Energy Utilization Indices and Saving Analysis in Thai Ceramic Industry

W. Wongsapai*, A. Lapdecho

Chiang Mai University, Thailand

Abstract

This paper analyses the energy utilization indices of ceramic industry in Thailand by evaluating the specific energy consumption (SEC) of the ceramics industry sector. In this study, detailed energy audit has been carried out to investigate the baseline data of 30 ceramic factories along with the energy activity collected from national designated factory database. The specific energy consumption of ceramic sector, then, has been estimated and analyzed, by using the regression equation from the energy consumption and production value of sector and then the SEC can also be used for prioritize the energy conservation measures which have the maximum effect in this sector. From the results, we found that the proportion of Thermal and electrical energy of ceramic industry is 86.69% and 13.10%, respectively while the energy conservation in clay construction materials production and sanitary ware production has maximum effect to sector’s SEC at 6.48% and 5.47%, respectively. The largest percent change in ceramic industry was clay construction materials production which can reduced the SEC by 25.48% between 2010 to 2013 from increasing the speed of time in tunnel oven and improvement baking process. The SEC can also be used as the reference for the optimization of production plan and energy conservation in the future.