

生分解性プラスチックを用いた改良土の基礎的研究と建設資材としての適用性

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OBJECTIVE

The behavior of mechanical properties in the improved soil using biodegradable plastic and the factors that are affecting them at construction stage were studied. Further its applicability as a construction material was discussed.

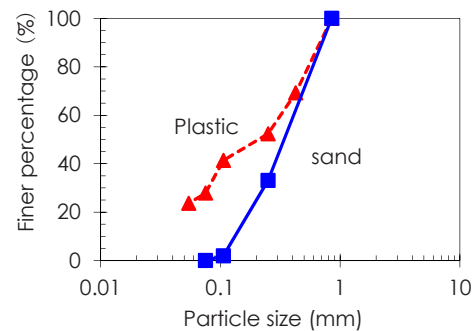


Fig. 1. Particle size distribution

SUMMARY

A series of unconfined compression tests was conducted on the specimens ($\phi=50$ mm, $h=100$ mm) which were prepared by improved silica sand using biodegradable plastic (Fig.1.) under two cases as case A and B. In case A, specimens were prepared by changing plastic content as 5, 7, 10 and 30 % while keeping the heating duration as 130 minutes. In case B, the

specimens were prepared by changing the heating duration 60, 90, 120, 140, 170 and 260 minutes while keeping the plastic content as 30 %. In both cases similar heating rate was used. The obtained results of case A were compared with the results of cement treated sand for discussing its applicability as a construction material.

RESULTS

Unconfined compressive strength (q_u) was depended on the plastic content and the heating duration while secant modulus (E_{50}) was depended only with the plastic content as shown in Fig.2. and Fig.3. It was understood from

Fig.4. that the biodegradable plastic performs well, as well as the cement treated sand and it is promising as an applicable construction material.

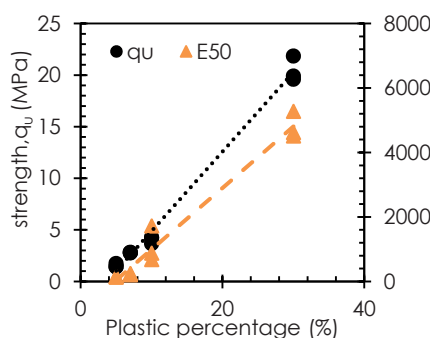


Fig. 2. Results-case A

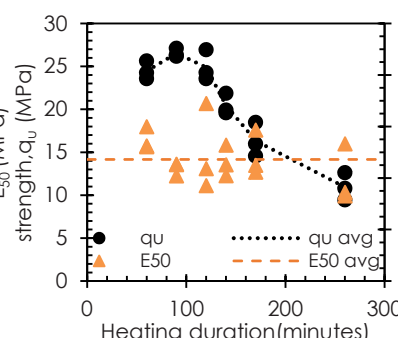


Fig. 3. Results-case B

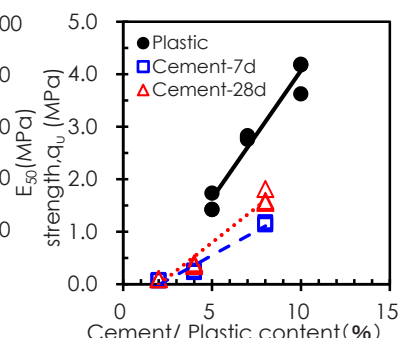


Fig. 4. Comparison with cemented sand

Fundamental Study on the Improved Soil Using Biodegradable Plastic and its Applicability as a Construction Material

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Key Words : Biodegradable plastic, Unconfined compressive strength, Secant modulus, Cement treated sand