Abstract

A curing process is one of most important processes for flexible printed circuit manufacturing industries. This process is with the highest level of a production lead time in order to improve time to market and to serve customers' satisfaction. Consequently, there is an effort to improve the process efficiency and to study appropriate levels of influential factors to a response of Gel Ratio percentage in the curing process. This quality indicator for the curing process is determined by a design of experiments of Completely Randomized Design (CRD) and Taguchi techniques.

Completely Randomized Design is used in a fundamental study. The objective is to analyze influential factors to the response of Gel Ratio percentage. The previous results are applied via Taguchi design of experiments. The controllable factors consist of temperature and time. Temperature is the most influential toward Gel Ratio percentage by an appropriate level of 180 degree Celsius and the secondary factor is the time. Analysis of Variance to adapt a proper level for an uncontrollable factor of the adhesive type on an electric insulator can maintain the time line of Halogen and Non-Halogen a types at 60 and 70 minutes, respectively. Aforementioned level can increase a number of product layers form the current stage at 10 layers to 12 layers. As a result this can improve a process capacity of 20%. A research also shows that Gel Ratio percentage increases from 81.3% to 88.7% and standard deviation reduction from 3.12 to 2.10, by average.