Oh Crack

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Does the temperature of water when mixed with cement affect the strength of the concrete? If cement is mixed with hot water, warm water, or cold water, then the concrete mixed with warm water will withstand the greatest amount of pressure showing that is it the strongest. the purpose of this project is to find if the temperature of water when mixed with cement affect the strength of the concrete, which would help construction companies know how to mix concrete correctly. To begin collect necessary materials. Next, mix the cement keeping record of the water temperature. Fill the molds, tamping down the cement. Let the cement set for 24 hours. Remove cements from the molds and place in lime mixture for 28 days. set up a hydraulic press and test the strength of each concrete cylinder. Record results and calculate psi. The results show the concrete mixed with 65F water held on average 4,632.5 psi. Similarly, the concrete mixed with 95F water had an average of 4,147.5 psi. A slightly higher average of 5,185.0 psi. was recorded with concrete mixed with water at 80F. This shows that water that is too hot or cold creates a weaker concrete. In this project, all concrete was mixed on the same day. This was done to eliminate the possibility of altering strength by outside air temperature and humidity. In conclusion, the testing did show the hypothesis to be correct: the "warm" water concrete was stronger than the others. To continue this project and check for trends, it would be beneficial to conduct this experiment in different air temperatures and humidity.

Awards Won:

University of Arizona: Tuition Scholarship Award

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