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Characteristics of Kaolinitic Clay from Tanjung Rambutan - Simpang Pulai, Perak

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This paper presents a summary of the preliminary literature studies on the suitability of kaolinitic clay deposits in Perak Malaysia, for various industrial application. Kaolinitic clay occurrences from three locations where exploitation of kaolin is currently operating (Tapah-Bidor, Simpang Pulai, Tanjung Rambutan) were compared for their physical, chemical and mineralogical properties. Engineering properties of their respective degritted clay are also assessed to determine the applicability of these clays for paint, paper, ceramic and glass fibre industry. The data is obtained from either published literature, or by laboratory tests of field collected samples when information from literature is not sufficient.

Study shows that the high value processed kaolin products are all from primary type deposit. The kaolin from Tanjung Rambutan has very similar chemical, textural and mineralogical properties with the Lampas kaolin. The clays are characterized by very low Fe_2O_3 and TiO_2 content (0.19% and 0.11% respectively), with presence of 40-60% of free silica. They are suggested to have identical origin, which are derived from the Kinta aplites. On the other hand, Bidor Tapah kaolin has significantly higher Fe_2O_3 (0.50 – 1.05%) and TiO_2 content (0.04 – 0.52%) when compared to the aplite-derived kaolin. The contrast can be attributed to the different origin, chemical and mineralogical content of their parent material. The Changkat Rembian granite which derived the Bidor-Tapah kaolin, has composition corresponding to the granitoids of the western granite belt in Peninsular Malaysia. It consists of higher amount of undesirable elements which can contaminates and reduces the value of kaolin for certain applications if cannot be removed, such as the iron, magnesium and titanium oxides which reduce brightness and whiteness properties of the clay. On the other hand, the Kinta aplite consists essentially of quartz, alkali feldspar, and minor muscovite. It highly acidic composition makes it more favorable in forming kaolin desired by the industry.

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