

## Suitability of Various Malaysian Clays for Ceramic Tiles Manufacturing

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Clays are one of the most important raw materials in manufacturing of ceramic tiles. The application of clay in ceramic tile is highly dependent on the properties and characteristics of the clay minerals. For ceramic tile industries in Malaysia, clays were mainly obtained from the states of Johor and Selangor, due to the advantages in transportation cost and specific properties in the development of ceramic tile body formulation. The aim of this research work is to determine the suitability of various clays in Johor (Kahang, Chamek, Nitar and Jemaluang) and Selangor (Batang Berjuntai) as the main material of ceramic tiles. The Batang Berjuntai clay has been identified as a good plastic clay for the ceramic

tile industry, due to the high dry modulus of rupture, which is above 50 kgf/cm<sup>3</sup> and is crucial for processing of ceramic tiles prior to the firing operation. For Chamek clay, it is considered as a semi plastic clay with fluxing characteristics. Both Kahang and Nitar clays have been identified as sandy kaolin clays, with advantages in fired colours above 85, which is suitable to be used for technical porcelain. Jemaluang clay has important fluxing characteristics and is able to reduce the usage of feldspar in ceramic tile body formulation. Therefore, the suitability and application of the studied clays in manufacturing of ceramic tiles, are highly dependent on the properties and characteristics of the clays.