

Study about environmental safety of construction material (1)

[Point]

Column experiment, infiltration experiment, and numeric analysis were conducted in order to verify effluent condition of chromium hexavalent that flew out to the surrounding through groundwater, in sand ground, cohesive soil ground, and loam ground, during chemical injection, high-pressure jet spray, deep mixing soil stabilization construction method, and grout hole filling construction.

As a result, in construction under the slurry condition caused by chemical injection and others, a slight amount of chromium hexavalent dissolution is sometimes detected nearby immediately after the construction, with consideration to the impact on groundwater, but the concentration is gradually lowered. Furthermore, it was revealed that there was no impact on the surrounding ground, with consideration to adsorption effect as well as reduction effect of chromium hexavalent in the surrounding soil.

Regarding countermeasure, it is sufficient to conduct dissolution test of chromium hexavalent at the time of preliminary intensity confirmatory experiment for determining compound volume of improving agent, and confirm the safety by selecting the improving agent with less dissolution of chromium hexavalent.

Keywords: chromium hexavalent, chemical injection, cement-based solidification agent