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To Developed Comparison bet^{n} Normal and Accelerated curing strength for ordinary port land cement.

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Abstract: Traditionally cured of concrete give a result after 28-days but accelerated of concrete give a result after 1-day. The principal aim of accelerated curing is reduce curing time period and maintaining quality of construction work.

The use of different types of w/e ration and developed interaction curve for normal cured concrete compressive strength for 7-days and 28-days and accelerated cured concrete compressive strength for ordinary Portland cement.

Key Words: Concrete, Compressive Strength, Interaction curve, Normal Curing, Accelerated Curing, OPC.

I. INTRODUCTION

The concrete temperature is increasing with the help of the increasing the curing temperature. That result the hydration processor became faster and concrete became mature in shorten time period.

Accelerated curing strength capered with the normal curing strength result. Developed strength maturity curve for the concrete mixture for different types of w/c ratio. Thus accelerated curing time period is shorter camper with the normal curing time period. So accelerated curing of concrete give information on the variability of the production process for use in quality control in construction work. So that appropriate adjustments is possible in concrete mixture.

No more required large space for valuable land. So developed laboratory in house. The curing contains and the testing equipment to measure compressive strength within the specified time limit.

II. MATERIALS AND METHODS

Materials used for Experimental Study

a) Cement
b) Aggregates
c) Water

Experimental Procedure As per the IS10262:2009, mix designs were prepared for deferent types of water cement ratio by using 53 Grade OPC. Various physical tests of cement and properties of aggregates are given in Table1 and Table2.

Table -1 Physical properties of cement

Sr. No.	Properties		Result
1	SP gravity		3.15
2	Setting time	Initial	110 (Minutes)
		Final	190
3	Fineness		317

4	Compressive strength	3-days	35.70 N/mm^2
		7-days	45.60 N/mm^2
		28-days	58.02 N/mm^2
5	Soundness		1.0

Table – 2 Physical Properties of aggregate

Sr. No.	Properties	Fine aggregate	Course aggregate
1	SP. Gravity	2.63	2.69
2	Fineness Modules	2.86	7.71
3	Impact value		16.55
4	Crushing value		19.50
5	Abrasion value %		21

Prepared concrete Specimens as per IS codes recommendation. specimens of standard cubes of size 150×150×150mm cast and tested the three parameters viz., age of curing (7,28 days compressive strength and accelerated compressive strength by boiling water method as per IS 9013-2004).

The procedures of boiling water curing and Normal water curing methods were followed.

A) **BOILING WATER CURING:** After the cube specimens are prepared, they were left to stand undisturbed in their moulds in place free from vibration at a normal temperature for 1 day from the time addition of water to the ingredients. The specimens shall then be gently lowered into the curing tank and shall remain totally immersed for a period of 3.5 hrs ±5 minutes. The temperature of water in the curing tank shall be at boiling (100^{0}C) at sea level. The temperature of water shall not drop more than 3^{0}C after the specimens were placed and shall return to boiling within 15 minutes. After curing for 3.5 hrs ±5 minutes in the curing tank the specimen shall be removed from the boiling water, the moulds were cooled by immersing in cooling tank at 27± 2^{0}C for 2hr. Then results were observed.

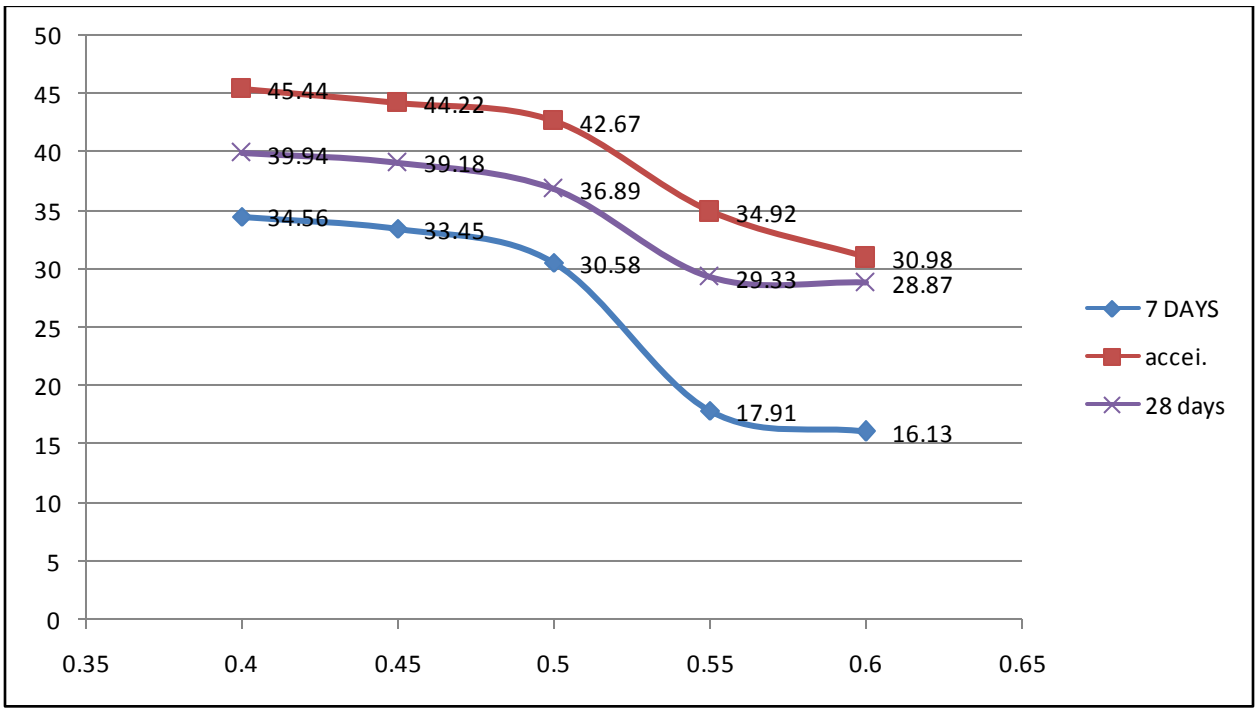
B) **NORMAL (COOLING) WATER CURING:** After the cube specimens were prepared, they left to stand undisturbed in their moulds in place free from vibration at a temperature of 27 ±2^{0}C for 1 day from the time of addition of water to the ingredients. Then remove from the mould and specimens are lowered into the curing tank and it is remain totally immersed for a period of 7 & 28 days. Then results were observed.

III. RESULT

Compressive Strength result for OPC

w/c Ratio	7 DAYS	28 days	Accelerated
0.4	34.56	39.94	45.44
0.45	33.45	39.18	44.22
0.5	30.58	36.89	42.67
0.55	17.91	29.33	34.92
0.6	16.13	28.87	30.98

Units: N/mm^2



IV. CONCLUSIONS

Accelerated curing give a higher strength compared to normal curing strength in ordinary Portland cement.

In construction work more consumer event is curing. Reduce curing time period and give a higher strength in early time period.

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