

Case Study #41 – Gasket Yield, Output

The Circumstance:

The product is a gasket material experiencing erratic yield. To meet demand, output needs to be increased dramatically within 90 days or risk losing business to competitors. Since this product is already run ‘24/7’ this must come through a yield improvement. The mission therefore is to substantially improve yield ASAP, so that output demands can be met, thereby maintaining the customer base.

The Approach:

In a brainstorm session, 236 ‘anything goes’ ideas are procured to remedy the problem. Each of these is reviewed and 45 of them are deemed doable immediately (on shippable goods.) The ideas span all processing steps, being slight changes in things like times, temperatures, pressures, rates, tensions, ratios, gaps, etc. All tested levels are within specifications and are zero cost to implement as well.

An experiment is designed which calls for 96 treatment combinations. Doing these enables us to learn about 2.2+ trillion combinations of these idea’s settings, along with 820 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 few weeks several hundred production rolls are produced under these 96 experimental combinations. Yield and output are both higher during this time than before the experiment.

The Outcome:

Once all experimental runs are complete, analyses are performed to determine the impacts of the 45 factors on yield as well as 33 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. Output increases by more than 50%, standard cost is reduced by two-thirds and customer returns decrease by 97%. The customer crisis is abated.

