# Relationship Between Ultrasonic Pulse Velocity and Compressive Strength of Concrete with Different Mix Designs

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It is a well-known fact that ultrasonic pulse velocity (UPV) is directly related to the quality of the concrete and therefore to its strength. However, these relationships are not independent of the type of concrete mix used. In addition, different standards use different mix designs for the same concrete grade. The objective of this study is to explore the possibility of obtaining a universal relationship between UPV and compressive strength of concrete that is independent of the mix design.

Three standards of mix designs were chosen for this study, namely BS, ACI and IS. Standard samples made with the different mix designs were tested for compressive strength and UPV. The results obtained in this study revealed that, in order to obtain a universal correlation between the compressive strength and the UPV values among the different mix designs, a statistical approach would be required.

**Keywords:** Ultrasonic pulse velocity, Mix design, Compressive strength.