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## Review Paper On Saw Dust In Concrete Mixture

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**Abstract**— The use of concrete in modern world construction material use in worldwide. Along with the use, rise popularity also drawn attention towards concrete composition, component modification, and variation. The study attempts made towards reducing the weight of the concrete without significant impact on strength resulted in the use of various materials from sawdust to sawdust ash, many research efforts have endorsed sawdust as the raw material for the partial replacement of the fine aggregate. These efforts have mainly focused change in the fine aggregate by the sawdust. Even though the attempts, only a few have resulted in significant results in regard to strength, and economical contribution. This paper provides an insight into the possibility of fine aggregates or without a prominent decrease in the strength of the concrete.

**Keyword**—Building construction, fine aggregate, sand, sawdust concrete mixture, coarse aggregate, compressive strength

### I. INTRODUCTION

India is experiencing striking before the growth of its urban center due to its developing economy and industrialization. The characteristic feature of urbanization has been heavy centration of urban population in large cities demanding economical and efficient housing layout with vertical expansion in short period. The rapid progress and research over recent past the engineers to accept framed structures as against conventional load bearing structures in frame structure walls are simply to serve as a screen for privacy of various rooms. They support their self-weights only. The structures for masonry component low density low strength material can be used to reduce dead load. The higher density conventional concrete blocks are give heavy self-weight of masonry, with increasing the cost of frame structure.<sup>[1]</sup>

This derivation of saw mills is unless reprocessed into particle board are burned in saw dust burner and is used to make heat for other milling operation. Saw dust is may collect in pipes and add harmful leachates into local water systems, creating an environmental hazard. In India proper utilization of saw mill waste has not given due to attention. This saw dust there by constitutes an environmental problem as they form refuse heaps in the premises of saw mills and shades. Similarly, sand is naturally occurring granular material composed of finely divided gravel and minerals particles obtained from Perennial River. Huge consumption of sand in concrete structures also facing an acute shortage of sand. According to the environmentalist removal of sand from river may create environmental problems may comes in future.<sup>[1]</sup>

### A. WHAT IS SAW DUST

Sawdust is the waste material comes from timber saw mills. Timbers are showed for the certain purpose and the waste powder which extract from them is called saw dust. The sawdust is acquired in plenty in tropical countries. This sawdust are used as fuel limitedly.<sup>(2)</sup> The main method of disposal is by open burning method. The usage of sawdust for the construction is in process for several years ago. These are the light weight material which carried easily. The physical and chemical properties of the sawdust is not same and it will be varying from one tree to another tree. Sawdust is the waste material occupy by the timber saw mills. Where the timbers are sawed for the specific purpose and the waste powder which select from them is called saw dust.<sup>[2]</sup>

The sawdust is acquired in abundance in other countries. This sawdust is used as fuel limitedly. The main method of disposal is open by burning method.<sup>[1]</sup>

### B. SAWDUST CONCRETE

The concrete which is made by adding sawdust is called sawdust concrete. The DrySawdust is replaced by partially for the aggregate and Sawdust Ash was replaced partially for the cement.<sup>[2]</sup>

### C. USE OF SAWDUST IN CONSTRUCTION MATERIAL

Saw dust is obtain from soft wood. These is addition of lime to the mix in an amount equal to about 1/3 to 1/2 the volume of cement will counteract. But the above method of lime which is not found effective when the sawdust is made from some of the hard woods. Others methods suchas boiling in water and ferrous sulphate solutions also have beentried to remove the effect of tannins, but the cost of the processlimits its application.<sup>[3]</sup>

## II. REPLACEMENT OF SAW DUST WITH FIND SAND

Greater replacement in percentage by saw dust decreases concrete's workability. The tensile strength of the concrete mix decreases as replacement of quarry and saw dust and sand increases. The strength of concrete depends on amount of replaceable materials saw dust. The component of sand is silicon dioxide which is in form of quartz. The earth land is made from types of rocks and minerals which include quartz, feldspar and mica. While, sawdust is composed of fine particles of wood. There are several differences between sawdust and sand in terms of density and particle sizes. The density in sawdust is 650kg/m<sup>3</sup> to 1650kg/m<sup>3</sup> while the density of sand is from 1500 kg/m<sup>3</sup> to 1600 kg/m<sup>3</sup>.<sup>[4]</sup>

## III. EFFECT OF SAW DUST ON CONCRETE

The use of sawdust as a replacement of sand must be complete with a research to compare their strength with the conventional concrete. The strength and also the deficiency of the concrete should be found so that the product can be commercialized to a new level. Several studies have been carried out by other researchers on sawdust concrete cubes to find their mechanical properties and their potential. These studies used different variables in terms of sawdust particle size, sawdust waste source and sawdust quantities to replace sand. Different variables have given different but consistent results.<sup>[5]</sup>

## IV. EFFECT OF SAWDUST IN STRENGTH OF CONCRETE

The quantity of sawdust increases then amount of wood extractives increases, thereby leading to further reduction in the rate of hydration of cement. Increasing the quantity of sawdust significantly decreased the compressive strength of cement stone. Sawdust was used as replacement of sand in concrete production..<sup>[6]</sup>

## V. RECOMMENDATIONS

The compressive strength reduces as the percentage replacement of sand by sawdust increases.

The effect of saw dust on the strength of concrete are more striking than the effect on the density of concrete.

Sawdust concrete will be used in situations where compressive strength is not a vital requirement.

A percentage replacement at least 14% can probably be used for producing structural concrete.

Sawdust can probably replace 16% of fine aggregate in the construction of structural lightweight concrete.

Since sawdust may be achieved at almost no cost, the cost of concrete can probably be reduced by replacing fine aggregate with sawdust in concrete.

## VI. CONCLUSION

Saw Dust is a waste material which is coming from cutting of wood. This is available in sizeable quantities. The present study concludes that saw Dust is a potential mineral for preparation of light weight concrete. The environmental issues connected with disposal of this waste can be appropriately addressed by using it as a light weight concrete. Concrete produced using sawdust as partial replacement of sand might influence effectively on the properties of the concrete. If we use effectively cost of concrete will be less than conventional concrete. The concrete becomes environment friendly, due to use of waste material. Concrete produced by using sawdust as a replacement of fine aggregate has influence on the properties of the concrete.

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