

CHAPTER 1

INTRODUCTION



Motivation

Ball clay is the important raw material used in whole ceramic industries – floor and wall tiles, vitreous tableware, vitreous sanitary ware and earthenware – because of high plasticity. Although local ceramic industries can use ball clay from raw clay mines but consistency is hard to control. Many factories turn to consume refined clay to make high quality product and high productivity. Some of them use imported refined ball clay from abroad because treatment or refining of ball clay is rarely done.

At present, the refining of local ball clay is simply by filter pressing from clay slurry. Water in the slurry is 50-70%, depends on types of clay. Time for getting rid of water is very long, 8-10 h., because of fine clay particles, amount of water, and plasticity. Filter cake moisture is more than 25%. To use refined spray-dried ball clay is a way to control product quality since it has more consistent property and low moisture to reduce delivery cost. It is possible to produce a refined local ball clay with quality comparable to that of imported clay and exported if we have intensively studied.

Objectives and Scope

1. To study the characteristic of imported, refined spray-dried ball

clay and local raw materials.

2. To produce a refined spray-dried ball clay from local resources with quality equivalent to the imported one by employing clay technology.

3. To find out the suitable conditions to spray dry the sticky fine local ball clay.

4. To compare the properties of local spray-dried ball clay with the imported commercial one.

Three local clays widely used in ceramic industry, supplied by Compound Clay Co., Ltd. are chosen for the experiment. One is the southern ball clay from Nakornsrihammarat Province (WBC) which has high plasticity and organic matters and the others are kaolin clays from Ranong Province, K325 and B85, which have white color and low plasticity.

Commercial refined spray dried ball clays are available in many grades in order to match the customers' purposes. The commercial refined spray-dried ball clays widely used and well known in Thailand are Hypure Vector[®] and Hypure Nova, whiter than Hypure Vector[®] but less plastic. Both of them are products of ECC International Ltd.. Hypure Vector[®] is adopted as the reference in this study.