

16. Study on Mix Proportion of 150 N/mm² Class High-Strength Concrete - Effects of Aggregates and Admixtures on the Compressive Strength and Shrinkage -

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For practical implementation of high-strength concrete of 150 N/mm² class, basic proportion tests were conducted as well as investigations on autogeneous shrinkage, which is a problem of high-strength concrete. The tests showed that a water-binder ratio not exceeding 14% can produce concrete of the design strength of 150 N/mm². Other points to be investigated prior to application were also found, such as aggregates greatly affect the strength and thus should be carefully selected, fresh concrete is highly viscous, and it takes long time to set. Autogenous shrinkage was determined to vary with water-binder ratios. The shrinkage was found to be not larger than the drying shrinkage of ordinary strength concrete and be able to be reduced by using appropriate kinds of binding agents and admixtures.

Key words : high-strength concrete, compressive strength, autogeneous shrinkage, admixture, aggregate kind