

TO STUDY THE EFFECT ON STRENGTH OF RIGID PAVEMENT USING WASTE MATERIAL SCBA IN CONCRETE – A REVIEW

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Abstract: - The present study aims to identify the most suitable way to utilize the waste materials produced from different industries as the replacement of cement for highway construction purposes. Several studies have been conducted across the world which identified the adverse effects of different waste materials on environment as well as on human health also. On the basis of different studies, it was revealed that the production of cement on a large scale is also responsible for causes several diseases to humans and other aquatic life. Therefore, it is the need of the situation to utilize the different waste materials as an alternative of cement for this purpose, several studies were conducted across the world. Consequently, different waste materials were formed to be appropriate ranging from 5% - 50 % for the highway construction purposes.

Keywords: - waste Material, pavement, Global Warming & Split Tensile Strength

1. Introduction

Any country's economy relies on strong highways, bridges, structures, factories, airports, ports, and terminals of instrumentalities. A strong infrastructure is a basic necessity in today's life for the development of a nation that seems unlikely without cement use. Cement is a powdery, culminating lime and clay material. Cement is often used as a binding substance combined with dust, sand and construction aggregates (i.e. highways or building). However, because of many dangerous gas releases at different phases of the cement production process, any waste material should be used to conserve the natural resources to preserve environmental protection. However certain guidance on the use of fly ash in road construction has been issued. Therefore an alternate cement for the It is required Building work as people are afflicted by many severe diseases Serving or living in the neighborhood of these plants. The Minister of Forestry and Environment (2016) has told the cement plant emission levels. One argument here is that in India the allowed emission cap for stack dust is at 50 mg/Nm, which illustrates the severity of the country's situation. SCBA is the agricultural waste and can be used to replace the cement content.

Materials used:

Cement: ordinary Portland cement of grade 53 was used in this experimental work

Water: As per is Code 456:2000, tap water was used in order to make concrete of good quality.

Sugarcane Bagasse Ash: The Sugarcane bagasse Ash

prepared and then mixed to cement and it contains significant amount of silica, Fe₂O₃ and CaO.



2. Literature Review

Singh et al (2000): In his experimental investigation 10 % of SCBA increases the compressive strength and reduces the permeability.

Ganesan et al (2007): He concluded that 20 % Of SCBA increases the compressive strength of concrete and 25 % of SCBA decreases the chloride penetration.

Cordeiro et al (2008): He compared the concrete with the SCBA mortar and find that it gives the higher compressive strength.

Akram et al (2009): Investigates on SCBA and introduces the 20 % of SCBA to the concrete and concluded that the strength of concrete is increased.

Almir et al (2010): He replaces the sand by SCBA and concluded that the strength of concrete is increased.

Rukzon et al (2012): He concluded that the porosity of concrete increases with the increase of SCBA and water absorption

Bahuruden et al (2015): He concluded that use of SCBA gives less heat than ordinary concrete.

Alireza et al (2017): He burnt the sugarcane at 8000c for 30 minutes and sieved it and then mixed with concrete by replace the cement content by SCBA and concluded the properties are increased.

3. CONCLUSION

The incorporation of SCBA with the concrete could be reviewed. From the review following points were concluded as follows.

- It increases the mechanical and durability of concrete
- It reduces the environmental problem, Greenhouse gases

and Global warming by replacing the cement content .

- It can be used where the ordinary concrete fails to work .

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