

Effect of Different Types of Water in Concrete

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Abstract: *How does specific information about contamination in a household's drinking water affect water handling behaviour we randomly spread a sample of households in village Andhra Pradesh, India. The treatment group observed a contamination test of the drinking water in their own household storage vessel; while they were waiting for their results, they were also provided with a list of actions that they could take to remedy contamination if they tested positive. The control group received no test or guidance. The drinking water of nearly 90% of tested households showed evidence of contamination by faecal bacteria. They reacted by purchasing more of their water from commercial sources but not by making more time-intensive adjustments. Supply salient proof of risk high demand for commercial clean water.*

Keywords: Different Types of Water in Concrete

I. INTRODUCTION

Water is important constituent of concrete that has a significant effect on its workability. Water is also important for efficient cement hydration. The cement concrete is a mixture of cement, sand, pebbles or crushed rock and water, which when placed in the skeleton of forms & permit to cure, becomes hard like a stone. Water is an important ingredient of concrete as it actively participates in the chemical reaction with cement. Since it helps to form the strength giving cement gel, the quantity and quality of water is required to be looked into very carefully. It has been discussed enough about the quantity of mixing water but so the quality of water has not been discussed. In practice, very often great control on properties of cement and aggregate is exercised but the control on the quality of water is often neglected. In practice, very often great control on properties of cement and aggregate is exercised but the control on the quality of water is often neglected. That's why the quality of water affects the strength, it is necessary for us to go into the purity and quality of water. In the present work, the mix proportion is designed as per IS 10262 for M20 grade of concrete. As there are so many types of quality of water are available like as mineral water, wash basin water, well water etc. all these types of water were used for making the concrete cubes, specimen of size 150mm × 150mm × 150mm as per Indian standard were tested at 7 days and 28 days to find out compressive strength.

II. OBJECTIVE

In India various sources of water are available in different place of the country for mixing the concrete. A famous yard-stick (criteria) to the fitness of water for mixing concrete is that, if water is fit for drinking it is suitable for making concrete. This does not appear to be a true statement for all condition. Some water having a less amount of sugar would be suitable for drinking but not for mixing concrete and conversely water suitable for making concrete may not necessarily be fit for drinking. Normally water which is available easily on our construction site such as tap water, bore well water, well water, municipal waste water etc. are directly used for mixing the concrete.

III. METHODOLOGY

3.1 The Present Study

The objective of the present work is to compare the compressive strength of concrete for M20 grade by using the different qualities of water such as tap water, bore well water, well water, waste water etc. which are available on different construction sites and are directly being used for making concrete, also identification of civil works where these water can be used without compromising structural strength parameters.



3.2 Water

Locally available potable water (drinking water) confirming IS: 3025 – 1986 (Bureau of Indian Standards 1986) having Ph. value 7.0 is used. The concrete mix for M20 grade with water cement ratio 0.5 were investigated, then using different quality of water such as waste water, well water, bore well water, Bisleri water (mineral water) (Photos showing various qualities of water) were used to cast 150mm concrete cube.

3.3 Mixing

Concrete shall be mixed in mechanical mixer. The mixer should comply with IS 1791 and IS 12119. The mixer shall be fitted with water measuring device. The mixing shall be continue until there is a uniform distribution of the material and the mass is uniform colour and consistency .If there is segregation after unloading from the mixer , The concretes should be remixed



3.4 Properties of Water

A. Well Water

Ph: above 8.5

Temperature: 10-20degree Celsius

Colour: brownish, reddish

B. Waste Water

Ph: 6 and 8

Temperature: 10-45degree Celsius

Colour: light brownish grey colour

C. Mineral Water

Ph: 6.5-8.5

Temperature: 20degree Celsius

Colour: red and brown

D. Tap Water

Ph: 6.5-8.5

Temperature: 45 degree Celsius

Colour: milky or white.

E. Well Water Characteristics

- Hardness.
- High iron content
- Bad odor.
- Taste.

- Color.
- High solids content.
- Presence of bacteria, lead, cysts, radon, arsenic, nitrates, metals and other health-affecting materials.

F. Characteristics of Tap Water

- Colour – pure water is collarless; collared water can indicate pollution.
- Turbidity – pure water is clear and does not absorb light.
- Taste and odour – pure water is always tasteless and odourless.

G. Mineral Water

- Calcium.
- Magnesium.
- Potassium.
- Sodium.
- Bicarbonate.
- Iron.
- Zinc.

H. Waste Water

- Turbidity.
- Color.
- Odor.
- Total solids.
- Temperature

IV. CONCLUSION

We are finding the most compressive strength in mineral water. But it is not easily available in construction site and this Water is very costly so we cannot use this water for making concrete. After it the most compressive strength found in tap water. This is available in any place and also economical to make concrete. That's why we are using tap water for making concrete.

V. ACKNOWLEDGEMENT

Prof. Shaikh R.R. our project guide her provided tremendous help to us and their occasional assistance and support has played an important role in the development of our project.

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