# 9. Practical Application of Site-Mixed High-Superplasticized Concrete - Mixing Test Using Truck Agitator and Practical Application Test -

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In recent years concrete structural members have become more and more complex in shape and densely reinforced. In concrete construction, therefore, there is a growing need for superplasticized (high fluidity) concrete to meet those changing requirements. High-strength concrete conforming to the Japanese Industrial Standards or certified by the Minister of Land, Infrastructure, Transport and Tourism is often used to meet superplasticized concrete needs. Such concrete, however, is often stronger than necessary and tends to have a cement content that is so high as to increase the risk of cracking. Furthermore, there are not many ready-mixed concrete factories capable of producing high-strength concrete mixes. In order to solve these problems, in this study the authors aimed to develop a practical process of producing superplasticized concrete by adding segregation-preventing superplasticizer to a normal concrete mix in a truck agitator at the jobsite. A truck agitator-based concrete mix production test and a practical application test were conducted. The tests resulted in the development of methods of putting superplasticizer into the drum mixer and agitating the mixed ingredients so that superplasticized concrete mixes with stable fresh properties can be produced. It has been confirmed that concrete mixes produced by the newly developed method retain the fresh properties necessary for concrete placement and their compressive strength does not change significantly as a result of superplasticization, indicating that concrete mixes thus produced can be put to practical use.

**Key words:** on-site addition, High-superplasticized concrete, truck agitator, superplasticizer