

4. The development of Liquefaction Countermeasure Method Using the Thin Solution of Super Fine Silica

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The liquefaction countermeasure method has been developed by using the thin solution of super fine silica. The authors have investigated the effectiveness of this method through indoor element test and in-situ experiment, even if the unconfined compression strength of sand improved by this method is low. The evaluation for the shape of the improved sand is necessary.

We carried out an in-situ test for the improved sand by using the electrical resistivity cone test. It becomes clear that the electrical resistivity cone test is desirable method.

The earthquake performance of sand improved by this method is examined analytically through one dimensional liquefaction analyses. It was found that the sand improved by the silica solution which diluted with water has excellent ductility and marvelous deformability.

Key words : liquefaction countermeasure method, thin solution of super fine silica, chemical grouting, soil improvement