Study of Barium Cation Effects on Mechanical Characteristics of the Kahrizak Clay

M. S. Maleki[1*], H. Byatt[2] and T. Ebadi[2]

(Received: Feb. 17-2012 ; Accepted : Sept. 17-2014)

Abstract

Some recent research has indicated that certain alkaline contaminations may adversely affect mechanical properties of clayey soils. To examine the potential impact of alkaline divalent barium on the swelling characteristics of KAHRIZAK clay, the major solid-waste landfill at south of Tehran, a systematic set of experiments was conducted. Observations indicated that the swelling in the studied soil that belonged to the CH-MH group with a PI of 28.44, was reduced by about 17, 37, 48 and 54 percent, and swelling pressure by about 41, 55, 65 and 67 percent, respectively, after addition of barium chloride solutions to concentrations of 0.25, 0.5, 0.75 and 1.25 molal. It was also found that addition of barium chloride solutions to concentrations of higher than 1 molal had a little effect on reduction of swelling and swelling pressure.

Keywords: Clay, Barium chloride, Swelling, Swelling percent, Swelling pressure.

1. Dept. of Environ. and Water Eng., College of Civil Eng., Iran Univ. of Science and Technol., Tehran, Iran.
2. Dept. of Environ. and Water Eng., College of Civil Eng., Amirkabir Univ. of Technol., Tehran, Iran.
*: Corresponding Author, Email: msmaleki@civileng.iust.ac.ir

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[DOR: 20.1001.1.24763594.1394.19.71.24.2]
[DOI: 10.18869/acadpub.jstnar.19.71.277]