iJRASET
International Journal For Research in Applied Science and Engineering Technology



# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

**Volume:** 6 **Issue:** I **Month of publication:** January 2018

**DOI:** http://doi.org/10.22214/ijraset.2018.1231

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
*ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor :6.887*
*Volume 6 Issue I, January 2018- Available at www.ijraset.com*

# Study of Implementation of Waste Paper in Cement Concrete

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***Abstract:*** ***India is confronting a serious challenge in discarding the waste in landfills all through the nation. The landfill transfer is coming about in large ejection costs and potential natural issues. If the current run proceeds, waste generation will develop by 7% each year which will eventually result in immersed capacity of landfills by 2025. This paper reports on the outcome of an examination of utilization of waste paper as extra fabric in concrete blends to be utilized for domestic projects, for which it must be guaranteed that the coming about concrete has the genuine mechanical strength. Concrete blends containing different substance of the waste were arranged and fundamental characteristics such as compressive strength and water absorption were decided and compared with a control mix. Four concrete mixes with 0%, 5%, 10%, 15% and 20% of waste paper as an extra fabric to the concrete were arranged for M-20 concrete.***
***Keywords: Compressive strength, Density, Water Absorption, Slump Test, Concrete mix, Waste paper.***

## I. INTRODUCTION

This research is pointed to consider the impact of waste paper on the quality of concrete. Utilization of aste paper in structural concrete could end up a low-cost and beneficial substitute to landfills. The research on implementation of waste paper can be further carried out in concrete fabricating as a modern reused fabric. The use of paper-mill mash in concrete formations was examined as an elective to landfill transfer. India is confronting a genuine challenge in arranging waste in numerous landfills all through the nation. The landfill circumstance is coming about in huge costs and potential natural issues. In case current drift proceeds, with waste generation anticipated developing by 7% each year, landfills would be at full capacity by 2025.

### *A. The objectives of the study are*

*1)* Examination of utilization of waste paper as extra fabric in concrete mixes to be utilized for different development projects.
*2)* Comparison of results of characteristic compressive strength

## II. CEMENT AND COARSE AGGREGATES:

Ordinary Portland cement of 43 grade confining to IS 8112 was utilized all through the work. Fine aggregates used throughout the work comprised of clean river sand with maximum size of 4.75mm acclimating to zone II as per IS383-1970. Coarse aggregates used consisted of machine smashed stone precise in shape passing through 20mm IS sieve and held on 4.75mm sieve.

### *A. Waste Paper*

The waste paper utilized in this work was collected from Security Paper Process Hoshangabad, MP, India, which was dried in daylight. Dried paper squander was doused in water for 24 hrs and was unsettled by mechanical implies to accomplish consistency. Dry mix of concrete was prepared by mixing all the ingredients through hand mix. The mix proportions for all mixes were based on weight proportions of M-20 (cement: sand: gravel) concrete. The water to cement ratio for the mixes containing the waste paper was based on preparatory testing to obtain a workable mix with enough water because of high water absorption of the waste paper. The amount of waste paper was expanded in four trials as T-1, T-2, T-3, T-4 & T-5 Corresponding to 0%, 5%, 10%, 15% & 20% increase of waste paper. For each rate increase of waste paper, three cube specimens wear tested for compressive strength and water absorption each at 7days and 28 days of curing period. A gross of 30 specimens we made for the experimentation of this work.

## III. COMPRESSIVE STRENGTH

Compressive strength increments at first on expansion of the waste paper, but it are diminished although on further addition of the waste paper. As it can be seen from Table 1, on addition of 5% of waste paper the 7 days strength does not changes but 28 days

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strength is increased by 1.61%. on further increase by 10% and 15% an increase by 2.9% to 3% respectively. But on addition of 20% waste paper the strength of concrete starts decreasing.

Table 1 Compressive Strength for Different Proportions of Waste paper

| TRIALS | COMPRESSIVE STRENGTH AFTER 7 DAYS | | | COMPRESSIVE STRENGTH AFTER 28 DAYS | | |
|---|---|---|---|---|---|---|
| T-1 (0%) | 26.55 | 34.75 | 31.45 | 35.47 | 33.82 | 33.66 |
| | 30.90 | | | 34.31 | | |
| T-2 (5%) | 29.62 | 30.47 | 32.62 | 35.82 | 36.56 | 35.38 |
| | 30.90 | | | 35.92 | | |
| T-3 (10%) | 32.65 | 30.65 | 33.67 | 36.82 | 37.85 | 37.26 |
| | 32.32 | | | 37.31 | | |
| T-4 (15%) | 30.69 | 34.56 | 31.42 | 36.29 | 38.26 | 37.12 |
| | 32.22 | | | 37.22 | | |
| T-5 (20%) | 28.74 | 31.86 | 30.64 | 32.46 | 33.83 | 33.16 |
| | 30.41 | | | 33.15 | | |

