Seminar Geosains Kebangsaan 2007 (NGC 07)
Universiti Malaysia Sabah, Kota Kinabalu, Sabah
7 – 9 June 2007

P2B-6

CHEMICAL, MINERALOGICAL AND INDUSTRIAL PROPERTIES OF APLITIC ROCK ORIGIN KAOLIN CLAY, SG. KENERAS, GUA MUSANG, KELANTAN

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ABSTRACT

This paper discuss the chemical, mineralogical and technological properties of primary, in-situ occurrence of feldspar-rich constituent kaolin clay of Sg. Keneras near KM 279, Gua Musang-Kuala Lipis main road. This occurrence primarily is a product of highly and variably, in-situ hypogene alteration of muscovite-bearing aplite (leucogranite) origin. This is a 2.5 km sq., N-S elongated massive kaolinized-feldspar occurrence/deposit of kaolinitic rich material. This hydrothermally altered and weathered (hydrolysis process) materials are often friable, sugary feel and rich in white clay matrix. The occurrence composed mainly of needle-like halloysite, kaolinite, amorphous clay and significant amount of kaolinized alkali feldspar and plagioclase, free quartz and traces amount of muscovite, and other minute secondary illite/sericite minerals. The presence of significant alkalis (K_2O and Na_2O) and very low iron content indicated the Keneras crude kaolin clay is the mixture of kaolin clay minerals and kaolinized feldspar of in-situ formation with poor segregation characteristic. The distribution and percentage of kaolin mineral is highly variable throughout the deposit, and between 6 to 40%. Atterberg limits and other technology property tests have shown the Keneras clay has very poor cohesion (moulding properties), viscosity and modulus of rapture (MOR) strength for ceramic application. This poor plasticity material, however, has relatively superior brightness, whiteness and oil absorption properties. These characteristics is attributed to the mineralogy, morphology and texture of the derived clay that was strongly influenced by the parental rock, depositional environment and the geological events that accompanied this primary Keneras kaolinitic clay formation.