11. Study of Efficient Reuse Technologies for Removed Soil with Swelling Inhibitors

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Some 13 million m^3 of the removed soil contaminated by the nuclear accident at Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Plant has been removed and is currently being transported to an interim storage facility. Wet sieving treatment is being considered as a volume reduction method for reusing the removed soil. At the interim storage facility, removed soil is often mixed with a modifier containing several percent super absorbent polymer ("SAP" hereinafter) to remove foreign substances during acceptance and sorting. SAP may increase the water content of the recycled material recovered by wet sieving treatment.

In this study, we performed a basic evaluation of soil characteristics for cases involving the use of recycled materials obtained by wet classification. We also examined the applicability of swelling inhibitors that suppress SAP swelling. The results confirmed that SAP may swell in the wet classification process; that the water content of the recycled material may increase; and that the addition of a swelling inhibitor can suppress the swelling of the super absorbent polymer.

Key words: removed soil, volume reduction, wet sieving treatment, super absorbent polymer, swelling inhibitor