

ABSTRACT

High strength concrete, a type of high performance concrete with a compressive strength in excess of 6,000 psi, has been used widely in recent years. High strength concrete typically provides higher values of modulus of elasticity, modulus of rupture, and tensile splitting strength. Shrinkage in high strength concrete can be very limited due to low water cement ratio.

The objective of this research study was to compare the compressive strength of high strength concrete specimens to examine the effects of water cement ratio and high range water reducer. The specimens were of cylindrical shape with a diameter of three inches and a height of six inches. The specimens were tested after 56 days of standard curing for compressive strength. The proportion of cement, coarse aggregate, and sand was kept the same during the tests. Test variables were water cement ratio and the amount of high range water reducer or superplasticizer.

The results of this study show that with the use of superplasticizers, the water cement ratio can be reduced significantly, leading to a large increase in the compressive strength of high strength concretes.