Beneficiation of kaolin deposits from Telaga Air and Telagus, Sarawak

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Two kaolin deposits from the state of Sarawak were beneficiated using a laboratory hydrocyclone. The chemical, mineralogical and physical characteristics of the clays before and after a single pass through the hydrocyclone were studied. A comparison was made with a few kaolins from various sources. The Sarawak kaolin deposit from Telaga Air is reported to be derived from weathering of dacitic sills or dykes whilst the Telagus deposit is believed to be derived from sediments of the Sadong Formation. The main constituent minerals in both deposits are kaolinite and quartz, whilst the minor constituents are micaceous materials and feldspar. The hydrocyclone process is found to be very successful in the production of clay of finer particle-size distribution, increase the brightness values, removal of impurities such as feldspar and mica, and chemically increase the Al_2O_3 and reduce the SiO_2 (quartz) contents for both kaolins from Sarawak. It was found that with only a single run of the hydrocyclone process, the quality of both Sarawak kaolin samples are almost of the same quality as compared to commercial kaolin from overseas (except for the alumina content) but of better quality compared to a product from many of the local kaolin manufacturers. The analysis result indicated that both kaolin deposits in Sarawak offer a very promising potential to be mined and processed for high end quality products.

Dua longgokan kaolin dari Sarawak telah dibuat pencirian dengan menggunakan satu cara hidrosiklon bersaiz makmal. Kreteria-kreteria kimia, mineralogi dan fizikal bagi lempung sebelum dan selepas melepasi peringkat pertama melalui cara hidrosiklon telah dikaji. Satu perbandingan telah dibuat dengan beberapa jenis kaolin daripada pelbagai sumber. Longgokan kaolin dari Telaga Air di Sarawak telah dihasilkan melalui proses lulohawa intrusif sil batuan dasit atau dik manakala longgokan dari kawasan Telagus dipercayai berasal dari endapan Formasi Sadong. Kandungan mineral utama bagi kesemua longgokan adalah kaolinit dan kuarza, sementara kandungan secara minor terdiri dari bahan-bahan bermika dan feldspar. Proses hidrosiklon didapati sangat berjaya dalam penghasilan lempung dengan taburan saiz butiran halus, menambahkan nilai kecerahan, memisahkan benda-benda asing seperti feldspar dan mika.Secara kimia, ini menambahkan kandungan Al_2O_3 dan mengurangkan kandungan SiO_2 (kuarza) untuk kedua-dua jenis kaolin dari Sarawak. Didapati dengan hanya melepasi saringan peringkat pertama proses hidrosiklon, kualiti bagi semua sampel kaolin dari Sarawak kebanyakan nya mempunyai kesamaan kualiti dengan kemersial kaolin dari luar negara (kecuali untuk nilai alumina) dan menghasilkan kualiti yang lebih baik kalau dibandingkan dengan kebanyakan produk daripada pengeluar-pengeluar tempatan. Keputusan kajian, menunjukkan kedua-dua longgokan kaolin di Sarawak berpotensi untuk diekploit dan diproses untuk menghasilkan produk-produk hiliran yang sangat berkualiti.