

# **The Effect of use the Silica Sand on Some Mechanical Properties of Concrete**

Nahla N. Hilal    Majeed Mattar Ramel    Aseel H. Abdullah

## **Abstract:**

This research includes study the effects of use the silica sand at different rates and comparison some characteristics with other concrete mixture contains ordinary sand to investigate the effect on some mechanical properties of concrete such as compressive strength, density absorption and flexural strength after (3, 7, 14 and 28) days for four mixtures. , the ordinary sand was replaced by the (Silica Sand) at different rates ( 25%, 50%, 75%, 100%). Sodium Silicate solution at percentage of cement ratio(water to cement ratio is decreased on same ratio) added to the Ideal silica sand mixture to study the effect of addition of some additives on concrete. The study showed that the best results of mixture was when replaced (75%) of the ordinary sand by silica sand , then study some mechanical properties of mixtures such as compressive strength, density absorption and flexural strength after (3, 7, 14 and 28) days . The study showed the optimum percentage of sodium silicate was (1.75%). The study showed that the best result of Density was (2493Kg/m<sup>3</sup>) after (28) days, and the increment ratio in Density was (2.95%), and the large value in compressive strength was (85.76 MPa) which was (42.9%) after (28) days. The study showed also that the best results of absorption were (0.77) after (28) days, and the decrement ratio in Absorption was (33.8%). The study showed that the best result of flexural strength was (8.02 MPa) after (28) days, and the maximum increment ratio in Flexural Strength was (150.6%) after (28) days.