## IV. CONCLUSION

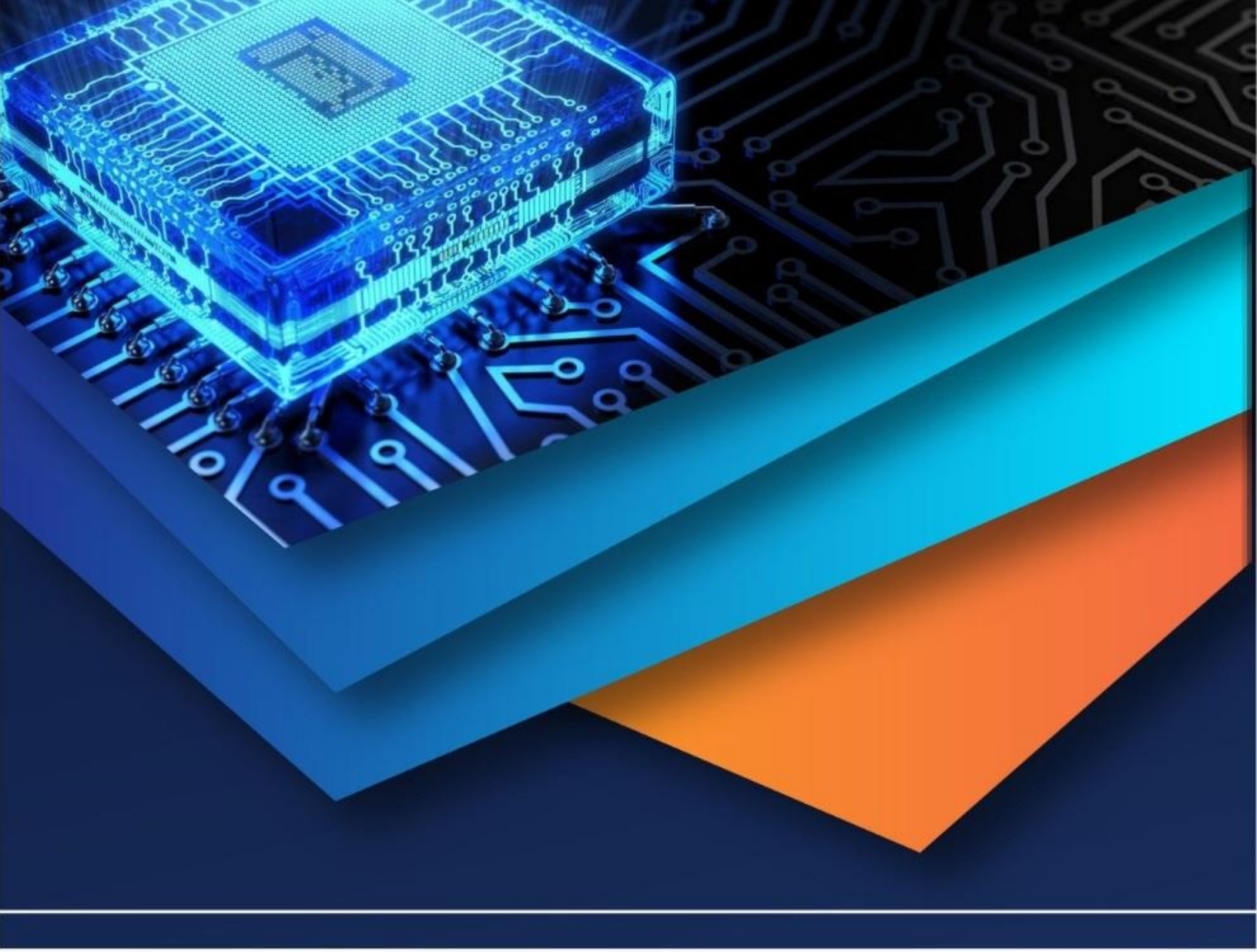
Based on the results of work the following conclusions are drawn.

*A.* Concrete mixes containing 10% and 15% of waste paper, have shown an increase of 3.0% and 1.41% in compressive strength respectively when compared to control mix and there was a diminish of 1.16% on addition of 20% of waste paper.
*B.* The addition of 5% of waste paper does not show any significant increase.
*C.* It can be concluded that an application of 10% of waste paper, to concrete mix may be conveniently allowed.

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