

Characterizing of Bentonite with Chemical, Physical and Electrical Perspectives for Improvement of Electrical Grounding Systems.

Abstract

The application of bentonite as electrical grounding improvement material (GIM) has been investigated. Bentonite is a type of clay which has high tendency to absorb and retain water, and swells. This property makes it desirable for applications in grounding system improvement as they could result in lowering as well as minimizing the fluctuation of ground resistance over a long period of time. However, these properties depend on the type of bentonite. Commercially, there are two types of available bentonite; namely sodium bentonite and calcium bentonite. Several experiments were conducted to determine the chemical composition, water absorption rate, swelling capability; density and resistivity of calcium bentonite since such information are not available in the literature.

Keyword: Bentonite; Electrode; Backfill material; Grounding; Chemical composition