
Causes and countermeasures for poor cement hardening in ground improvement

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In order to prevent the collapse of embankments and the deformation of soft ground, cement is mixed to improve ground with insufficient strength. The target ground of this study was an earth dam in which rubble and slag produced from mines in the first half of the 20th century had been deposited as landfill, and it became necessary to improve the ground in order to satisfy the revised seismic standards. In the mixing test of the amount of specified cement added, there was a problem that the improved soil did not attain the design strength. As a result of the analysis, it became clear that zinc contained in the soil caused poor curing. It was confirmed that the decrease in strength can be prevented by insolubilizing zinc. As a result of investigating the insolubilizing effect of various heavy metal treatment agents, it was clarified that adding sodium hydrogen sulfide at the same time as cement to improve the hardening is optimal for workability and economy.
