Characterization of Andrassy bentonite as grounding enhancement material

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Abstract
This paper presents a study on locally Andrassy bentonite as an earthing material. The material used in this study was extracted from Sabah volcanic formations in Tawau district. The geotechnical properties such as plasticity characteristic, water content and electrical resistivity of Andrassy bentonite were investigated. Among the important properties considered are water content, and its resistivity. The Andrassy bentonite in this study showed appropriate composition and technical properties to be used in electrical grounding application. Test results indicated that the electrical resistivity is somewhat similar to that of most Ca-bentonites. The paper presents and discusses the resistivity of Andrassy at water content equal to plastic limit, shrinkage limit and liquid limit. Water content greatly influence the electrical resistivity of the bentonite and was found to be effective for grounding application under wet condition from plastic to liquid state conditions (water content > 46.12%). Test results indicated that the Andrassy bentonite may be selected as an alternative earthing material since the average resistivity, it achieves, and reaches the range of resistivity sodium bentonite as a backfill material for grounding.

Keywords: Bentonite, Ground enhancement material, plasticity, resistivity