

Case Study #58 – ‘S4’ Blister Problem



The Circumstance:

The product is known as ‘S4’. S4 is the newest entrant into the product family and is expected to increase in volume quickly. It has also quickly established itself as a problem child in terms of ‘blisters’. The mission is to quickly improve yield on S4 by reducing the incidence of blisters.

The Approach:

In a brainstorm session, 145 ‘anything goes’ ideas are procured to remedy the problem. Each of these is reviewed and 28 of them are deemed doable immediately (on shippable goods.) The ideas span all processing steps, being slight changes in things like speeds, times, temperatures, pressures, etc. All tested levels are within specifications and are zero cost to implement as well.

An experiment is designed which calls for 64 treatment combinations. Doing these enables us to learn about 268+ million combinations of these idea’s settings, along with 378 two-factor interactions between them. (A two-factor interaction is where the influence an input has on an output is dependent on the setting of another input.)

Over the next 9 shifts several hundred production units are produced under these 64 experimental combinations. Yield is slightly higher and output is slightly lower during this time relative to before the experiment.

The Outcome:

Once all experimental runs are complete, analyses are performed to determine the impacts of the 28 factors on blistering as well as 16 other metrics of product & process performance. Several factors emerge as influential. A newly prescribed SOP, based on experimental findings, is immediately implemented (only readily implementable solutions were tested, so this could be easily done.) A double digit yield increase is forecast and immediately obtained. The entire effort, from conception to implementation takes 17 days.

