarter of the world's total coconut oil output and is set to grow further with the global increase in demand.

RESULT

Compressive strength of Coconut shell concrete is compared with conventional concrete. From graph it is found that a compressive strength upto 70 % is achieved for a mix of coconut shell upto 15 % (as replacement for coarse aggregate) in concrete.

Test On Concrete :

Slump Test :
Workability is a term associated with freshly prepared concrete. This can be defined as the ease with which concrete can mixed, placed, compacted and finished. Slump test is the most commonly used method of measuring workability of concrete in a laboratory or at site of work.

Compaction Factor Test :
Compaction factor is used to indicate workability of concrete where nominal size of aggregate does not exceed 40mm. It is a measure of density of concrete to which a fresh concrete mix can be compacted for a standard energy input relative to the theoretical maximum density corresponding to zero air content.

Compressive Strength Test :
Testing hardened concrete plays an important role in controlling and confirming the quality of cement concrete work. The main factor in favour of the use of concrete in structures is its compressive strength.

CONCLUSION

The tests were performed on cast specimens after 7 days and 28 days as established by the IS code. Flexibility and compressive strength tests were performed and the results were obtained, and a specific gravity test was performed and the results were obtained. The coconut shell has better workability due to the smooth surface on one side of the shells

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and due to the smaller size of the coconut shells.The possibility of recycling and reuse of coconut shells which are discarded as waste led to the present study on its possible use as coarse aggregate in the development of lightweight concrete. The study established that coconut shell aggregate can replace conventional coarse aggregate in the production of lightweight concrete structures effectively without compromising on strength aspects.

REFFRENCES

[1] Coconut Shell Building Concrete(Csc), Nagpure Vaibhav*1, Madhawai Chetan*2, Bagul Bhushan*3, Shaikh Arbaaz*4, Tathe Yash*5Students of S.N.D College Of Engineering & Research Center, Yeola 2022.

[2] Replaceing Of Coarse Aggregate And Cement By Coconut Shells And Flyash In Concrete, DHANAVATH RANGA M.Tech Student, Dept of Civil, Priyadarshini Institute of Technology and Management, Pulladigunta, Guntur, A.P, India SK.SUBHANI Assistant Professor, Dept of Civil, Priyadarshini Institute of Technology and Management, Pulladigunta, Guntur, A.P, India

[3] USE OF COCONUT SHELLS AS A PARTIAL REPLACEMENT OF COARSE AGGREGATES Ubair Mukhtyar1 , Chitranjan Kumar2 1M.Tech Student, Construction Technology & Management, Al-Falah University,Haryana, India 2Assistant Professor, Civil Engineering Department, Al-Falah University, Haryana, India