

## Reduce Material Variance In Molding

### PROBLEM:

Excess consumption of molding resins

### BACKGROUND:

In a large manufacturing factory making electronic products, the consumption of raw materials was beyond specified quantities. A black belt project was instituted to identify all possible causes for the loss and drive improvements.

### SOLUTION:

Analysis of data indicated that one of the high runners had excess flash which led to de-flashing leading to non-value adding activity as well as material waste. It was also found that molded parts which were counted by a weighing cum counting scale had uncertainty in measurements and hence excess parts were added during packing.

In this project, two key actions were taken to achieve desired results:

1. To optimize process parameter settings of Hold Pressure, Injection Time and Injection Speed we carried out a statistical analysis called EVOP (Evolutionary Operation). Several experiments were designed and the results analyzed using a mini-tab software. The step by step process tweaking helped us to arrive at the optimum parameters for molding.
2. Measurement System Analysis (MSA) helped in identifying the cause for issues in measurement repeatability and reproducibility. This also helped in selecting an appropriate weighing scale based on the accuracy of the scale and the unit weight of the parts measured.

### RESULT:

Process optimizations led to reduction of acceptable flash levels and prevented de-flashing activity as well as excess consumption of resins. Improving the MSA of the weighing scale prevented adding excess parts while packing. The changed packing method was validated using a t-test. The overall savings from these improvements as well as other quality improvements was 32K per annum.