7. Dry Classification Tests Using Model Cesium-contaminated Soil Through Magnetic Force Sorting

Hiroaki Shiraishi

Wet classification in which sand is collected from soils contaminated by radioactive cesium during decontamination using a soil washing plant requires much time and cost for treating wastewater. Tests were then conducted on dry classification in which high-concentration-cesium-adsorbed soils were magnetically separated on a priority basis without producing wastewater by adding a nano-size mixture, which metal calcium, calcium oxide and iron powder were crushed, to cesium-contaminated soils and by mixing it.

Model cesium-contaminated soil (decomposed granite soil) of two millimeters or under was subjected to dry classification tests. As a result, clay fraction totally adsorbed magnetically and approximately 70 to 80% of silt fraction adsorbed magnetically. The cesium concentration of samples that did not adsorb magnetically was reduced to nearly half of the level before classification.

Key words: cesium-contaminated soils, magnetic force sorting, dry classification,
               magnetic nano calcium method, surface grinding