

Thesis Title Development of High Alumina Body Hydrocyclone
Ceramic for Clay Washing

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M.S. Chemistry

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Abstract

High alumina body hydrocyclone ceramic was developed. It was found that the suitable amount of alumina for the product was 47.3 %. The mixture of raw materials for clay body was 15 % kaoline (Ranong), 25 % ball clay (Surat), 17 % feldspar (Tak), 8 % quartz (Tak) and 35 % calcined alumina. The clay body was able to form by solid casting without pressure. After firing at 1280°C in oxidation atmosphere, the condensed body with zero porosity and hardness of 8 in Mohs' scale was obtained. It was also corrosive resistance. This high alumina clay body was fitted for lime glaze. The seger formula of lime glaze was $0.3\text{KNaO}-0.7\text{CaO}-0.42\text{Al}_2\text{O}_3-3.7\text{SiO}_2$ which equivalent to 43.5 % feldspar (Tak), 8.7 % kaolin (Ranong), 27.8 % quartz (Tak), 15.6 % lime and 12.0 % (addition) of zirconium silicate. The sintered point of glaze was 1280°C in oxidation atmosphere. The hardness of glaze was 7 in Mohs' scale and the glaze was also corrosive resistance. The glaze was fitted well with body and has no defect. It was found that the finish hydrocyclone product of the cyclone diameter of 46 mm. can separated sand of big particle size

from Lampang clay and could separated clay of particle size less than 10 micron with the flow rate of 17.6 litre per minute and feed pressure of 15 lb / square inch (psi.) for clay and water mixture.