

Abstract:

In this study the electrical insulation characteristics of the clay soils locally available in Kenya were investigated, with the aim of finding out whether any of the clay soils could be used for high voltage low frequency insulation purposes. Out of the six clays that were sampled only four from Mukurwe-ini in Murang'a, Eburru in Naivasha, Githu-ini in Karatina and Nunguni in Machakos were given complete tests that were required. Chemical analysis showed that black cotton soil had heavy presence of oxides and hence it could melt at firing temperatures recommended. It was therefore not tested further. Kaolin from Kitandani Machakos had very high percentage of silica that make it require very high temperatures or a lot of extra flux be added, in order to vitrify. Specimens were made from the other clay soils by slip casting and firing and tested for dielectric strength, loss tangent, tensile strength, compressive strength and porosity. Nunguni sample failed dielectric strength, loss tangent and porosity tests hence cannot be used to make porcelain insulators.