Characterization of Electrical Properties of Sri Lankan Graphite

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Sri Lankan graphite is famous for its high quality which makes it suitable for various technological applications. However investigations on electrical properties of different varieties of Sri Lankan graphite have been very limited. The main objective of this project is to investigate different structural varieties of Sri Lankan vein graphite and characterize their electrical properties with particular attention on examining its applicability in rechargeable battery industry. Graphite is an extensively used carbonaceous material in industries. There are two main types of graphite, synthetic and natural. Various types of vein graphite samples were collected from Bogala and Kahatagaha/Kolongaha mines.

The powdered graphite specimens were subjected to phase, purity, morphology, particle size and chemical analyses. Electrical conductivity of dense graphite pellets were measured by the d.c. four probe method in the temperature range between 25 °C to 100 °C.

XRD phase analysis indicates the existences of appropriate phases of these graphite specimens. Further, the electrical characterization reveals the possessing of significant electrical conductivity hence indicating the high potentiality of Sri Lankan graphite for rechargeable battery applications.

Key words: Electrical properties, Graphite, Conductivity