

عنوان مقاله:

Effect of incorporating ammonia solution on Some Mechanical Properties of Concrete

محل انتشار:

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خلاصه مقاله:

The addition of materials to cementitious structures to increase their tensile strength is a recent development. But concrete structures can require large amounts of reinforcing material, thereby significantly increasing labor and material costs. So engineers have turned to add small metal, glass, organic polymer and other inorganic objects to concrete to reduce costs and increase the tensile strength of the material throughout the structure. It is highly desirable to develop cement that chemically and inherently has greater tensile strength without requiring the addition of mechanical materials. It would be further desirable to create formulations with variable compositions to allow the manufacture of cements with different tensile and compressive characteristics, with or without the inclusion of additional materials. Ammonia can be added to any known cement mixture to increase its flexibility, regardless of whether the cement is pure paste or the composition includes additional material. The aim of this research is to Study the effect of incorporating different concentrations of ammonia solution when measured as the concentration of ammonium hydroxide (NH_4OH) in the water by mass on the concrete's flexural strength, compressive strength. Four mixes were prepared with different concentrations of ammonium solution. Ammonium solution was added by 0%, 1%, 3%, and 5% when measured as the concentration of ammonium hydroxide (NH_4OH) in the water by mass. The results showed that the optimum dosage of Ammonia solution was (1%) when measured as Ammonium hydroxide in water by mass which showed a superior increase in flexural strength by about (58.22%) as compared to the flexural strength of reference concrete prisms without the addition of Ammonia after (28) days of curing.

کلمات کلیدی:

Ammonia, Compressive strength, Flexural strength, etc

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